2026
Happiness and Social Media

World Happiness Report

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Wellbeing Research Centre

SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

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Heavy users of social media are at risk, especially in English-speaking countries and Western Europe.

In North America and Western Europe, young people are much less happy than 15 years ago. Over the same period, social media use has greatly increased. Many people blame social media for this fall in happiness, but does this hypothesis stand the test of rigorous scientific analysis? What about the rest of the world, where young people's happiness has not declined relative to adults, even though social media is equally prevalent?

There has been much research on this topic. This report does not attempt a comprehensive synthesis of the academic literature – for that, we refer you to the studies listed at the end of this chapter.[1]

Instead, we started by asking two leading critics of social media, Jonathan Haidt and Zach Rausch, to lay out their case (see Chapter 3).

They offer two main types of analysis. First, they report what young people, their parents, their teachers, and employees of social media companies have said about social media and adolescent wellbeing. The views they report are generally negative. Then they turn to the academic evidence, chiefly from the United States, for the causal impact of social media use on wellbeing, which they argue supports their case.

Once we had the outline of the Haidt and Rausch chapter, we issued a call for papers that could provide further perspective on these issues, including experiences in different parts of the world.

The PISA study of 15-year-olds in 47 countries shows that those who use social media for over seven hours a day have much lower wellbeing than those who use it for less than one hour. For girls in Western Europe, the difference is almost a full point (out of 10), almost twice that for girls elsewhere. For boys, the drop is almost half a point in Western Europe, and essentially zero in the other 35 countries (see Chapter 2 and Chapter 5).

In a sample of US college students, the majority wish that social media platforms did not exist. They use them because others are using them, but they would prefer it if no one did (see Chapter 6).[2]

Outside the English-speaking world and Western Europe, the links between social media use and wellbeing are more positive, and they vary between platforms. Data from Latin America show that platforms with algorithmic feeds and featuring influencers are more likely to be negatively linked to life satisfaction than those that mainly facilitate communication (see Chapter 2).

In the Middle East and North Africa, youth wellbeing has not fallen despite heavy use of social media. This must have many causes. But there, too, heavy social media use is associated with higher levels of depression and stress. The most problematic platforms are those where the main use is passive, and the main material is visual (encouraging social comparisons) and often comes from influencers (see Chapter 9).

From all this, we conclude that heavy users of social media are at risk, especially in English-speaking countries and Western Europe. Does this mean that social media use fully explains the worrying decline in youth wellbeing in those regions? Of course not. The trends are caused by many factors, which differ between continents. However, the evidence in this report does suggest that heavy social media use, especially in some countries, provides an important part of the explanation.

This brings us to the policy debate. As Chapter 4 points out, this requires the highest standards of synthesis. The authors show how major public reports on this issue have reached different conclusions and policy recommendations, despite examining similar research.

In December 2025, the Australian government increased the age limit for ten social media platforms from 13 to 16.[3] Other countries, including Denmark, France, and Spain, are planning similar regulation.[4] We hope that the evidence in this volume will help policy-makers in their assessment of such policies.

In the sections that follow, we present summaries of each chapter in the report.

Chapter 2
International evidence on happiness and social media

Trends in global happiness

- Nordic countries lead the happiness rankings once again. Finland is still in a group of one at the top, followed by a group of three: Iceland, Denmark, and Costa Rica. Sweden and Norway complete the top six, followed by the Netherlands, Israel, Luxembourg, and Switzerland to round out the top ten. Costa Rica's rise to 4th marks the highest ever ranking for a Latin American country.
- Looking at changes in happiness from the 2006–2010 base period to 2023–2025, nearly twice as many countries have had significant gains (79) than significant losses (41), among the 136 countries ranked.
- Within that period, most of the 21 countries that have gained a point or more on the 0–10 life evaluation scale are in Central and Eastern Europe, reflecting the convergence in European happiness levels that has been clear for more than a decade. Most of the eight countries with drops of more than one point are in or near zones of major conflict.
- In general, most Western industrial countries are now less happy than they were between 2005 and 2010. Fifteen of them have had significant drops, compared to four with significant increases.
- In a ranking of happiness changes for under-25s, the United States, Canada, Australia, and New Zealand (the NANZ region) rank between 122 and 133 in the list of 136 countries.
- In eight of the ten global regions shown in Figure 2.2 (covering roughly 90% of the world's population), those in the youngest age group have higher life evaluations now than in 2006–2010, either in absolute terms or relative to those over 25. Youth wellbeing has only fallen in the NANZ countries and Western Europe, both absolutely and relative to adults.
- Negative emotions are becoming more common in all global regions. They are less frequent for the young, except for NANZ, where the increases, relative to other regions, were in sadness. Worry rose more broadly for the young, while the frequency of anger fell everywhere, for young and old alike.
- Positive emotions continue to be twice as frequent as negative emotions. In all regions, they are higher for those born recently than for their elders, except for NANZ, where that gap has closed in recent years.

Happiness and social media

- Life satisfaction is highest at low rates of social media use and lower at higher rates of use, according to data from the Programme for International Student Assessment (PISA) covering seven internet activities for 15-year-old students in 47 countries (but not the NANZ countries, unfortunately).
- Internet activities fall into two groups. Communications, news, learning, and content creation are associated with higher life satisfaction. Social media, gaming, and browsing for fun are associated with lower life evaluations.
- All internet activities are associated with lower life satisfaction at very high rates of use, especially for girls and for those in the UK and Ireland, the two English-speaking countries in PISA.
- Data from Latin America reveal that the type of platform is crucial. Platforms designed to facilitate social connections show a clear positive association with happiness, whereas those driven by algorithmically curated content tend to demonstrate a negative association at high rates of use.
- When combined, the PISA and Gallup data show significantly higher youth wellbeing in countries that spend more time using the internet for communication, and insignificantly lower youth wellbeing in countries with higher average hours of social media use. Latin American countries combine high levels

of social media use with high youth wellbeing, while English-speaking countries show lower youth wellbeing than their fairly typical patterns of internet use can explain.

- The prevalence and use patterns for social media are similar in all countries, but their links to life evaluations are stronger in English-speaking countries and Western Europe. These differences do not account for the large drops in youth wellbeing in these countries, however. Much, no doubt, depends on how social media is used and the broader social and economic context.
- When school belonging goes from low (10th percentile) to high (90th percentile), the life satisfaction gains for girls in the UK and Ireland are four times greater than social media use going from high (90th percentile) to low (10th percentile). In PISA's 47-country global sample, the belonging effect is six times larger. This should be relevant when policy options are being considered.

Chapter 3
Social media is harming adolescents at a scale large enough to cause changes at the population level

- Is social media use reasonably safe for children and adolescents? We call this the "product safety question", and we present seven lines of evidence showing that the answer is no.
- The evidence of harm is found in: 1) surveys of young people; 2) surveys of parents, teachers, and clinicians; 3) contents from corporate documents; 4) findings from cross-sectional studies; 5) findings from longitudinal studies; 6) findings from social media reduction experiments; and 7) findings from natural experiments.
- We show there is now overwhelming evidence of severe and widespread direct harms (such as cyberbullying and sextortion), and compelling evidence of troubling indirect harms (such as depression). Furthermore, we show that the harms and risks to individual users are so diverse and vast in scope that they justify the view that social media is causing harm at a population level.
- We further argue that when these lines of evidence are considered alongside the timing, scope, and cross-national trends in adolescent wellbeing and mental health, they can help answer a second question: was the rapid adoption of always-available social media by adolescents in the early 2010s a substantial contributor to the population-level increases in mental illness that emerged by the mid 2010s in many Western nations? We call this the "historical trends question". We draw on our findings about the vast scale of harm uncovered while answering the product safety question to argue that the answer to the historical trends question is "yes".

Chapter 4
Translating scientific evidence into effective policies for health and technology requires care

- Professional science organisations that have examined social media and adolescent mental health have reached different conclusions and policy recommendations, despite examining similar research. Given their substantial influence on policy and public understanding, it is important to investigate their evidence synthesis practices.
- Our analysis of three high-profile reports on social media and adolescent mental health finds that they cited broadly similar types of research, yet showed little overlap (<1%) in their sources.
- We also found considerable variation in how the reports synthesise, communicate, and simplify evidence, including differences in citation accuracy, contextual detail, limitation acknowledgement, and conclusion strength.
- The stakes of getting these syntheses right are substantial. Poor synthesis quality risks developing policies which may be ineffective

or cause unintended harm, and may contribute to the erosion of public trust in scientific institutions more broadly.

- When communicating the state of a complex scientific field, it is crucial to be honest about shortcomings and uncertainties, and to maximise fidelity to the underlying research. As scientists committed to rigorous, transparent, and replicable approaches to understanding complex phenomena, we have a responsibility to consistently uphold standards that justify claims to scientific authority and to identify opportunities for improving practices within our community.

Chapter 5
Adolescent life satisfaction and social media use: gender differences in an international dataset

- Although many studies have documented links between heavy social media use and poor mental health, fewer studies have explored associations with positive wellbeing, especially in international datasets.
- In 2022, the OECD's PISA survey, conducted in 47 countries, asked over 270,000 15- to 16-year-olds how many hours a day they spent using social media and how satisfied they were with their lives.
- Among girls, mean life satisfaction was highest among light users of social media (less than an hour a day) and declined with further hours of use. Among boys, this pattern held only in Western Europe and English-speaking countries.
- The mean differences obscure a notable pattern, especially among boys. Compared to light users, a larger percentage of the heaviest users (7+ hours a day) had both the highest level of life satisfaction (10) and the lowest levels (0–4). The same was true for non-users of social media, with higher levels of both very high and low life satisfaction.
- Thus, there is more variation in life satisfaction among non-users and heavy users of social media compared to light or moderate users. Among girls in most regions, non-users of social media were the most likely to report complete satisfaction with their lives, although in some regions, heavy users were also more likely to report complete satisfaction than moderate users.

Chapter 6
Social media, wasting time, and product traps

- Three empirical studies raise serious doubts about whether social media use makes people happy, with implications for valuation, choice, and wellbeing. The central conclusion is that many people use social media because other people use social media. If social media use were somehow reduced or even stopped, many people would be better off, and they are aware of that fact.
- The first study finds that people are willing to pay far less to use social media platforms than they would demand to stop using them. The fact that people would pay little or nothing to use such platforms raises the possibility that many think they are wasting time when doing so.
- The second study finds that people lose welfare from using Facebook. Even after experiencing a happier month without Facebook, however, they would demand a significant amount of money to stop using the platform for an additional month. The fact that people are more anxious and depressed when using Facebook provides strong cautionary notes about the idea that such use increases wellbeing.
- The third (and, in important ways, the most revealing) study finds that while many young people would demand a significant amount of money to stop using Instagram and TikTok, they would also be willing to pay to eliminate those platforms from their community. Social media platforms impose a "negative non-user externality", i.e., they impose a cost on people who do not use them.
- A reasonable conclusion is that if social media platforms did not exist, many users would be better off.

Chapter 7

Problematic social media use and adolescent wellbeing: the role of family socioeconomic status across 43 countries

- For adolescents, Problematic Social Media Use (PSMU) is associated with more psychological complaints and lower life evaluation in all 43 countries we examined. These associations are most pronounced in Anglo-Celtic countries and least problematic in the Caucasus-Black Sea region.
- Globally, the relationship between PSMU and lower wellbeing is stronger among adolescents from lower socioeconomic backgrounds than among their higher-status peers.
- Socioeconomic differences in the relationship between PSMU and adolescent wellbeing are stronger for life evaluation than for psychological complaints.
- Socioeconomic gradients for life evaluation are consistent across Anglo-Celtic, Caucasus-Black Sea, Central-Eastern, Nordic, and Western European countries, but are weak in Mediterranean countries. For psychological complaints, only the Anglo-Celtic region shows socioeconomic gradients.
- Between 2018 and 2022, the negative association between PSMU and adolescent wellbeing intensified. This increase occurred across all socioeconomic groups and in most of the regions examined.

Chapter 8

Internet use, social media, and wellbeing: the role of trust, social connections, and emotional bonds

- Previous studies from the *World Happiness Report* highlight the importance of trust and social connections for wellbeing. This chapter explores how the rise of internet and social media use has affected wellbeing directly, and also indirectly by altering trust, social connections, and emotional bonds.
- We use four rounds of the European Social Survey (ESS), covering 30 countries over the years 2016 to 2024, to investigate the impact of internet use upon wellbeing. In order to measure the total impact of internet use, we instrument it by M-Lab data on local internet speed. The instrumental variable results reveal a significant negative coefficient on internet use that is not visible in standard OLS estimations.
- The estimated relationship between internet use and wellbeing varies sharply across generations, genders, and regions. It is strongly negative for Gen Z, moderately negative for Millennials, near zero for Gen X, and slightly positive for Baby Boomers. The generational gradient reflects both greater increases in internet use among younger cohorts (exposure) and more negative estimated coefficients for those same cohorts (susceptibility).
- The social and emotional foundations of wellbeing have deteriorated most for younger Europeans, especially in Western Europe. Declines in interpersonal trust, institutional trust, perceived social activity, and social meeting frequency are largest for Gen Z and Millennial women. In contrast, older cohorts show more resilience, supported by rising attachment to country and, in many Central and Eastern European countries, improved feelings of safety.
- Perceived social activity ("compared to others your age") has fallen everywhere and is among the strongest predictors of wellbeing losses.
- Internet use is associated with several drivers of wellbeing, including trust, perceived social activity, and social connection. Interaction terms reveal that internet use can be positive for individuals with high interpersonal trust or strong attachments to their countries. However, those who report being highly socially active experience more negative effects, consistent with substitution or displacement of offline connections.
- The digital environment matters: the effect of internet use on wellbeing depends on how common social media use is within an individual's demographic peer group. Internet

use is beneficial when peer-group exposure is low, but becomes increasingly harmful as social media use becomes more widespread among one's peers.

- Generational differences in wellbeing are widening over time. Older adults benefit from stable trust, rising attachment, improved safety, and moderate digital use, while younger adults face the erosion of these foundations in highly saturated digital ecosystems.

Chapter 9
Social media use and wellbeing in the Middle East and North Africa

- Social media use in the Middle East and North Africa is among the highest in the world, although considerable differences appear among countries. Heavy use is more common than in other regions: between 20% and 40% of users reported more than five hours of use in 2023–2024.
- Social media use is heavier among certain social groups. Gen Z, men, single individuals, less religious and more affluent respondents, as well as those with higher education, are much more likely to be heavy users.
- On average, heavy social media use (more than five hours per day) is associated with lower wellbeing. Heavy users are significantly more likely to report higher stress and depressive symptoms, and believe they are worse off than their parents, compared with non- or moderate users.
- The impact of heavy social media use on wellbeing depends on how it is used. Engaging with multiple platforms, relying on social media as a primary news source, and following influencers are associated with higher stress, increased depressive symptoms, and more negative comparisons with parents' quality of life.

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Endnotes

1 For comprehensive evidence reviews, see APA (2023), HHS (2023), Lee and Žarnic (2024), NASEM (2024), and Orben et al. (2025). For a comparison of their findings and recommendations, see Chapter 4 of this report.

2 If this is correct, individual wellbeing depends not only on an individual's use of social media but also on others' use of social media. This relationship deserves more investigation.

3 The ten age-restricted platforms are Facebook, Instagram, Kick, Reddit, Snapchat, Threads, TikTok, Twitch, X (Twitter), and YouTube. Non age-restricted platforms include Discord, GitHub, Google Classroom, LEGO Play, Messenger, Pinterest, Roblox, Steam and Steam Chat, WhatsApp, and YouTube Kids. See https://www.esafety.gov.au/about-us/industry-regulation/social-media-age-restrictions

4 See https://en.wikipedia.org/wiki/Social_media_age_verification_laws_by_country

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Chapter 2

International evidence on happiness and social media

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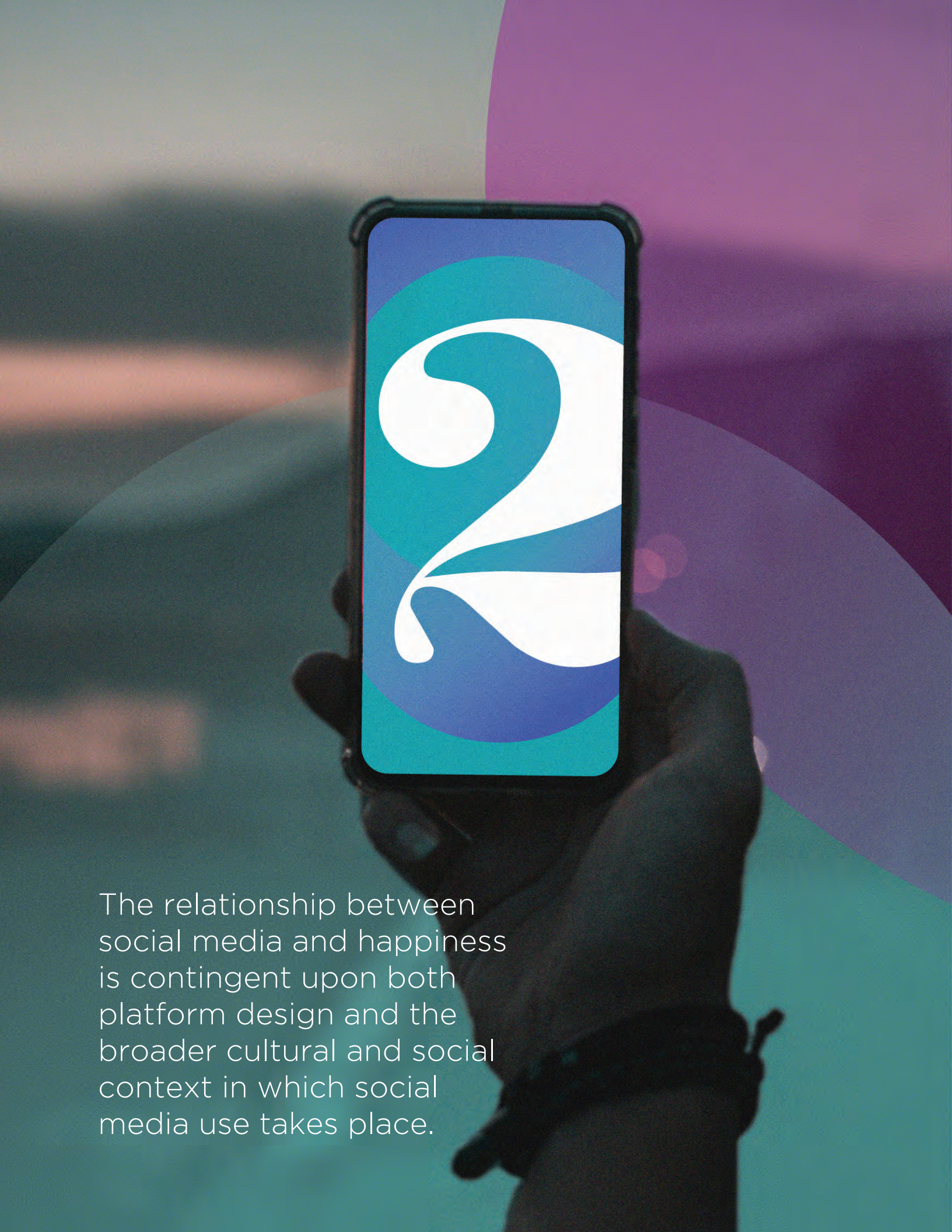

The relationship between social media and happiness is contingent upon both platform design and the broader cultural and social context in which social media use takes place.

Key Insights

Trends in global happiness

- Nordic countries lead the happiness rankings once again. Finland is still in a group of one at the top, followed by a group of three: Iceland, Denmark, and Costa Rica. Sweden and Norway complete the top six, followed by the Netherlands, Israel, Luxembourg, and Switzerland to round out the top ten. Costa Rica's rise to 4th marks the highest ever ranking for a Latin American country.
- Looking at changes in happiness from the 2006–2010 base period to 2023–2025, there are more countries with significant gains (79) than with significant losses (41), among the 136 countries ranked.
- Within that period, most of the 21 countries that have gained a point or more on the 0–10 life evaluation scale are in Central and Eastern Europe, reflecting the convergence in European happiness levels that has been clear for more than a decade. Most of the eight countries with drops of more than one point are in or near zones of major conflict.
- In general, most Western industrial countries are now less happy than they were between 2005 and 2010. Fifteen of them have had significant drops, compared to four with significant increases.
- In a ranking of happiness changes for under-25s, the United States, Canada, Australia, and New Zealand (the NANZ region) rank between 122 and 133 in the list of 136 countries.
- In eight of the ten global regions shown in Figure 2.2 (covering roughly 90% of the world's population), those in the youngest age group have higher life evaluations now than in 2006–2010, either in absolute terms or relative to those over 25. Youth wellbeing has only fallen in the NANZ countries and Western Europe, both absolutely and relative to adults.
- Negative emotions are becoming more common in all global regions. They are less frequent for the young, except for NANZ, where the increases, relative to other regions, were in sadness. Worry rose more broadly for the young, while the frequency of anger fell everywhere, for young and old alike.
- Positive emotions continue to be twice as frequent as negative emotions. In all regions, they are higher for those born recently than for their elders, except for NANZ, where that gap has closed in recent years.

Happiness and social media

- Life satisfaction is highest at low rates of social media use and lower at higher rates of use, according to data from the Programme for International Student Assessment (PISA) covering seven internet activities for 15-year-old students in 47 countries (but not the NANZ countries, unfortunately).
- Internet activities fall into two groups. Communications, news, learning, and content creation are associated with higher life satisfaction. Social media, gaming, and browsing for fun are associated with lower life evaluations.
- All internet activities are associated with lower life satisfaction at very high rates of use, especially for girls and for those in the UK and Ireland, the two English-speaking countries in PISA.
- Data from Latin America reveal that the type of platform is crucial. Platforms designed to facilitate social connections show a clear positive association with happiness, whereas those driven by algorithmically curated content tend to demonstrate a negative association at high rates of use.
- When combined, the PISA and Gallup data show significantly higher youth wellbeing in countries that spend more time using the internet for communication, and insignificantly lower youth wellbeing in countries with higher average hours of social media use. Latin American countries combine high levels of social media use with high youth wellbeing, while English-speaking countries show lower youth wellbeing than their fairly typical patterns of internet use can explain.
- The prevalence and use patterns for social media are similar in all countries, but their links to life evaluations are stronger in English-speaking countries and Western Europe. These differences do not account for the large drops in youth wellbeing in these countries, however. Much, no doubt, depends on how social media is used and the broader social and economic context.
- When school belonging goes from low (10th percentile) to high (90th percentile), the life satisfaction gains for girls in the UK and Ireland are four times greater than social media use going from high (90th percentile) to low (10th percentile). In PISA's 47-country global sample, the belonging effect is six times larger. This should be relevant when policy options are being considered.

Setting the stage

Each year, Chapter 2 has two roles: first, to present and explain the latest global happiness rankings, and second, to present research on the current year's topic. Often these two roles are closely linked, since the report's focal topic may invite a range of alternative rankings. For example, we ranked the happiness of the native-born and the foreign-born when our topic was immigration in WHR 2018, and we ranked the happiness gaps between the more and less happy parts of the population when our focus was happiness inequality in WHR 2023.

In WHR 2024, we focused on happiness across age groups and generations. We return to that topic this year, with a special focus on the links between social media use and youth wellbeing around the world. We find striking differences in how the young have fared. In 85 of 136 countries, the under-25s are happier now (2023–2025) than they were twenty years ago (2006–2010). By contrast, in the United States, Canada, Australia, and New Zealand, life evaluations for under-25s have fallen by an average of 0.86 points on the 0 to 10 scale.[1] Why has youth happiness dropped so fast and so far in those countries?

An invited chapter in WHR 2019 used US evidence to attribute the drops in youth happiness to increased use of digital media.[2] We wondered if the timing and nature of social media use might help to explain the striking variations in youth happiness in different parts of the world, so we gathered an international team of expert authors whose contributions are in the seven chapters following this one.

To keep our own analysis consistent with that in other chapters, we consider three age categories: 15–19, 20–24, and 25 or older. We also consider the following generational splits: those born in or after 1997 (Gen Z), those born 1981–1996 (Millennials), and all those born earlier (Gen X and preceding generations). The Gallup World Poll data start at age 15, as is common with most population-based surveys, so we also analysed student data from the 2022 Programme for International Student Assessment (PISA) survey, which covers a sample of 15-year-olds in 47 countries.

We present the global rankings first, then proceed to our new research on social media.

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Happiness rankings

Box 2.1: Measuring subjective wellbeing

Our measurement of subjective wellbeing continues to rely on three main indicators: life evaluations, positive emotions, and negative emotions (with the last two often referred to as positive and negative affect). Our happiness rankings are based on life evaluations, as they provide a more stable measure of the quality of people's lives.

Life evaluations
The Gallup World Poll, which remains the principal source of data in this chapter, asks respondents to evaluate their current life as a whole using the image of a ladder, with the best possible life for them as a 10 and the worst possible as a 0. Each respondent provides a numerical response on this scale, referred to as the Cantril Ladder. Typically, around 1,000 responses are gathered annually for each country and weights are used to construct representative national averages. We base our happiness ranking on a three-year average of these life evaluations since the larger sample size enables more precise estimates.

Positive emotions
Positive affect is given by averaging yes or no answers about three positive emotions: laughter, enjoyment, and learning something interesting (for more details, see Box 2.3).

Negative emotions
Negative affect is given by averaging yes or no answers about three negative emotions: worry, sadness, and anger.

Comparing life evaluations and emotions
Life evaluations provide the most informative measure for international comparisons because they capture quality of life in a more complete and stable way than emotional reports based on daily experiences.

Life evaluations vary more between countries than emotions and they are better explained by the diverse life circumstances in different countries. Emotions are well explained by events of the day being asked about, while life evaluations more closely reflect the circumstances of life as a whole. In Table 2.1, we show that emotions are significant supports for life evaluations.

Positive emotions are more than twice as frequent as negative emotions, even during and after the COVID-19 pandemic.

As our happiness rankings have become more discussed around the world, they have naturally been subject to close scrutiny and to important questions, several of which keep reappearing as more people come to see subjective wellbeing as an appropriate measure of human welfare.[3] In Box 2.2, we answer three of the most natural and frequently asked questions.

Box 2.2: Three important questions about our approach

1. Why do you call it the *World Happiness Report* when more attention is paid to life evaluations than to how happy people feel?

First and foremost, happiness has been a central word in descriptions of a good life since ancient times.[4] We follow the lead of these philosophers and use the familiar label of "happiness" to refer to how people evaluate the quality of their lives.

Second, in modern times, there are two different ways of using the word "happiness." One refers to happiness as an emotion, and the other as a judgment or evaluation, as in how happy you are about something, whether that be the weather or your life. The *World Happiness Report* employs both, with life evaluations measuring how happy people are with their lives as a whole, and the emotion of happiness being one of the important conduits from daily life to life evaluations. Survey respondents seem to understand this distinction, giving quite different answers depending on whether the question relates to life as a whole or to feelings now or yesterday.[5]

Third, even though the 0 to 10 scale for life evaluations covers both misery and bliss, we think it is better to think about how full life is rather than how empty. This positive focus helps to correct the prevailing negativity bias,[6] and directs attention to making lives better for all rather than waiting for and repairing damage. This positive approach, in turn, supports trust and shared purpose while more effectively reducing misery.

2. Why does the *World Happiness Report* continue to rank countries by average life evaluations while many governments have adopted multidimensional approaches to wellbeing?

These are not different approaches, but rather different aspects of the search for better ways to improve lives. There are many elements underlying a good life, and governments have found that a well-chosen list of important factors can help to illustrate *the sources* of wellbeing. The list of key factors can help governments and their ministries to focus on specific proposals to improve lives. When it comes time to evaluate competing proposals, life evaluations are used to establish the trade-offs required to make decisions. As overarching measures, life evaluations provide not only the means for making better decisions, but also the best way to judge how life is going.[7]

3. Why does the *World Happiness Report* rank national happiness by average life evaluations, and not by an index based on the six factors you use to explain them?

Many people mistakenly believe that we use the six explanatory factors in Table 2.1 to craft our rankings. We do not. Such an index, even though derived from the life evaluations, would still, like any index, reflect our judgments about which variables to include. Instead, we much prefer to let the judgements of individual respondents rule the rankings.

Countries are ranked according to their self-assessed life evaluations averaged over the years 2023–2025.[8] The overall length of each country bar in Figure 2.1 represents the average response to the Cantril Ladder question in the Gallup World Poll. The confidence intervals for each country's average life evaluation are shown by horizontal whiskers at the right-hand end of each country bar. Confidence intervals for each country's rank are displayed in brackets to the right of the rank number.[9] These ranking ranges are wider where there are many countries with similar averages and for countries with smaller sample sizes.[10]

Each country bar includes colour-coded sub-bars representing the extent to which six key variables contribute to explaining their life evaluations. These variables (described in more detail in Box 2.3) are log GDP per capita, social support, healthy life expectancy, freedom, generosity, and corruption. Our happiness rankings are *not* based on any index of these six factors. Rather, rankings are based on individuals' assessments of their own lives, in particular their answers to the single-item Cantril Ladder life evaluation question. We use observed data on the six variables and estimates of their associations with life evaluations to help explain the variation of life evaluations across countries, much as epidemiologists estimate the extent to which life expectancy is affected by factors such as smoking, exercise, and diet.

The first six sub-bars show how much each of the six key variables is calculated to contribute to that country's ladder score, relative to that in a hypothetical country called Dystopia, so named because it has values equal to the world's lowest national averages for 2023–2025 for each of the six key variables used in Table 2.1. We use Dystopia as a benchmark against which to compare contributions from each of the six factors. The choice of Dystopia as a benchmark permits every real country to have a positive (or at least zero) contribution from each of the six factors. We calculate, based on the estimates in the first column of Table 2.1, that Dystopia had a 2023–2025 ladder score equal to 1.16 on the 0–10 scale. The final sub-bar is the sum of two components: the calculated average 2023–2025 life evaluation in Dystopia (= 1.16) and each country's own prediction error, which measures the extent to which life evaluations are higher or lower than predicted by our equation in the first column of Table 2.1. These residuals are as likely to be negative as positive.

Photo Strvnge Films on Unsplash

Figure 2.1: Country rankings by life evaluations (part 1)
Gallup World Poll (2023–2025)

Rank	95% c.i.	Country (life evaluation)
1	(1–1)	Finland (7.764)
2	(2–4)	Iceland (7.540)
3	(2–4)	Denmark (7.539)
4	(2–4)	Costa Rica (7.439)
5	(5–8)	Sweden (7.255)
6	(5–8)	Norway (7.242)
7	(5–8)	Netherlands (7.223)
8	(5–9)	Israel (7.187)
9	(8–17)	Luxembourg (7.063)
10	(9–19)	Switzerland (7.018)
11	(9–20)	New Zealand (6.995)
12	(9–24)	Mexico (6.972)
13	(9–24)	Ireland (6.928)
14	(9–24)	Belgium (6.926)
15	(9–25)	Australia (6.916)
16	(9–26)	Kosovo (6.910)
17	(10–26)	Germany (6.882)
18	(11–26)	Slovenia (6.868)
19	(11–30)	Austria (6.845)
20	(12–30)	Czechia (6.821)
21	(12–31)	United Arab Emirates (6.821)
22	(12–31)	Saudi Arabia (6.817)
23	(12–30)	United States (6.816)
24	(15–34)	Poland (6.768)
25	(16–41)	Canada (6.741)
26	(18–41)	Taiwan Province of China (6.714)
27	(10–48)	Belize (6.711)
28	(19–42)	Lithuania (6.704)
29	(19–42)	United Kingdom (6.694)
30	(19–43)	Serbia (6.691)
31	(24–43)	Uruguay (6.635)
32	(22–43)	Brazil (6.634)
33	(24–43)	Kazakhstan (6.633)
34	(24–43)	Romania (6.629)
35	(25–45)	France (6.586)
36	(25–45)	Singapore (6.585)
37	(25–48)	El Salvador (6.578)
38	(26–46)	Italy (6.574)
39	(26–50)	Panama (6.547)
40	(27–50)	Kuwait (6.543)
41	(28–49)	Spain (6.540)
42	(26–50)	Guatemala (6.533)
43	(34–55)	Malta (6.436)
44	(34–55)	Argentina (6.430)
45	(36–55)	Viet Nam (6.428)
46	(37–55)	Estonia (6.410)
47	(37–58)	Bosnia and Herzegovina (6.381)
48	(39–58)	Latvia (6.365)

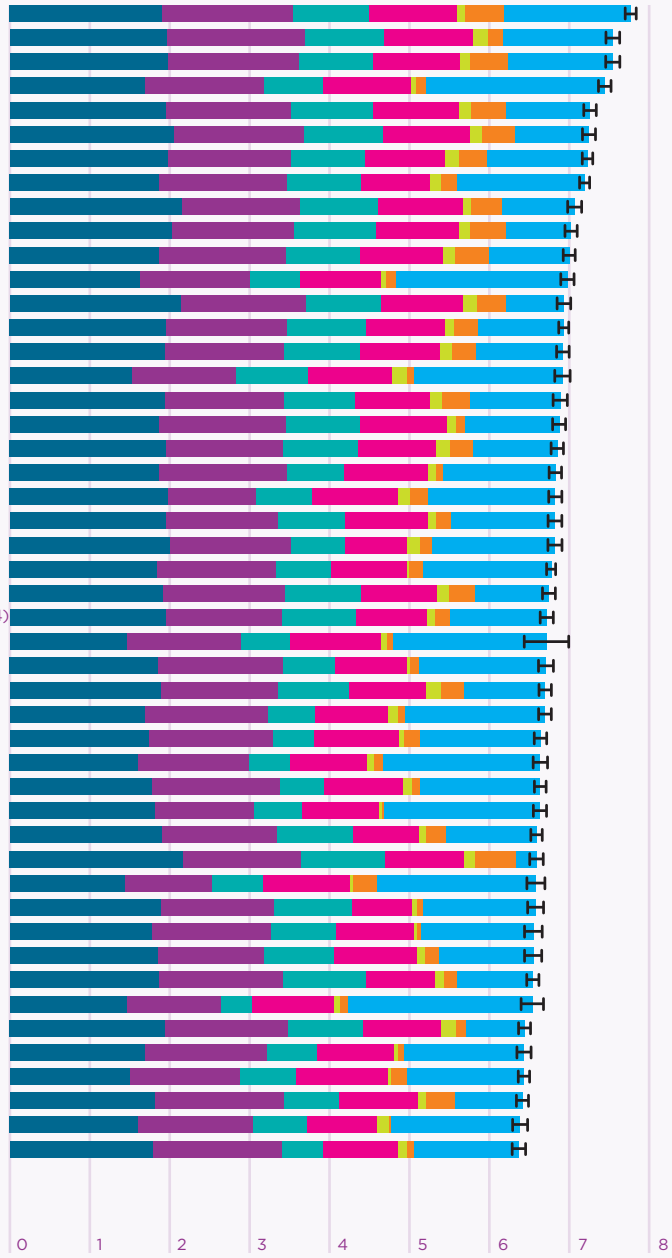


Figure 2.1: Country rankings by life evaluations (part 2)
Gallup World Poll (2023–2025)

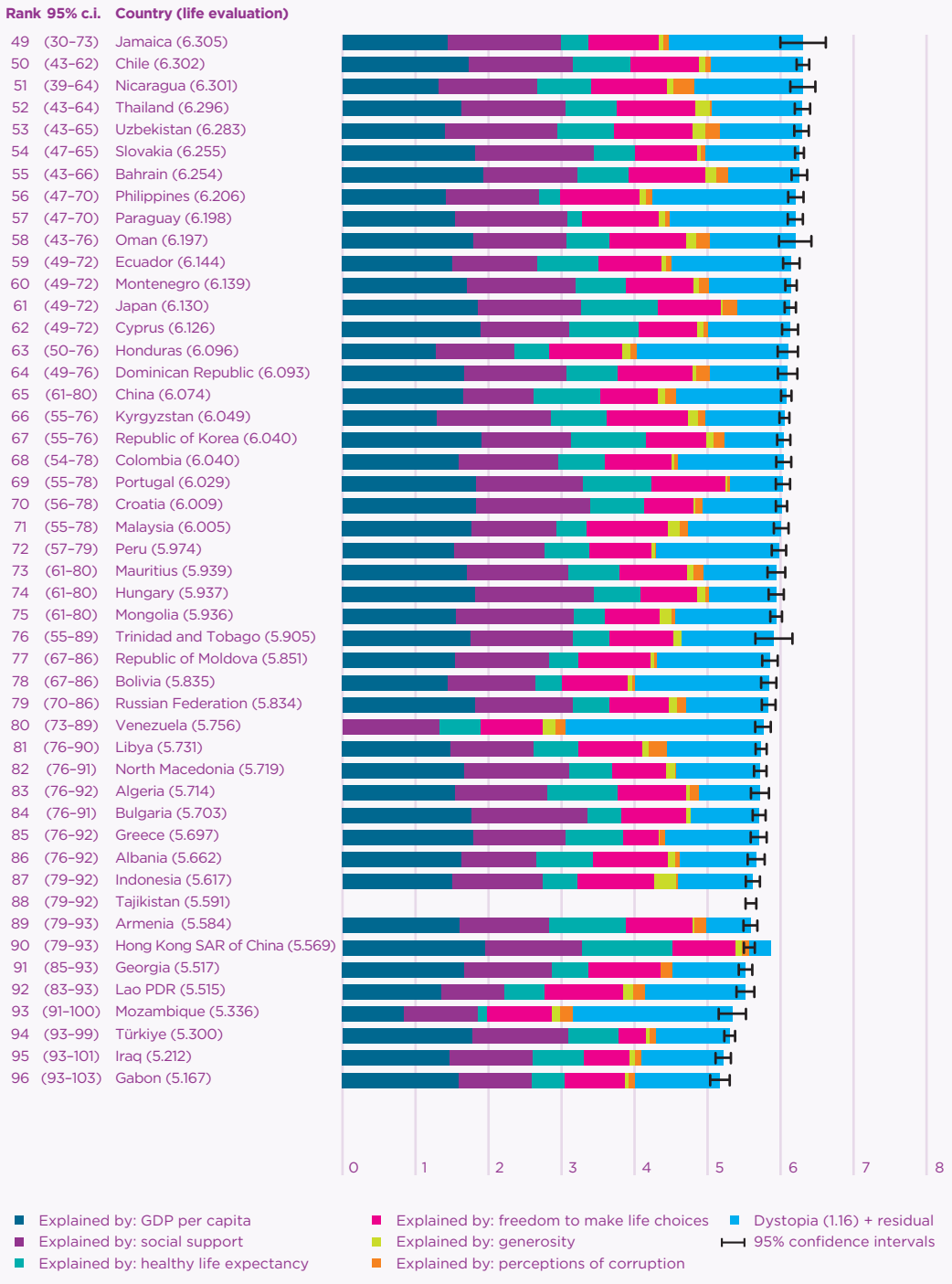
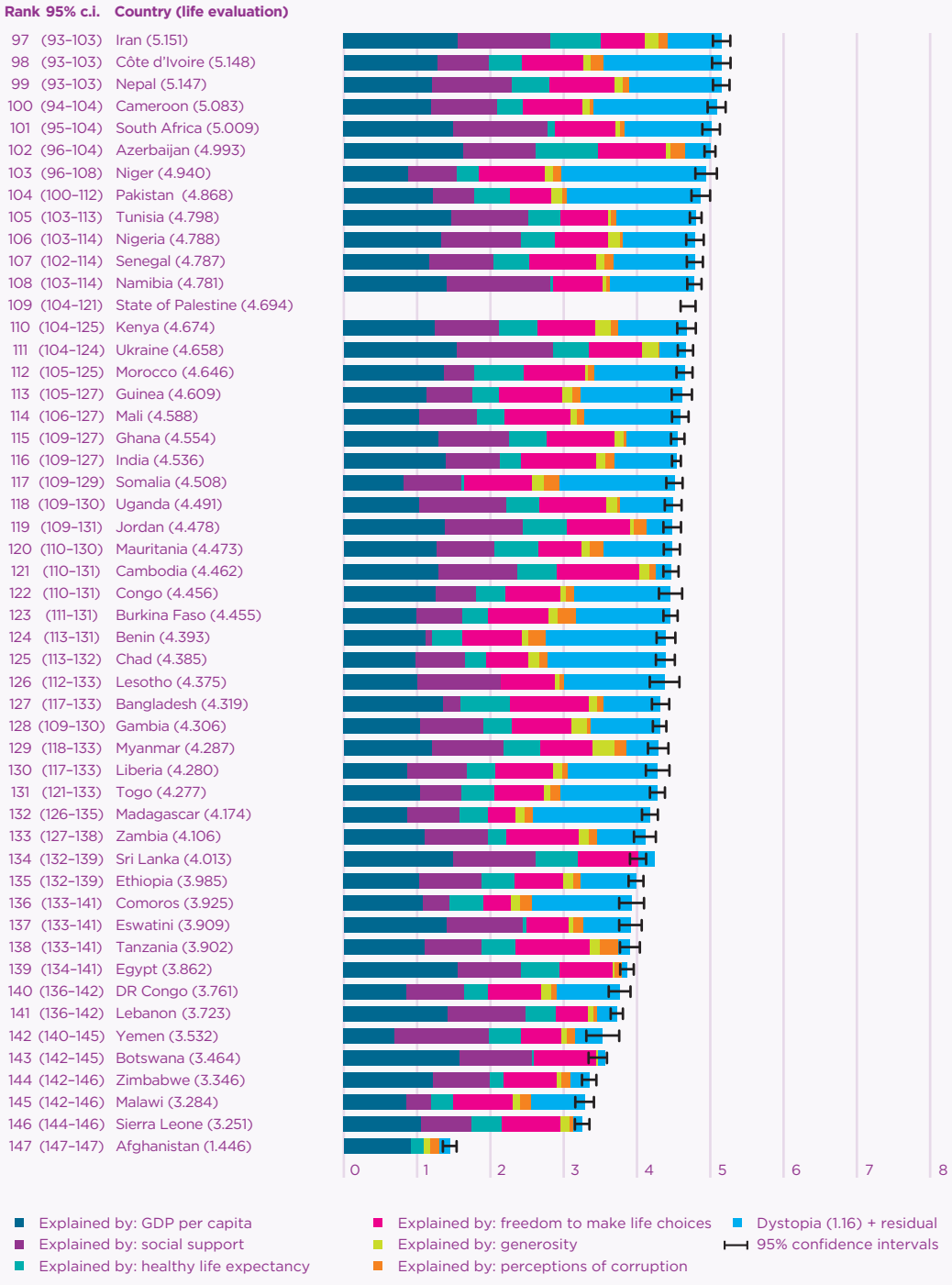


Figure 2.1: Country rankings by life evaluations (part 3)
Gallup World Poll (2023–2025)



Consistency and change in happiness rankings

Two features carry over from previous editions of the *World Happiness Report*. First, there is a lot of year-to-year consistency in the way people rate their lives in different countries. Since our rankings are based on a three-year average, information is carried forward from one year to the next. The effects of cataclysmic events depend on when the survey took place and are muted by the three-year averaging.

Second, there remains a large gap between the top and bottom countries – more than six points (on the 0–10 scale) between Finland at the top and Afghanistan at the bottom. The top countries are more tightly grouped than the bottom ones. The top twenty have a spread of less than one point on the 0–10 scale, with the corresponding spread among the bottom twenty being three times as great. The remaining 107 countries cover the remaining 2.4 points of the total range. This means that relatively modest changes in a national average can lead to a large shift in rank, as illustrated by 95% confidence regions of more than 25 ranks for several countries in the middle of the global list.

Happiness scores are based on the resident populations in each country, rather than citizenship or place of birth. In WHR 2018, we split the responses between the native and foreign-born populations in each country and found the happiness rankings to be essentially the same for the two groups.[11] There was some source-country effect after migration and some tendency for migrants to move to happier countries so that, among the 20 happiest countries in that report, the average happiness for natives was about 0.2 points higher than the foreign-born.

There remains a large gap between the top and bottom countries – more than six points (on the 0–10 scale) between Finland at the top and Afghanistan at the bottom.

Nordic countries once again lead the happiness rankings. Finland is still in a group of one at the top, followed by Iceland, Denmark, and Costa Rica in a group of three (as shown by their 2–4 ranking range in Figure 2.1). Sweden and Norway complete the top six, followed by the Netherlands, Israel, Luxembourg, and Switzerland to round out the top ten. Costa Rica's rise to 4th marks the highest ever ranking for a Latin American country.

If we compare this year's top-ranking countries with those in WHR 2013 – the first to assign rankings based on three-year averages – we find 14 western industrial countries in the top 20 in both years. In 2013, these countries were accompanied by four from Latin America (Costa Rica, Panama, Mexico, and Venezuela) and one from the Middle East (Israel). Reflecting the long-term convergence between Eastern and Western Europe,[12] three of the top 20 countries in 2026 are now from Central and Eastern Europe (Kosovo at 16, Slovenia at 18, and Czechia at 20). This year's top 20 also includes two countries from Latin America (Costa Rica at 4 and Mexico at 12) and one from the Middle East (Israel at 8). In 2013, the top ten countries were all western industrial countries, but now only eight are. As a group, the five Nordic countries have improved their positions in the top ten, with an average rank of 4.8 in 2013, rising to 3.4 in 2026. This increase is driven mainly by Finland (from 7 to 1) and Iceland (from 9 to 2). The industrial countries pushed out of the top ten between 2013 and 2026 include Canada (from 6 to 25), Austria (from 8 to 19), and Australia (from 10 to 15).

For the least happy countries, ranks are not so easily compared since there were 156 countries ranked in 2013 compared to 147 this year. Togo was the least happy country in 2013 and has since risen 20 places, with an average life evaluation almost 1.4 points higher now than then. Afghanistan has gone in the reverse direction with a drop of almost 2.7 points between 2013 and 2026. The average life evaluation is now 1.45, slightly up from last year, when it was the lowest average score ever seen in all our reports. Furthermore, life is especially difficult for Afghan women, as their average life satisfaction is only 1.26 points.[13]

In the middle and lower sections of the rankings, it is more meaningful to look at the average life evaluations, because a country's rank can change many places with only a small change in average life evaluation. That is why, when we consider changes in happiness, we consider how current average life evaluations compare with those during the first years of the Gallup World Poll (2006–2010). Figures 16 to 18 in the online statistical appendix measure the change in average life evaluations from the 2006–2010 base period to the current ranking period, 2023–2025. The top five gainers are all in Central and Eastern Europe: Serbia, Bulgaria, Georgia, Latvia, and Bosnia and Herzegovina. Of the 21 countries that have gained a point or more on the 0–10 scale, most are in Central and Eastern Europe, reflecting the European happiness convergence that has been clear for more than a decade. Other big gainers include China, Mongolia, the Philippines, Togo, Nicaragua, Viet Nam, and the Dominican Republic.

Fortunately, there are fewer countries whose life evaluations have fallen by more than one point on the 0–10 scale. Going from the largest to the smallest drops in life evaluations, these eight countries are Afghanistan, Malawi, Lebanon, Jordan, Venezuela, Botswana, Egypt, and Yemen. These are mainly countries in or near zones of major conflict.

In general, the western industrial countries are now less happy than they were between 2006 and 2010. Fifteen of them have had significant drops, compared to four with significant increases.[14]

Among the 136 countries included in the 2006–2010 and 2023–2025 data, there are 79 with statistically significant gains[15] and 41 with

significant drops in their life evaluations.[16] Those with significant drops include western industrialised countries with previously, and even currently, high rankings.

The rankings for positive emotions are shown in Figures 40–42 of the online statistical appendix. The top ten include six from Latin America, two from Southeast Asia, and one each from Sub-Saharan Africa and Western Europe. The lowest frequency of positive emotions is in Afghanistan. It also ranks in the top five with the most frequent negative emotions. In the top ten for negative emotions it is joined by two Middle Eastern countries, six African countries, and Armenia (see Figures 43–45 of the online statistical appendix).

Why do happiness levels differ?

In Table 2.1, we present our latest modelling of national average life evaluations and measures of positive and negative emotions (often referred to as positive and negative affect) by country and year.[17] The results in the first column explain national average life evaluations in terms of six variables: log GDP per capita, healthy life expectancy, social support (having someone to count on), freedom to make life choices, generosity, and perceptions of corruption.[18] Taken together, these six variables explain more than three-quarters of the variation in life evaluations across countries and years, using data from 2006 through 2025.[19]

The six variables were originally chosen as the best available measures of factors established in both experimental and survey data as having significant links to subjective wellbeing, and especially to life evaluations.[20] The explanatory power of the unchanged model has gradually increased as we have added more years to the sample, which is now almost three times as large as when the equation was first introduced in WHR 2013. We keep looking for possible improvements when and if new evidence becomes available.[21] The number of years of data is now great enough that we can experiment with including country fixed effects, as shown in Table 10 of the online statistical appendix. The results are similar.[22]

The second and third columns of Table 2.1 use the same six variables to estimate equations for national averages of positive and negative affect, where both are based on answers about yesterday's emotional experiences.[23] In general, emotional measures, especially negative ones, are differently, and much less fully, explained by the six variables than are life evaluations. GDP per capita and healthy life expectancy significantly predict life evaluations,[24] but not, in these national average data, positive emotions.[25] However, the social variables do significantly predict both positive and negative emotions. Bearing in mind that positive and negative emotions are measured on a 0–1 scale, while life evaluations are measured on a 0–10 scale, having someone to count on can be seen to have similar proportionate effects on positive and negative emotions as it does on life evaluations. Freedom and generosity have even larger associations with positive emotions than with the Cantril Ladder. Negative emotions are significantly reduced by social support, a sense of freedom, and the absence of corruption.

In the fourth column, we re-estimate the life evaluation equation from column 1, adding both positive and negative emotions to partially implement the Aristotelian presumption that sustained positive emotions are important supports for a good life.[26] The results continue to buttress a finding in psychology that the existence of positive emotions matters more than the absence of negative ones when predicting either longevity[27] or resistance to the common cold.[28] Consistent with this evidence, we find that positive affect has a large and highly significant coefficient in the final equation of Table 2.1, while negative affect has none.

As for the coefficients on the other variables in the fourth column, the changes are substantial only on those variables – especially freedom and generosity – that have the largest associations with positive affect. Thus, we can infer that positive emotions play a strong role in supporting life evaluations and that much of the impact of freedom and generosity on life evaluations is channelled through their influence on positive emotions. That is, freedom and generosity have large impacts on positive affect, which in turn has a major impact on life evaluations.

Table 2.1: Regressions to explain average happiness across countries

	Dependent variable			
Independent variable	Cantril Ladder	Positive affect	Negative affect	Cantril Ladder
Log GDP per capita	0.297	-0.014	-0.002	0.328
	(0.067)***	(0.009)	(0.007)	(0.062)***
Social support	2.82	0.309	-0.337	2.206
	(0.367)***	(0.055)***	(0.041)***	(0.368)***
Healthy life expectancy at birth	0.035	-0.001	0.003	0.037
	(0.009)***	(0.001)	(0.009)***	(0.009)***
Freedom to make life choices	1.546	0.386	-0.092	0.734
	(0.297)***	(0.047)***	(0.038)**	(0.277)***
Generosity	0.339	0.082	0.027	0.158
	(0.241)	(0.032)**	(0.027)	(0.230)
Perceptions of corruption	-0.662	-0.015	0.096	-0.641
	(0.244)***	(0.028)	(0.021)***	(0.229)***
Positive affect				2.157
				(0.322)***
Negative affect				0.145
				(0.378)
Year fixed effects	Included	Included	Included	Included
Number of countries	155	155	155	155
Number of observations	2365	2360	2364	2359
Adjusted R-squared	0.762	0.431	0.354	0.785

Note: This is a pooled OLS regression for a tattered panel explaining annual national average Cantril Ladder and affect measures from all available surveys from 2005 through 2025. See Box 2.3 for detailed information about each of the predictors. Coefficients are reported with robust standard errors clustered by country (in parentheses). ***, **, and * indicate significance at the 1, 5, and 10 percent levels respectively.

Box 2.3: Explaining the variables in Table 2.1

GDP per capita is in terms of Purchasing Power Parity (PPP) adjusted to constant 2021 international dollars, taken from the World Development Indicators (WDI) by the World Bank (last updated: 19 December 2025). See the online statistical appendix for more details. GDP data for 2025 are not yet available, so we extend the GDP time series from 2024 to 2025 using country-specific forecasts of real GDP growth from the OECD Economic Outlook (edition 2025/2, last updated: 8 December 2025) or, if missing, from the World Bank's Global Economic Prospects (last updated: 10 June 2025), after adjustment for population growth. The equation uses the natural log of GDP per capita as this form fits the data significantly better than GDP per capita.

The time series for **healthy life expectancy** at birth are constructed based on data from the World Health Organization (WHO) Global Health Observatory data repository, with data available up to 2021 (last updated: 2 August 2024). To match this report's sample period (2005–2025), interpolation (when necessary) and extrapolation are used. See the online statistical appendix for more details.

Social support is the national average of the binary responses (0 = no, 1 = yes) to the Gallup World Poll (GWP) question, "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?"

Freedom to make life choices is the national average of binary responses to the GWP question, "Are you satisfied or dissatisfied with your freedom to choose what you do with your life?"

Generosity is the residual from regressing the national average of GWP responses to the question, "Have you donated money to a charity in the past month?" on log GDP per capita.

Perceptions of corruption is the average of binary answers to two GWP questions: "Is corruption widespread throughout the government or not?" and "Is corruption widespread within businesses or not?" Where data for government corruption are missing, the perception of business corruption is used as the overall corruption-perception measure.

Positive affect is the average of previous-day affect measures for laughter, enjoyment, and doing interesting things.

Negative affect is the average of previous-day affect measures for worry, sadness, and anger.

The general form for the affect questions is: "Did you experience the following feelings during a lot of the day yesterday?" The inclusion of 'doing interesting things' (first added for WHR 2022) gives us three components in each of positive and negative affect, and slightly improves the equation fit in column 4.

The variables we use in our Table 2.1 modelling may be taking credit due to other variables or unmeasured factors. There are also likely to be vicious or virtuous circles, with two-way linkages among the variables. For example, there is much evidence that those who have happier lives are likely to live longer,[29] be more trusting and cooperative, and generally better able to meet life's demands.[30] This will double back to improve health, income, generosity, corruption, and a sense of freedom. Collectively, these possibilities suggest that we should interpret the observed relationships with some caution.

Another possible reason for a cautious interpretation of our results is that some of the data (social support, freedom, generosity, and perceptions of corruption) come from the same respondents as

the life evaluations and are thus possibly determined by common factors. This is less likely when comparing national averages because individual differences in personality and individual life circumstances tend to average out at the national level. To provide even more assurance that our results are not significantly biased because we are using the same respondents, we tested the robustness of our procedure by splitting each country's respondents randomly into two groups.[31] We then examined whether the average values of social support, freedom, generosity, and perceptions of corruption from one half of the sample explained average life evaluations in the other half of the sample. The coefficients on each of the four variables fell slightly in our Cantril Ladder equation, just as we expected.[32] But the changes were reassuringly small (all less than 6%).[33]

Overall, the model explains average life evaluation levels quite well within regions, among regions, and for the world as a whole.[34] On average, the countries of Latin America still have mean life evaluations that are significantly higher than predicted by the model (by about 0.5 on the 0–10 scale). This difference has been attributed to a variety of factors including some unique features of family and social life in Latin American countries.[35] In partial contrast, countries in East Asia have average life evaluations below predictions, although only slightly and insignificantly so in our latest results.[36] This may reflect, at least in part, cultural differences in the way people think about and report on the quality of their lives.[37] It is reassuring that our findings about the relative importance of the six factors are generally unaffected by whether or not we make explicit allowance for these regional differences.[38]

On average, the countries of Latin America still have mean life evaluations that are significantly higher than predicted by the model.

Happiness and social media

This is the third report in which we have given special attention to the distribution of happiness by age, gender, generation, and global region. The first was in a special chapter of WHR 2015, where we used data covering all waves from 2006 through most of 2014.[39] As already noted, we subsequently had a guest chapter using US evidence to attribute drops in youth happiness to increased use of digital media.[40]

We returned to the age topic in WHR 2024, when the levels and trends of happiness by age, gender, and generation were the primary focus of all our chapters. We found that the trends for happiness of different age groups differed sharply among world regions. This year, we circle back to see to what extent internet access and social media use might help to explain the globally varied happiness trajectories, especially for the younger generations.

There are narrower and broader definitions of social media, and both are important for this chapter. The narrower one, central to all of the chapters in this report, refers to popular social media platforms, such as Instagram, Snapchat, and TikTok. A broader version includes these platforms plus other interactive technologies that facilitate the exchange of ideas and the creation of social connections. One example of a broader definition of social media, drawn from two US scientific panels,[41] is:

> "Interactive technologies that facilitate the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks."

This definition is broad enough to include all of the social media platforms studied explicitly in this and other chapters of the report, as well as other interactive technologies that enable the sharing of information, ideas, and interests, and to support social connections. In particular, Zoom, FaceTime, iMessage, Slack, and a variety of other internet-based platforms for social communication provided just-in-time means for people all over the world forced by COVID-19 to use the internet to replace in-person meetings. In WHR 2021, we

found an astonishing stability of life evaluations despite widespread loss of life and almost universal disruption of the face-to-face connections that support happier lives. We attributed this resilience to an outbreak of kindness, especially to strangers, and to internet-based communication channels that permitted faces in a square screen to replace the inaccessible in-person faces of loved ones, colleagues, and classmates, near and far.

Connective platforms like FaceTime and Zoom are not among the social media platforms that are the focus of public debates and several other chapters of this report, but they came into existence and widespread use about the same time. As such, their consequences for wellbeing are inevitably included in the data we are trying to understand. Thus, they may very well be an important part of explaining the results we report later in the chapter. We note that researchers such as Twenge, Haidt, and Rausch, who say that heavy social media use is harming youth mental health, do not predict harm from Zoom, Slack, Substack, blogs, messaging, FaceTime, and the many other ways that the internet connects people. Later in the chapter, we shall use PISA data to make international comparisons of the amounts of time students devote to a variety of activities on the internet, with social media being one of seven categories.

First, we update and reorganise our WHR 2024 analysis of happiness by age and gender to reflect the data divisions used in the literature on the consequences of social media use, and especially in the other chapters of this report. Our primary dependent variable remains the Cantril Ladder life evaluation. We also track positive and negative affect as possible mediators between social media use and life evaluations. Emotions are also important in their own right.

Our primary regional splits continue to be the ten global regions used regularly in our previous reports. We also show gender differences in life evaluations and emotions, as does much of the research on social media and wellbeing.

Trends in youth wellbeing

Figure 2.2 shows life evaluations for the world and by region, for three age groups, across four time periods. The first time period includes all waves from 2006[42] through 2011, which we treat as our base period against which to evaluate subsequent changes. The second time period includes 2012 through 2015, when smartphone use of social media was in its early stages and rising at different rates around the world. The third time period covers the remaining pre-COVID-19 years (2016–2019), while the fourth includes 2020–2025. Reflecting our focus on social media and youth happiness, we distinguish three age groups: 15–19, 20–24, and all those 25 and older. Our world and regional averages give equal weight to each country.[43]

Study of the effects of social media use has been especially focused on recent generations.[44] In WHR 2024, we combined Millennials (born 1981–1996) and Gen Z (born 1997 and after). We now wish to dig deeper into the experiences for these two birth generations, so in Figure 2.3 we separate those born 1981–1996 from those born in 1997 and after, with a comparison group combining all those born in 1980 and before (Gen X+).

These graphs show that those born in and after 1997 (Gen Z) have typically reported the highest life evaluations in all years and global regions, with Millennials a bit lower and Gen X+ lowest. In the NANZ region (the United States, Canada, Australia, and New Zealand), those in the youngest generation reported an initial increase in life evaluations (pre-smartphones) but then a sharp decline through the third and fourth periods. Millennials showed a similar pattern, while older respondents showed little change in life evaluations across the four time periods.

Figure 2.4 shows positive and negative affect for the three generations, for the world and by region. Because positive emotions are roughly twice as frequent as negative ones, it is possible to show both on the same figure, since they never intersect in any region.

The frequency of negative affect has been rising for all generations for the world as a whole, and in most regions. Gen Z has had the largest relative

Figure 2.2: Life evaluations by age group

Gallup World Poll (2006–2025)

Note: Each line shows mean life evaluations (Cantil ladder, 0–10) for the indicated age group. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Shaded bands show 95% confidence intervals based on survey-weighted standard errors. The first survey wave was split between 2005 and 2006. Data: 165 countries, 2,953,793 observations.

Figure 2.3: Life evaluations by generation

Gallup World Poll (2006–2025)

Note: Each line shows mean life evaluations (Cantril ladder, 0–10) by birth cohort — Gen Z (born 1997 and after), Millennials (born 1981–1996), and Gen X+ (born 1980 and before) — for respondents aged 15 and over. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Shaded bands show 95% confidence intervals based on survey-weighted standard errors. Gen Z first appears in the 2012–2015 period as the earliest members reach age 15. The first survey wave was split between 2005 and 2006.

Figure 2.4: Positive and negative affect by generation

Gallup World Poll (2006–2025)

Note: Solid lines show positive affect (average of laughing/smiling, enjoyment, learning/doing something interesting); dashed lines show negative affect (average of worry, sadness, anger). By birth cohort: Gen Z (born 1997+), Millennials (born 1981–1996), Gen X+ (born ≤1980), ages 15+. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Shaded bands show 95% confidence intervals based on survey-weighted standard errors. The first survey wave was split between 2005 and 2006.

Once again, the NANZ region is exceptional. It is the only group of countries where the positive emotions advantage has disappeared.

increases in negative affect in NANZ, Western Europe, MENA and Sub-Saharan Africa. NANZ provides the extreme example, where an initially large Gen Z advantage has disappeared entirely, with negative affect becoming significantly more frequent among Gen Z than Gen X+, and almost as common as Millennials. The shaded areas about the lines show the 95% confidence regions, which are broad enough to be easily visible only in the NANZ region, given the smaller number of countries and therefore respondents.

In all regions, positive affect is greater for Gen Z than for Millennials, who in turn have more frequent positive affect than do those born earlier. The advantage of Gen Z over earlier generations is largest in Central and Eastern Europe, and in the countries of the Commonwealth of Independent States (CIS). In Central and Eastern Europe, the positive experience gap favouring Gen Z over Gen X+ has shrunk by almost half, with more positive experiences for the old and fewer for Gen Z.

Once again, the NANZ region is exceptional. It is the only group of countries where the positive emotions advantage has disappeared.

Gender differences in youth wellbeing

In our WHR 2015 analysis of gender differences, using data from 2006–2014, we found life evaluations to be slightly higher for females, on average. Some negative emotions, including worry and sadness, but not anger and stress, were significantly greater for females than males.[45] Reports of pain on the previous day were similar for young males and females, but more frequent for females than males at older ages.[46]

We now have another ten years of data, and can assess the extent to which gender differences have been changing. We concentrate on changes for those aged 15–24, since younger users have been the primary focus of social media research.[47] Figure 2.5 shows life evaluations separately for males and females aged 15–24 in four time periods for the world and by region. In general, the very small female advantage has become slightly larger in more recent years. For Europe and Sub-Saharan Africa, there are no significant gender differences before or after 2012, the year we use to mark the widespread uptake of smartphones. In Southeast Asia and Latin America, there was gender equality in the early years with a slight female advantage appearing in the more recent period. In the Middle East and North Africa, an initial female advantage has become larger in more recent years. In the NANZ region, life evaluations for both genders have fallen dramatically since 2012, with the drop being slightly larger for females than males. Young females in those countries are now slightly less satisfied with their lives than young males. This makes NANZ the only world region in which young females are now reporting lower life evaluations than males.

What about gender differences in emotions? Negative emotions have been a central focus of social media research, so we consider them first. As shown in Figure 2.6, negative emotions tend to be more frequent for females than males. Only in the NANZ region has this difference become significantly larger since the mid-2010s.

Positive emotions are more than twice as frequent as negative emotions for the young in all global regions, and are generally the same for males and females. Positive emotions are slightly more prevalent for males than females in South Asia, East Asia, and Latin America, with the latter two gaps disappearing in recent years. Only in the NANZ region has a gender gap favouring males appeared.

In summary, life evaluations and emotions all show a distinct pattern of decline in the NANZ region, especially for females.

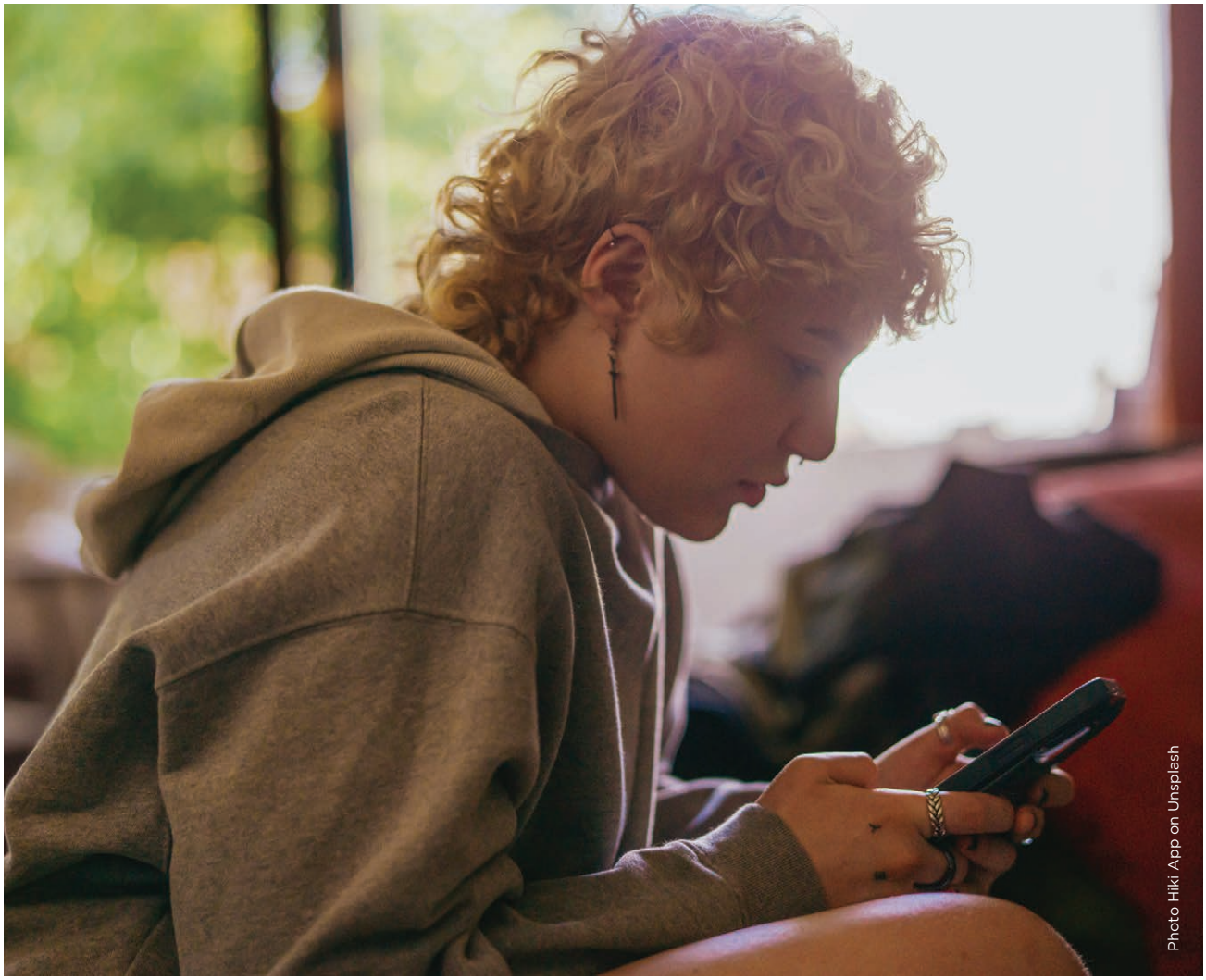
Figure 2.5: Life evaluations by gender (ages 15–24)
Gallup World Poll (2006–2025)

Note: Each line shows mean life evaluations (Cantril ladder, 0–10) for respondents aged 15–24 by gender. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Shaded bands show 95% confidence intervals based on survey-weighted standard errors. The first survey wave was split between 2005 and 2006. Data: 165 countries, 584,847 observations.

Figure 2.6: Positive and negative affect by gender (ages 15–24)

Gallup World Poll (2006–2025)

Note: Positive affect is the average of laughing/smiling, enjoyment, and learning/doing something interesting yesterday. Negative affect is the average of worry, sadness, and anger yesterday. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Shaded bands show 95% confidence intervals based on survey-weighted standard errors. The first survey wave was split between 2005 and 2006. Data: 165 countries.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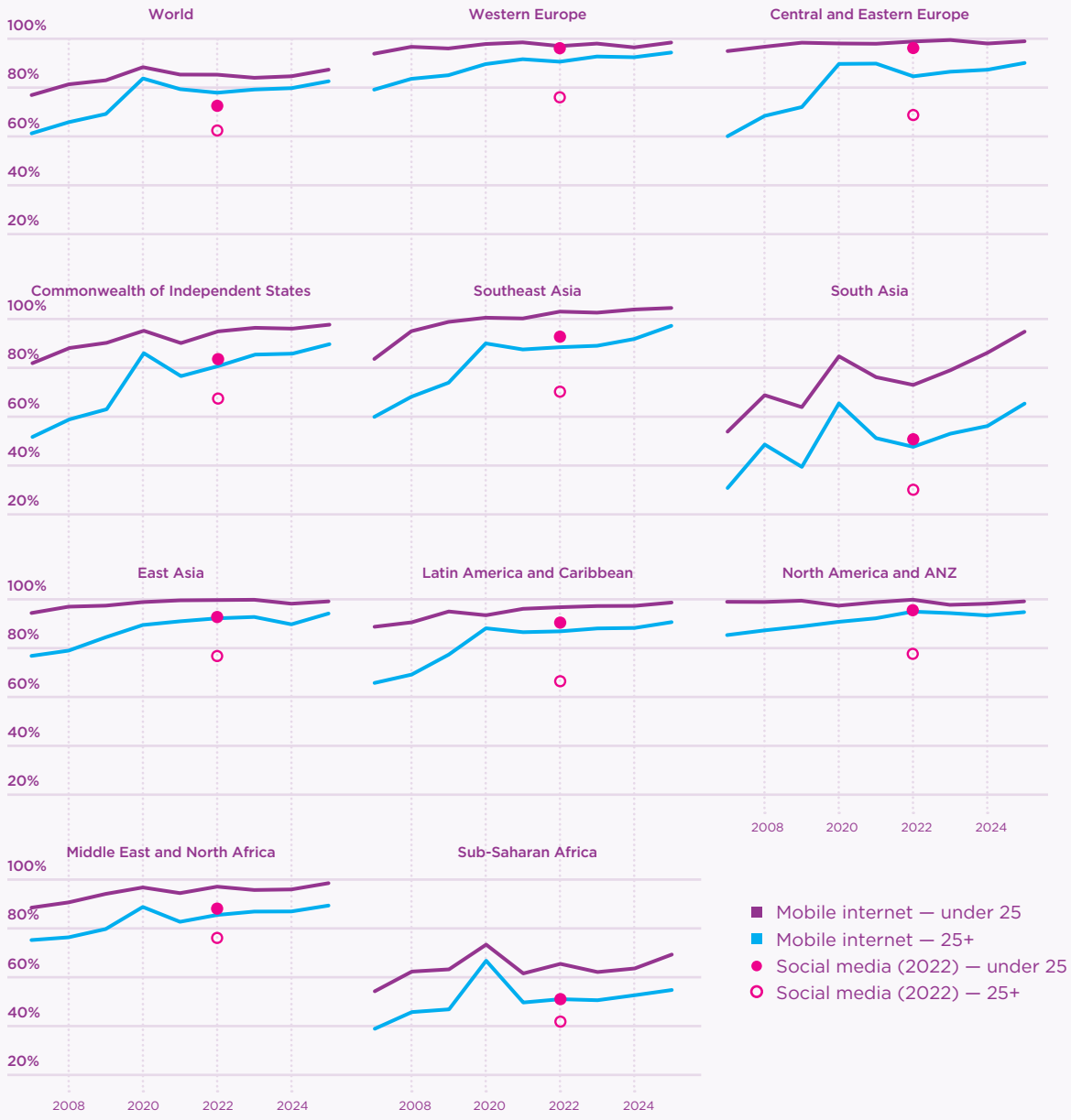
Links between social media and happiness

To what extent can the diverse global patterns of youth happiness shown above be linked to changes in the extent and nature of social media use? Especially so in the United States, Canada, Australia, and New Zealand, where the most dramatic declines have taken place.

There are two Gallup World Poll questions that might help answer these questions. First, we have data since 2017 asking if respondents have a mobile phone that can be used to access the internet (*cellphone access*). This is not a direct measure of social media use, but does provide internationally comparable data showing trends in social media accessibility. Second, we have a more direct measure, from 2022 only,[48] when respondents were asked whether or not they have used any social media in the past 30 days (*social30*). These binary variables speak to internet access, but do not measure either the extent or the nature of social media use.

Figure 2.7 shows the data for both variables averaged for the world and each region, for those aged 15–24 and those aged 25 and older.[49] The sharp rise in 2020 in some regions is due to a COVID-19-induced shift from in-person to phone interviews by the Gallup World Poll. There is no corresponding jump in Western Europe and the NANZ group, because these countries were surveyed by telephone throughout the whole data period.

Figure 2.7: Mobile internet access and any social media use by age group
Gallup World Poll (2017–2025)



Note: The lines show the weighted share of respondents whose mobile phone can access the internet, plotted annually from 2017 to 2025. The purple lines indicate ages 15-24. The blue lines indicate ages 25+. Pink markers show the weighted share reporting any social media use in the past 30 days, available for 2022 only; Filled markers indicate ages 15–24, open markers ages 25+. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Data: 155 countries, 1,150,432 internet observations (2017–2025), 141,078 social-media observations (2022).

Figure 2.7 shows that cellphone access to the internet and any social media use in the previous 30 days are higher for those under 25 in every global region. For cellphone access, the trend is upward for both age groups, with a narrowing gap between the young and the rest of the population in every region, approaching equality in Western Europe.

Especially striking in Figure 2.7 is that cellphone access and any social media use in 2022 display consistent and almost identical patterns. The regional differences in 2022 are very highly correlated (r = +.945, n = 10). That very high association carries over even among the 140 countries (r = +.938, n = 140).

To what extent do these different trends correspond to the sharp international differences we find for the levels and changes in youth wellbeing? In Figures 2.2 through 2.6, we presented data showing exceptionally large drops in life evaluations and increases in negative emotions in the NANZ region. These countries are also ones where social media use among the young has reached the highest levels, as shown in Figure 2.7. Is the correlation between increased social media use and decreased happiness in NANZ replicated elsewhere in the world?

In Table 2.2, we compare life evaluations and negative affect for under-25s in 2020–2025 with those in 2006–2011. Social media access on smartphones is assumed to have been zero, or

Table 2.2: Changes in happiness for under-25s
Gallup World Poll (2006–2011 to 2020–2025)

	NANZ	Western Europe	UK/ Ireland	Latin America	Comparisons to NANZ
Ladder baseline (2006-2011)	7.542	7.309	7.33	6.403	
(SE)	(0.040)	(0.020)	(0.064)	(0.016)	
Ladder change (2020-2025)	-0.812***	-0.312***	-0.416***	+0.264***	vs. W.Eur: -0.500***
(SE)	(0.059)	(0.029)	(0.095)	(0.026)	vs. UK/Ire: -0.396*** vs. LatAm: -1.076***
Negative affect change	+0.055***	+0.031***	+0.064***	+0.006	vs. W.Eur: +0.024
(SE)	(0.011)	(0.005)	(0.017)	(0.003)	vs. UK/Ire: -0.009 vs. LatAm: +0.049***
Technology adoption — Youth in 2022					
Mobile internet	0.991	0.95	0.883	0.852	Range: 85-99%
Social media (30d)	0.955	0.96	0.997	0.903	Range: 90-100%

Note: ***p < 0.001, **p < 0.01, *p < 0.05. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Survey-weighted standard errors. Baseline: 2006–2011; Recent: 2020–2025. The first survey wave was split between 2005 and 2006. Comparisons show the NANZ change minus the other region's change. N (baseline / recent): NANZ 2,216 / 1,968; W. Europe 9,428 / 8,807; UK/Ireland 1,330 / 800; Latin America 26,139 / 18,808. Mobile internet access: NaN coded as 0 (not asked = no mobile internet access).

at least negligible, everywhere in 2006–2011.[50] Changes in life evaluations and negative emotions from then to now can be matched to recent levels of cellphone access to the internet and any social media use in 2022. We show NANZ and Western Europe, the two regions that have been most studied in social media research, plus Latin America, where we also have data for social media use on different platforms. We also include the UK and Ireland as a separate group to see how the changes in the four countries of NANZ (speaking mainly English) compare to the two English-speaking countries of Western Europe.

In NANZ, life evaluations for under-25s fell by nearly three times as much as Western Europe, and more than twice as much as the UK and Ireland. Over the same time period, life evaluations for under-25s in Latin America grew significantly. Yet, cellphone access to the internet and social media use in the last 30 days became almost universal in all four groups. Thus, social media may be doing more harm to young lives in NANZ than elsewhere or the social media effects are dwarfed by other underlying factors, or perhaps some combination. The negative affect differences are less marked and need unbundling to separate the differing movements of their three components: worry (akin to anxiety), sadness (akin to depression), and anger. This is done in Table 2.3.

The recent emotions data include 2020–2025, so the common experience of the COVID-19 pandemic may help to explain the similar increases in worry in all groups, rising from 32% to 42% in NANZ and Western Europe, and from 31% to 38% in Latin America.[51] Sadness is quite different, rising from 15% to 25% in NANZ, but only from 14% to 17% in Western Europe, and remaining unchanged at 19% in Latin America. The prevalence of anger fell significantly in all three regions, by very similar amounts.

Table 14 of the online statistical appendix shows some of the results from including cellphone access in a global equation covering 2017 to 2025 for individual responses to the Cantril Ladder

Table 2.3: Changes in negative emotions for under-25s
Gallup World Poll (2006–2011 to 2020–2025)

	Worry change	Sadness change	Anger Change	Negative affect change
NANZ	+0.102***	+0.093***	-0.031*	+0.055***
Western Europe	+0.082***	+0.038***	-0.028***	+0.031***
Latin America	+0.042***	+0.000	-0.024***	+0.006
NANZ vs. W. Europe	+0.020	+0.055***	-0.003	+0.024
NANZ vs. LatAm	+0.060***	+0.093***	-0.006	+0.049***
Pattern	Similar increases everywhere	**NANZ distinctive** (depression-related)	Similar decreases everywhere	Modest increases (anger offsets)

Note: ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. Estimates use Gallup's post-stratification survey weights, normalised so that each country-year contributes equally. Survey-weighted standard errors. Baseline: 2006–2011; Recent: 2020–2025. Comparisons show the NANZ change minus the other region's change. N (baseline / recent): NANZ 2,196 / 1,967; Western Europe 9,176 / 8,768; Latin America 25,805 / 18,815.

question. The coefficients on the control variables, which include demographic variables plus the individual equivalents of the six variables used in Table 2.1 to explain international differences in wellbeing, are constrained to be the same in all regions, with a separate cellphone access coefficient estimated for each region. For social media use, we have data only from 2022, when respondents were asked, yes or no, if they had used any social media in the previous 30 days. The smaller sample size means that the confidence regions are much larger for the social media coefficients. The NANZ region is an outlier for the estimated links between the Cantril Ladder and any social media use in 2022 and cellphone access to the internet (2017–2024). The *netphone* coefficients, which are based on much larger samples, are positive in every global region except NANZ. If Western Europe is split into an English-speaking pair (the UK and Ireland) and the rest of Western Europe, the *netphone* coefficient is significantly negative there as well, although much less so than in the NANZ countries. The *social30* coefficients, based only on 2022 data, have larger estimated confidence regions, but are significantly positive in five regions. Only in NANZ is there a significant negative coefficient for having had any social media use in the previous 30 days in 2022.[52]

It is remarkable how closely matched are the coefficients for any social media use in 2022 and for cellphone access to the internet (r = +0.93), despite the different sample periods and question content. Cellphone access to the internet is a measure of how easy it would be to access social media in typical ways, but does not reveal actual social media use. The closeness of the two coefficients in all regions increases our confidence that cellphone internet access provides a reasonable population-level proxy measure for at least some level of social media use.

The NANZ results reflect the fact that life evaluations of the young in those countries are lower than those of the older populations for reasons not captured by the control variables. For all other regions, cellphone access to the internet and any social media use in 2022 are associated with higher life evaluations. If the equation is fitted for the life evaluations of all those living outside the NANZ countries, the positive netphone coefficient is larger than the negative coefficient for NANZ. Thus, for a typical country, the association between life evaluations and cellphone access is substantially positive, by about a quarter of a point on the 0–10 life evaluation scale.

Subjective wellbeing of the young has fallen dramatically since 2011 in the United States, Canada, Australia, and New Zealand, with very limited evidence of corresponding changes elsewhere.

As we have already noted, this does not imply that all social media platforms have positive associations, since cellphone access can also be used for communication-based platforms such as Zoom and FaceTime. For typical respondents outside NANZ, those with cellphone access to the internet were more satisfied with their lives than those who did not, on average. This result is unlikely to be driven by the higher incomes and education levels of the internet users, as both variables are controlled for.[53]

There are two main conclusions from our investigations thus far. The first is that we have confirmed our 2024 finding that subjective wellbeing of the young has fallen dramatically since 2011 in the United States, Canada, Australia, and New Zealand, with very limited evidence of corresponding changes elsewhere. The second is that we cannot use cellphone access and any social media use data to explain the wellbeing linkages of different types and intensities of social media and other uses of the internet. Both variables are almost equal to 100% for under-25s in every country by 2022. To link wellbeing trends more securely with data on social media requires survey evidence that can match wellbeing outcomes with the intensity of use of different internet activities and social media platforms.

Thankfully, we have found three quite different but complementary sources of data linking life satisfaction with the extent and pattern of social media use. First, we shall examine social media and other internet time-use data from 15-year-olds in the 2022 wave of the PISA survey.[54] Then, we will examine platform-specific data from the ENBIARE survey in Mexico and the Latinobarómetro in 17 Latin American countries.

Internet use, social media, and teenage life satisfaction in 47 countries

Figure 2.8 shows the number of weekday hours spent on seven internet activities, using data from a special module of PISA 2022. In Australia and the United States, data was collected for internet activities but not life satisfaction. Thus, there are 49 countries represented in Figure 2.8 but 47 in our life satisfaction analysis. Canada and New Zealand did not collect data on either internet activities or life satisfaction. The UK and Ireland are treated separately from Western Europe because they are the only English-speaking countries in the 47 PISA countries with life satisfaction data.

Photo Gabriel Martin on Unsplash

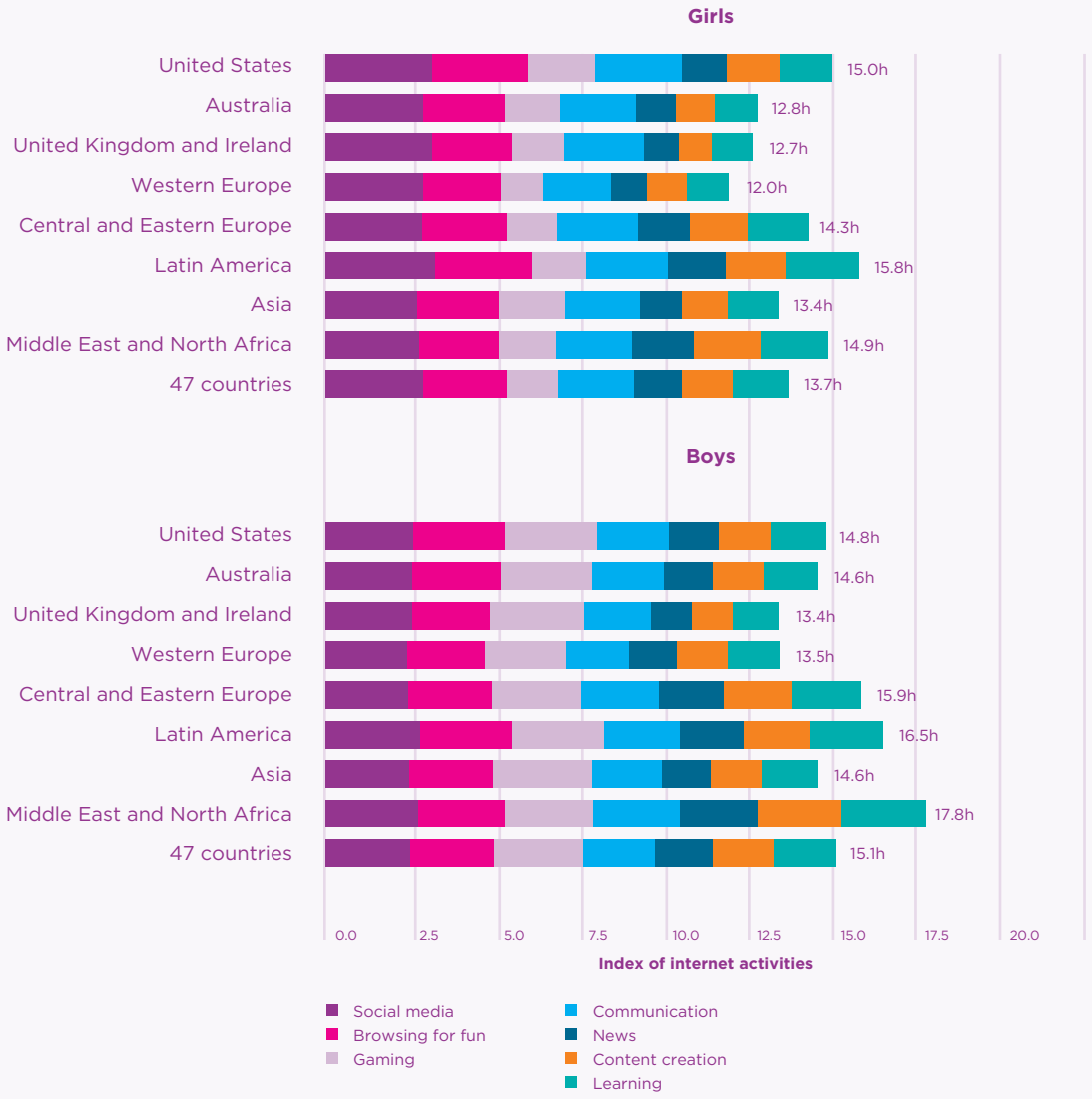
Figure 2.8 plots the sum of students' self-reported hours spent on seven different digital leisure activities during a typical weekday. Because the activity categories are not mutually exclusive, the summed measure should be interpreted as an index of digital use intensity rather than a measure of exact time use. The social media category (the left-hand segment of each bar) is the variable used in Chapter 5. The distribution of activities is strikingly similar in each country and region. Across all countries, social media hours are higher for girls, and gaming hours are higher for boys. The sum of those two activities, combined with browsing the internet for fun, are very similar for boys and girls, and across countries and regions. Thus, international differences in patterns of internet use are unlikely to explain international differences in youth happiness, unless the linkages differ a lot among regions.

We describe the total as an index, rather than an estimate of actual hours devoted to each activity, since the totals are more than three times higher than answers about total leisure and learning uses of the internet asked elsewhere in the PISA survey. Respondents, like most internet users, often multi-task, covering many uses within the same hour. Since we are interested in the distribution of time across different uses, and since there is much focus on the social media category, both in this chapter and in Chapter 5, we continue to use these data even though we know their total hours, and the reported hours for specific uses, are too large. Hence the need to call the total an index rather than an estimate of actual total weekday hours of screen time.

Figure 2.9 plots average life satisfaction across all 47 countries against the average time spent on seven internet activities on weekdays. For both boys and girls, we observe a clear separation between two groups of internet activities. Group A includes social media use, gaming, and browsing for fun, while Group B news and information, content creation, learning, and communication. The drop in average life satisfaction at higher rates of use is greater for girls than for boys. For both genders, life satisfaction falls faster with greater use of Group A than Group B.

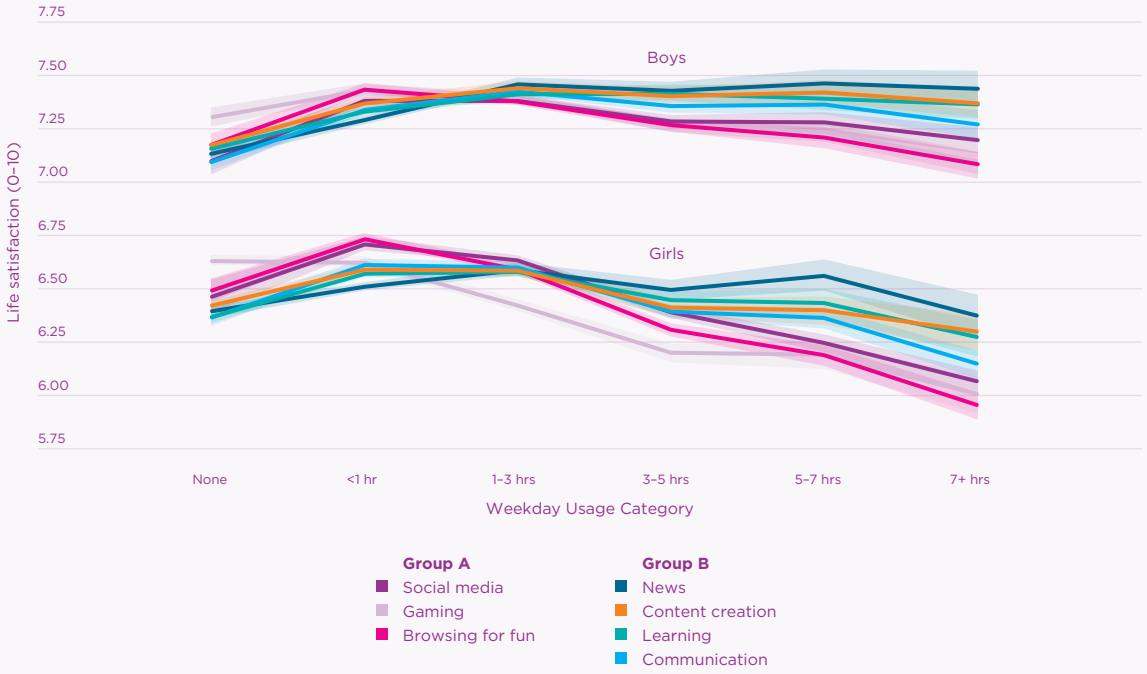
Figure 2.8: Distribution of internet activities on weekdays

PISA (2022)



Note: Each bar shows the mean weekday hours reported for seven internet activities from the PISA 2022 ICT Familiarity Questionnaire (IC177 Q01–Q07). Respondents report time in six categories (no time, <1 hr, 1–3, 3–5, 5–7, 7+ hrs); OECD standard midpoints are applied to convert these to hours (0, 0.5, 2, 4, 6, and 7.5 hours, respectively). Totals exceed actual screen time because respondents multi-task across activities; the x-axis is therefore labelled as an index. Students reporting zero time on all seven activities are excluded. The "47 countries" aggregate includes all regional groupings except the United States and Australia, which are shown separately. Unweighted, 308,525 students across 49 countries.

Figure 2.9: Life satisfaction by weekday activity level and gender
PISA (2022)

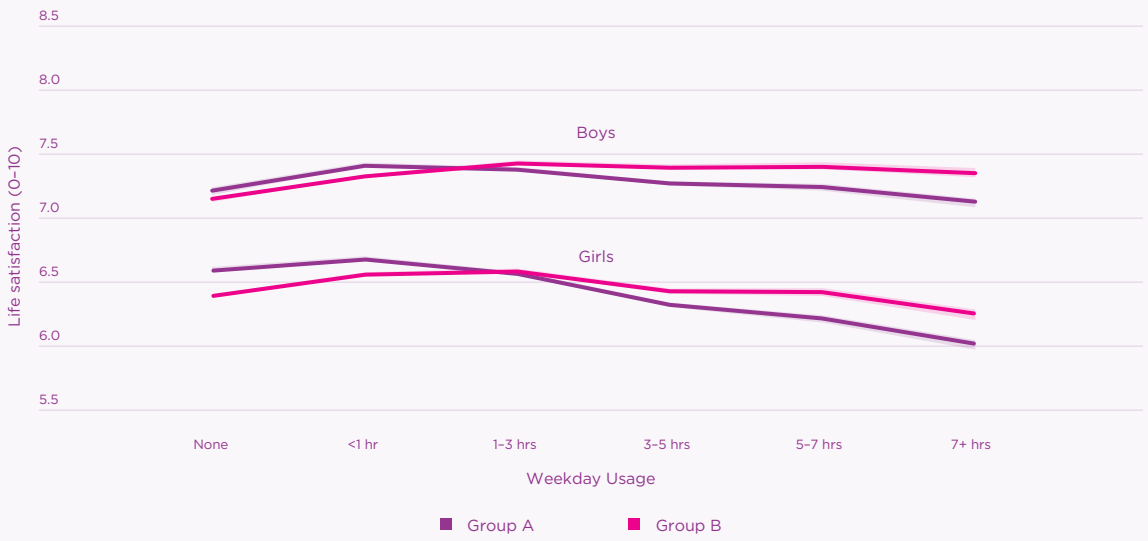


Note: Each line shows mean life satisfaction (ST016Q01NA, 0–10 scale) at each weekday internet-use level for one of seven activities from the PISA 2022 ICT Familiarity Questionnaire (IC177 Q01–Q07). Shaded bands show 95% confidence intervals. The sample is restricted to respondents with valid responses on all seven weekday ICT items (IC177 Q01–Q07). Two exclusions are then applied: (1) students reporting zero time on all seven weekday activities, and (2) students with missing life satisfaction or gender. Unweighted, 266,705 students across 47 countries (US and Australia excluded; they lack life satisfaction data in PISA 2022).

We have restricted our sample in Figure 2.9 to exclude the 2.6% of respondents who do not report any use of the internet. Thus, all of those whose life satisfaction is shown in Figure 2.9 are internet users. For those who reported no weekday social media use, two thirds did use the internet for other purposes, and are shown as 'none' in our figure. The shape of the curves in Figure 2.9 suggests that low-level users have higher life satisfaction than non-users, while higher levels of use are associated with lower average levels of life satisfaction, especially for girls, and for users of social media, gaming, and internet browsing.

Figure 2.10 simplifies the material in Figure 2.9 by plotting separate lines for the two groups of activities. For both boys and girls, the peak of average life satisfaction is in the <1 hour range for Group A, and in the 1–3 hour range for Group B. As usage increases, the line for Group B is almost flat for boys, while falling for girls. The line for Group A drops with higher usage for both boys and girls, faster for girls than boys.

Figure 2.10: Life satisfaction and time spent on two groups of internet activities
PISA (2022)



Note: Each line shows mean life satisfaction (ST016Q01NA, 0–10 scale) at each weekday internet-use level for activities pooled within two groups: Group A (social media, gaming, browsing for fun) and Group B (news, content creation, learning, and communication). At each usage level, individual life satisfaction observations are pooled across all activities in the group; shaded bands show 95% confidence intervals. The sample is restricted to respondents with valid responses on all seven weekday ICT items (IC177 Q01–Q07). Two exclusions are then applied: (1) students reporting zero time on all seven weekday activities, and (2) students with missing life satisfaction or gender. Unweighted, 266,705 students across 47 countries (US and Australia excluded; they lack life satisfaction data in PISA 2022).

These data reflect simple correlations, and we make no causal claims. How might these patterns change if we were able to account for the contrasting possibilities that happier people will be more likely to use the internet, and that unhappy people might turn to the internet as a substitute for the real-life friends and activities they do not have? If happy people are more likely to make some use of the internet, that would shift the curves, without any obvious link to the rate of internet use. If already unhappy people are more likely to turn to social media, greater unhappiness is likely to be associated with high levels of internet use. This logic would suggest that accounting for the possible feedback loop between unhappiness and the extent of social media use would lessen, rather than increase, the steepness of life satisfaction declines associated with greater use of social media.

In Figure 2.11, we divide the 47 countries into six regions. There is much in common across regions, with Group A (social media, gaming, and browsing for fun) above Group B (communication, news, learning, and content creation) at low levels of use, and then falling below at high rates of use. This suggests that social media, gaming, and

Figure 2.11: Life satisfaction and time spent on two groups of internet activities, by region

PISA (2022)

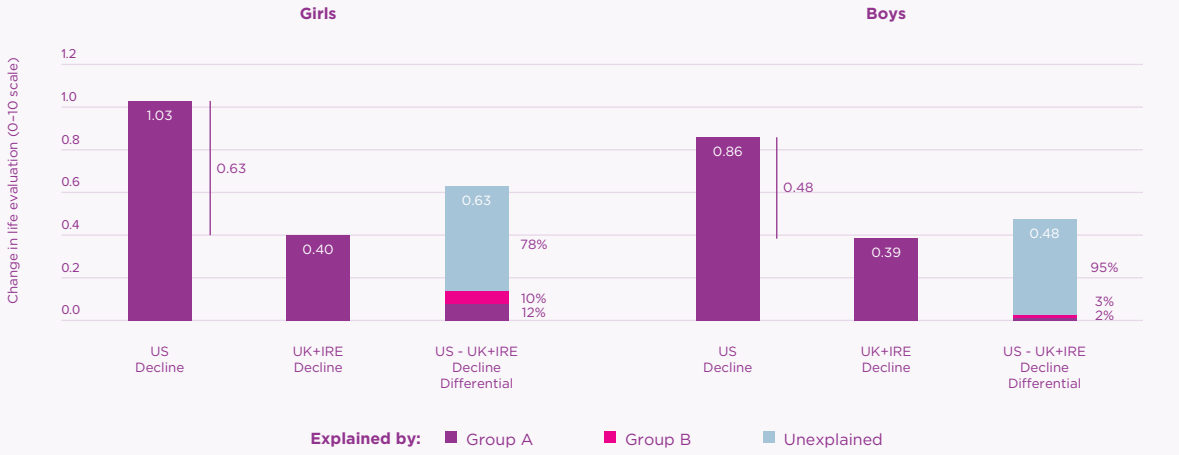
Note: Each line shows mean life satisfaction (ST016Q01NA, 0–10 scale) at each weekday internet-use level for activities pooled within two groups: Group A (social media, gaming, browsing for fun) and Group B (news, content creation, learning, and communication). At each usage level, individual life satisfaction observations are pooled across all activities in the group; shaded bands show 95% confidence intervals. The sample is restricted to respondents with valid responses on all seven weekday ICT items (IC177 Q01–Q07). Two exclusions are then applied: (1) students reporting zero time on all seven weekday activities, and (2) students with missing life satisfaction or gender. Unweighted, 266,705 students across 47 countries (US and Australia excluded; they lack life satisfaction data in PISA 2022).

browsing for fun may be beneficial at low levels of use, and become increasingly harmful as time spent increases beyond some level. In all regions, the declines are steeper for girls than boys. They are also steeper in the UK and Ireland, and the rest of Western Europe, with the same slopes in both cases, although life satisfaction is generally lower in the English-speaking pair than elsewhere in Western Europe. In all regions, girls report significantly lower life satisfaction than boys, a finding that is not matched by data from the Gallup World Poll. Other research shows that the age of 15 is when female life evaluations are lowest relative to boys, with the gap closing thereafter.[55]

To what extent do these different patterns of social media and internet use help to explain wellbeing drops that are far higher in the United States than in the UK and Ireland, and somewhat higher in the UK and Ireland than in the rest of Western Europe? We can measure rates of use in the three regions, and they are very similar. We cannot estimate the slopes for the United States, since the life satisfaction question was not asked there in PISA 2022. So we use the UK and Ireland slopes instead, which are similar to those in the rest of Western Europe. Thus, when we calculate the amount that higher US usage explains the greater US falls, it explains only 8% of the difference for girls and 5% for boys, as shown in Figure 2.12.

Unfortunately, since none of the four NANZ countries asked the life satisfaction question in PISA 2022, we have to employ indirect means to harness the PISA and other data to explain the large NANZ decline. There are two English-speaking

Figure 2.12: Explaining the decline in youth wellbeing
PISA (2022) and Gallup World Poll (2006–2025)



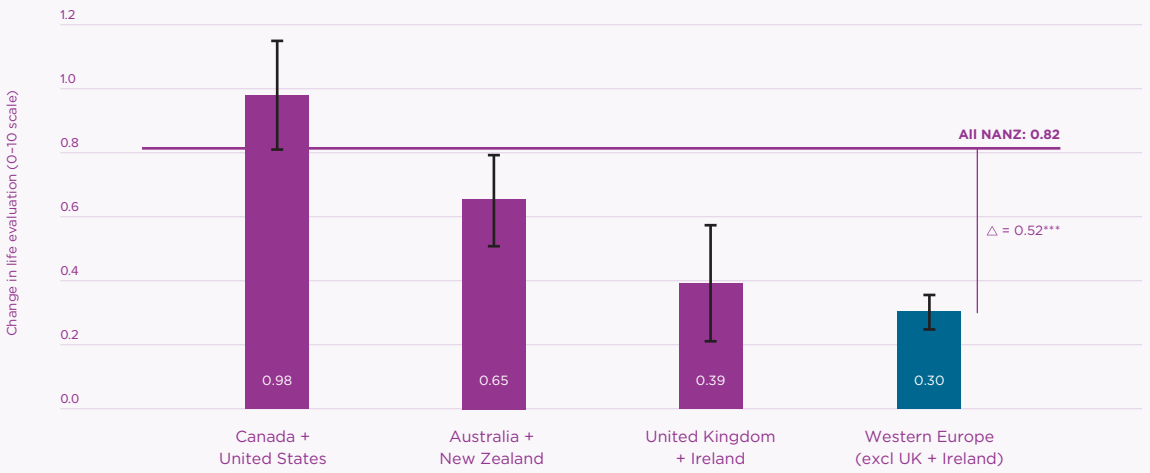
Note: The first two bars in each panel show Gallup life evaluation declines (Cantril Ladder, 0–10) for respondents under 25, comparing pre-2012 to 2020–2025, weighted so each country-year contributes equally. The third bar decomposes the US–UK+Ireland differential using PISA 2022 data: UK+Ireland OLS slopes of life satisfaction (ST016Q01NA) on weekday internet hours (IC177 items) are multiplied by the US–UK+Ireland difference in mean hours. PISA slopes are nearly identical in UK+Ireland and Western Europe, so compositional differences across regions do not drive the result. Gallup N (baseline / recent): US 560 / 607, UK+Ireland 1,387 / 800. PISA N (slopes): 266,705; PISA N (hours): 302,290.

countries in the PISA data. It is reasonable to ask if the large drops in the NANZ countries, which are all mainly English-speaking, might be due, at least partially, to social media platforms being used differently in other cultures, with language providing a natural boundary for culture and content.

Figure 2.13 splits the six English-speaking countries into three groups of two, separated by geography but mainly sharing a common language. The life evaluation drops have been significantly larger in Canada and the United States than in Australia and New Zealand, with both drops being larger than in the UK and Ireland. The drop in the UK and Ireland is greater than the rest of Western Europe, but not significantly so. The dotted line indicates the average decline for the four NANZ countries together (0.82 points). In Western Europe (excluding the UK and Ireland), the average drop was 0.30.

Even among the three pairs of English-speaking countries, there are very large differences in the extent of youth declines in wellbeing, so English-language social media content cannot be a sufficient explanation for the exceptionally large drops in North America. However, there is likely some role for language and culture to influence the effects of social media. For example, in French-speaking Quebec, the declines in youth wellbeing have been significantly less than the rest of Canada, which is mainly English-speaking.[56]

Figure 2.13: The decline in youth wellbeing by English-speaking region
Gallup World Poll (2005–2025)



Note: Bars show the decline in life evaluations (Cantril Ladder, 0–10) for respondents under 25, comparing the pre-2012 period to 2020–2025. All estimates use survey weights normalised so each country-year contributes equally. Error bars show 95% confidence intervals. The purple line shows the aggregate decline for all NANZ countries (United States, Canada, Australia, New Zealand; Gallup region 7). Western Europe follows the Gallup region definition (region 0), excluding the United Kingdom and Ireland to avoid overlap. The NANZ vs Western Europe differential is tested using a two-sided z-test ($p < 0.001$). N (baseline / recent): Canada + United States 1,212 / 1,036; Australia + New Zealand 1,341 / 932; United Kingdom + Ireland 1,387 / 800; Western Europe (excl UK + Ireland) 8,982 / 8,007.

Evidence from Latin America

Data from Latin America provides the best opportunity to compare the links between life satisfaction and specific social media platforms. Just as the PISA data suggest that certain internet uses may be more or less harmful for wellbeing, the Latin American data sources allow us to examine whether certain social media platforms may be associated with better or worse wellbeing.

Latin America differs from the rest of the world, and especially from the NANZ region, by having high levels of engagement with social media, accompanied by high levels of wellbeing.

Two databases permit a deeper investigation into the relationship between happiness and social media use in Latin America with data covering respondents aged 15 and up. The first is the annual Latinobarómetro survey, covering 17 countries, which provides data on life satisfaction and, recently, the use of different social media platforms. The second is Mexico's National Self-Reported Well-Being Survey (ENBIARE), which offers detailed wellbeing indicators – life satisfaction, the Cantril Ladder life evaluation, positive and negative affect, and mental health problems[57] – alongside frequency of use data for five social media platforms. These sources enable analysis within the distinct Latin American cultural, social, and economic context.

Data from the 2021 ENBIARE survey in Mexico reveal that WhatsApp and Facebook are the most prevalent platforms, used by 76% and 61% of the population, respectively. Platforms like X (Twitter), Instagram, and TikTok showed lower adoption rates (10%, 17%, and 11%, respectively).

Latin America differs from the rest of the world, and especially from the NANZ region, by having high levels of engagement with social media, accompanied by high levels of wellbeing.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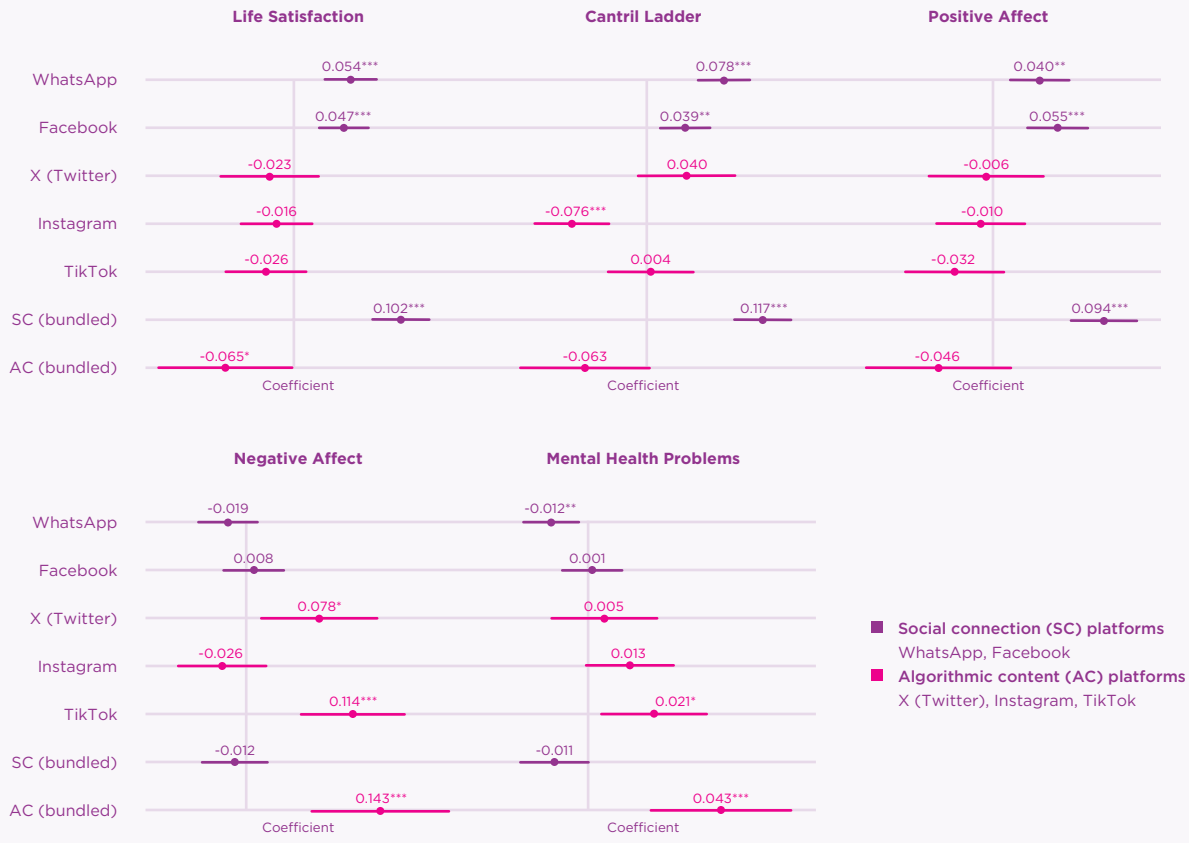
Regression analyses controlling for socio-demographic and economic variables reveal a clear dichotomy, as shown in Figure 2.14. More frequent use of WhatsApp and Facebook is associated with higher life satisfaction, better life evaluation, and greater positive affect. WhatsApp use is further associated with lower negative affect and fewer mental health problems. In contrast, use of X (Twitter), Instagram, and TikTok is generally associated with lower happiness, and with significantly higher negative affect and mental health problems. Instagram use is also linked to lower life evaluations.

Thus, platforms can be categorised by their primary function and associated wellbeing outcomes. The social connection (SC) platforms – WhatsApp and Facebook – show favourable associations, while the algorithmic content (AC) platforms – X (Twitter), Instagram, and TikTok – show unfavourable ones, particularly for affective and mental health indicators. An analysis disaggregated by age and gender, focusing on SC versus AC platform use, shows consistent patterns across groups. SC platforms maintain a favourable association with all happiness indicators, whereas AC platforms show an unfavourable association.

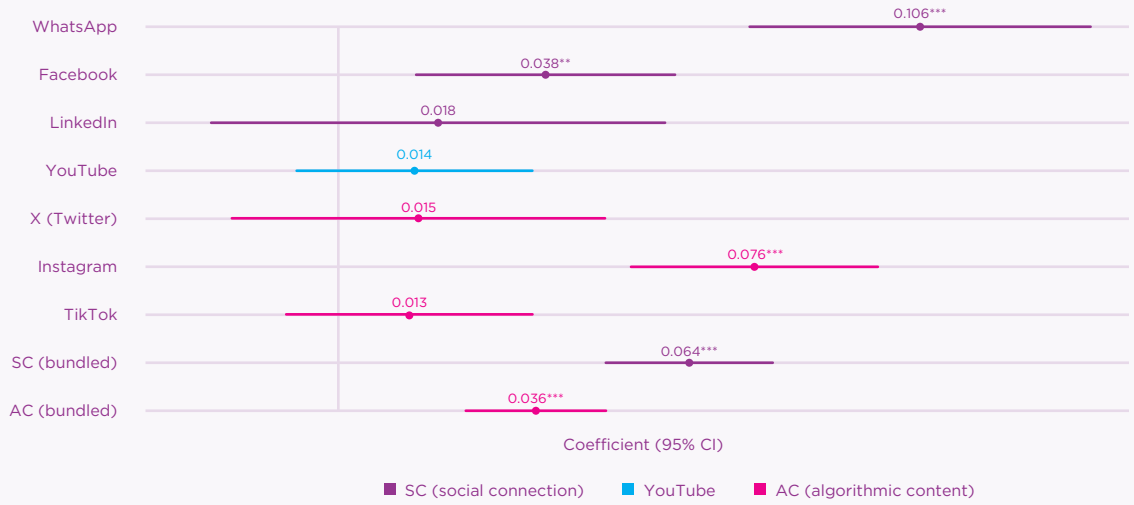
Figure 2.14: Social media platform coefficients by wellbeing outcome

ENBIARE (2021)



Note: Each panel shows coefficients and 95% confidence intervals from weighted least-squares regressions of the indicated wellbeing outcome on social media platform use frequency (1–5 scale). Individual platforms (top five rows) come from a single simultaneous regression with all five platform frequencies as regressors. SC and AC bundles (bottom two rows) come from a separate regression using the mean frequency across platforms in each group. Controls: age, age, gender, education (years), economic assets, marital status (five dummies), and eight social meeting frequency variables. All models use INEGI survey weights (FAC_ELE) with HC1 robust standard errors. *N* = 30,926.

Figure 2.15: Social media platform coefficients for life satisfaction
Latinobarómetro (2023–2024)



Note: Each row shows the coefficient and 95% confidence interval for the association between social media platform use and life satisfaction (normalised, 1–4). Individual platforms (top seven rows) come from a single simultaneous weighted least-squares regression with all seven binary platform indicators as regressors. SC and AC bundles (bottom two rows) come from a separate regression using additive platform counts (0–3). SC (social connection) = Facebook + WhatsApp + LinkedIn; AC (algorithmic content) = X (Twitter) + Instagram + TikTok. All models include country and year fixed effects, probability weights, and HC1 robust standard errors. Controls: interpersonal trust (binary), trust in government (normalised), religiosity, self-reported social class, and satisfaction with the economy (normalised). Test of equality AC = SC: F = 5.6, p = 0.0180. *N* = 34,893.

In Figure 2.15, we expand the geographic coverage from Mexico to the 17 countries covered in the Latinobarómetro survey.

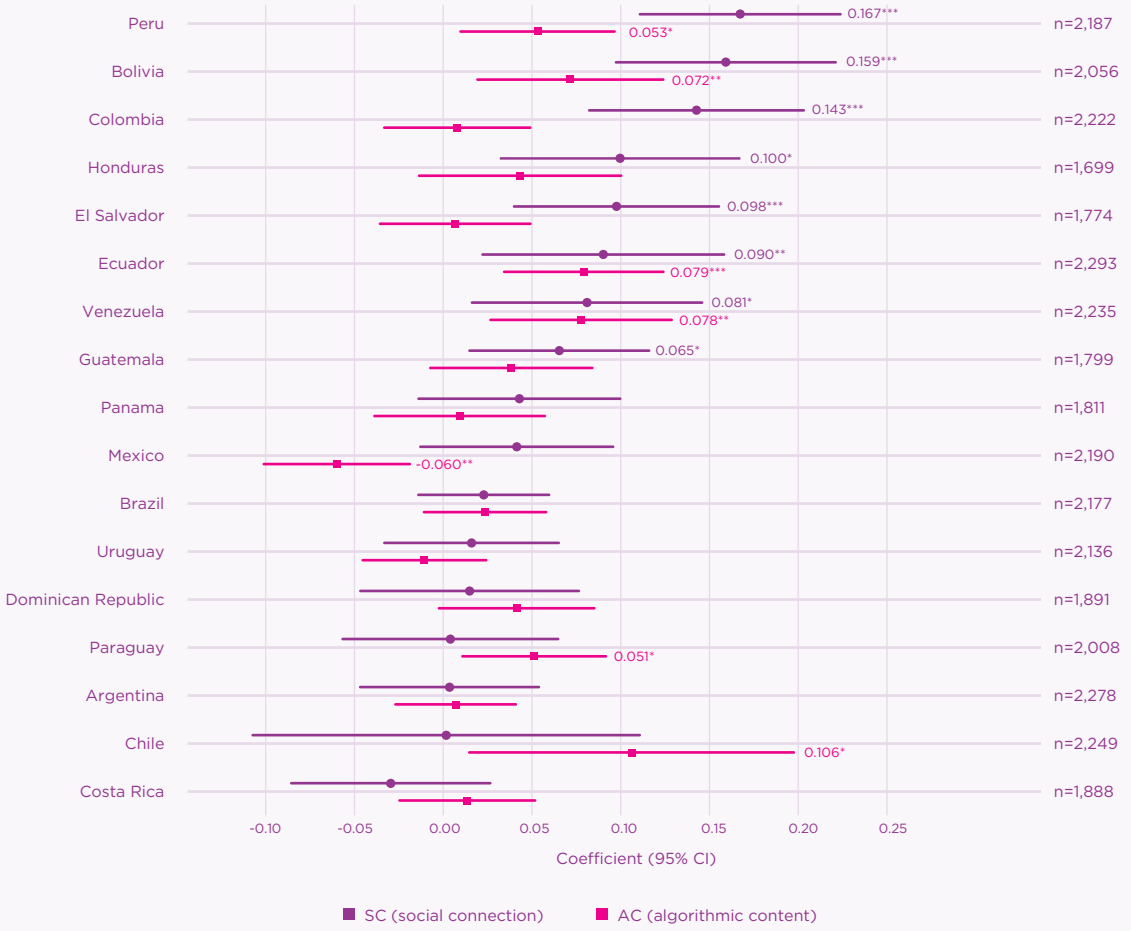
The coefficients for SC platforms are generally positive and significant, while those for AC platforms are generally less positive. The difference between the bundled SC and AC platforms shows the difference to be .045 ($p < .0001$). Disaggregation by age and gender shows the gap between the SC and AC coefficients to be about the same size for all four subgroups. Split by gender alone, the gap is slightly larger for males than females.[58] Split by age alone, the gap is slightly larger for the young, with the AC coefficient effectively zero for them.[59] For young men and young women considered separately, the SC-AC differences are slightly larger than for the whole sample, and slightly larger for males than females.[60]

In Figure 2.16, we show the correlations for the SC and AC platforms in all 17 countries. The positive correlations between life satisfaction and platform type are generally higher for SC platforms than for AC ones.

The country-level analyses yield only one insignificantly negative SC coefficient, and the SC coefficients are above the AC coefficients in 11 of 17 countries. Six of the AC coefficients are significantly positive, and one is significantly

Figure 2.16: SC and AC coefficients by country

Latinobarómetro (2023–2024)



Note: Each row shows SC and AC bundled coefficients from a separate within-country weighted least-squares regression of life satisfaction (normalised, 1–4) on SC count (0–3), AC count (0–3), YouTube (binary), and controls. SC (social connection) = Facebook + WhatsApp + LinkedIn; AC (algorithmic content) = X (Twitter) + Instagram + TikTok. Countries are sorted by SC coefficient (descending); right-hand labels show country sample sizes. Coefficient labels are shown only for statistically significant estimates ($p < 0.05$). All models include year fixed effects, probability weights, and HC1 robust standard errors. Controls: interpersonal trust (binary), trust in government (normalised), religiosity, self-reported social class, and satisfaction with the economy (normalised). Bars show 95% confidence intervals. *N* = 34,893.

negative. The relationship holds in most Latin American countries. Notably, while SC significantly exceeds AC in five countries, AC does not significantly exceed SC in any of the 17 countries. The pooled SC-AC difference is significantly positive.[61]

To compare the five wellbeing outcomes from the ENBIARE data with each other, and with the Latinobarómetro life satisfaction results, we redid the analysis in standardised units to accommodate the differing scales and distributions. We find that all five of the ENBIARE outcomes and the Latinobarómetro analysis, for all 17 countries and for Mexico alone, all give strong and consistent evidence about the differences between the two types of platform. The SC-AC gap is in the .06 to .10 range for all standardised outcomes. Given the differences in the questions asked (number of platforms used in the Latinobarómetro and intensity of use in ENBIARE), the differences in outcomes measured (ranging from life satisfaction to the incidence of mental health problems), and the different scales being used for measuring outcomes, the strength and consistency of the results is remarkable. Social media platform type does matter, and importantly so.

In conclusion, the Latin American evidence indicates a generally positive association between social media use and happiness, with linkages differing strongly by platform type. The positive associations are strong for widely used platforms that facilitate social connection. By contrast, platforms based on algorithmic content show less favourable relationships. These findings demonstrate that the relationship between social media and happiness is contingent upon both platform design and the broader cultural and social context in which social media use takes place. These findings, along with the evidence summarised in the next section, suggest that SC platforms may contribute significantly to happiness in societies where dense and deep social connections already exist.

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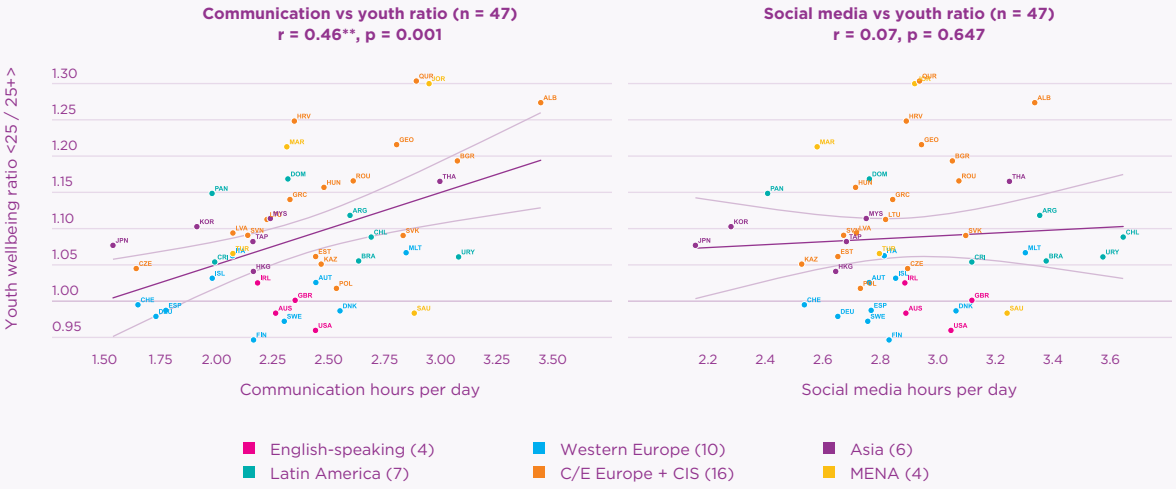
Putting the evidence in context

In Figure 2.17, we plot national averages for two internet activities (communication and social media) against a youth wellbeing ratio (the mean Gallup World Poll life evaluation for under-25s divided by the mean for ages 25 and above). This reveals a significant positive cross-country relationship between communication hours and life satisfaction (r = 0.46, p = .001), with the English-speaking countries having much lower youth wellbeing than predicted. By contrast, there is no significant relationship between social media use and the relative happiness of the young. Here, too, the English-speaking countries lie at the bottom of the youth wellbeing ratio while being in the middle for social media use. The Latin American countries are at the higher end of social media use, while having average levels of relative youth happiness.

In several earlier figures, we showed how life satisfaction correlates with time spent on seven different internet activities. In Figure 2.18, we show how academic scores (the original purpose of PISA), feelings of belonging in the school community, and school attendance vary by reported social media use. We also assess how all these features of school life vary for those who do not use social media. We first consider those who do not use the internet at all (2.3% of girls and 3.2% of boys), and then split the rest of non-users between those who use neither social media nor communications activities (1.9% or girls and 3.3% of boys), and those who do make communications uses of the internet but do not use social media (1.7% of girls and 2.6% of boys).

For girls, average life satisfaction rises continually from no internet[62] to internet use with neither

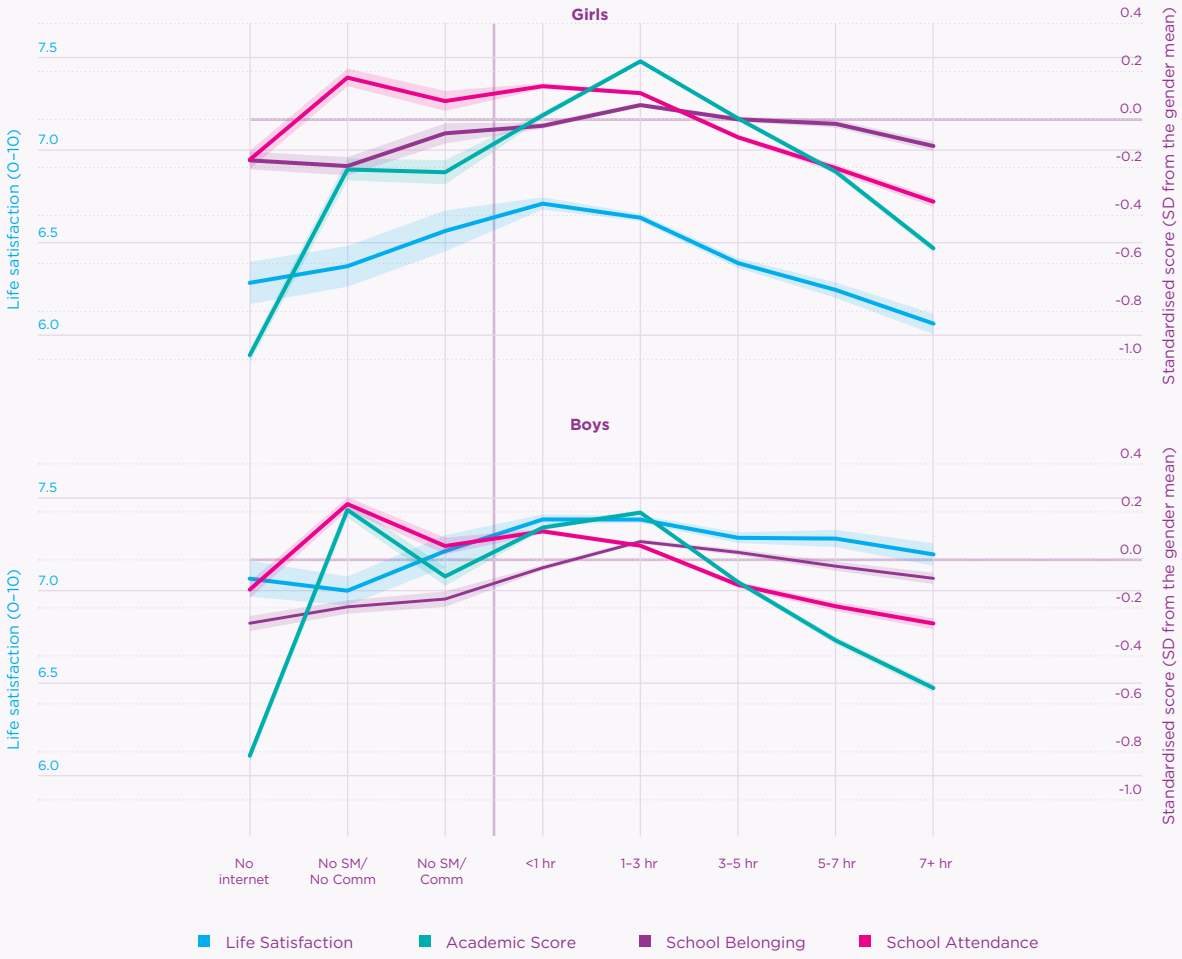
Figure 2.17: Youth wellbeing ratio vs communication and social media hours
Gallup World Poll (2006–2025) and PISA (2022)



Note: The youth wellbeing ratio is the mean life evaluation (Cantril Ladder, 0–10) for ages under 25 divided by the mean for ages 25+, from the Gallup World Poll (2020–2025, survey-weighted). A ratio above 1.0 indicates youth report higher life evaluations than adults. Communication hours (left panel) are country-level averages of a single PISA 2022 ICT item (IC177/178 Q05). Social media hours (right panel) are country-level averages of a single PISA 2022 ICT item (IC177/178 Q02). Both are computed as a weighted daily average (5 weekdays, 2 weekend days) from separate weekday and weekend reports. Dashed line: OLS fit (n = 47 countries). ** p < 0.01, * p < 0.05.

Figure 2.18: Outcomes by time spent on social media

PISA (2020)



Note: PISA 2022 ICT Questionnaire (weekday social media use), unweighted. Left axis: Life Satisfaction (0–10 scale). Right axis: Academic (Math+Reading+Science composite), School Belonging, and School Attendance, each standardised within gender (0 = gender mean, units = standard deviations). School Attendance = 1 (skipped or late rate). "No internet" = all 7 activities = "No time". "No SM/No Comm" and "No SM/Comm" = internet users with no social media, split by communication use.

social media nor communications, and to those with the lowest levels of social media use (<1 hour). Above that <1 hour category, the average life satisfaction of girls is steadily lower at higher rates of social media use. Boys show a different pattern, with increases from no communications activity to a high point in the 0 to 3 hour range, and only slight reductions thereafter.

For both girls and boys, academic scores tend to be lowest for those with no internet use, highest at moderate levels of use, and sharply lower at high levels of social media use. School attendance is highest with internet access but no social media or communications uses and is substantially lower at higher rates of social media use. For feelings of school belonging, the curve is flatter, with the highest levels of school belonging at moderate social media use.

Table 2.4: Correlations with life satisfaction by region (within-country standardised)
PISA (2022)

Girls						
Region	***n***	**Belonging**	**Attendance**	**Academic**	**SM hours**	**Bel/SM**
Western Europe	35,717	+0.361***	+0.162***	+0.043***	-0.098***	3.7x
English-speaking	6,995	+0.431***	+0.204***	+0.048***	-0.142***	3.0x
Central and Eastern Europe	44,533	+0.340***	+0.117***	-0.052***	-0.088***	3.9x
Latin America	14,408	+0.275***	+0.108***	+0.003	-0.060***	4.6x
Middle East and North Africa	10,043	+0.269***	+0.105***	+0.025*	-0.049***	5.5x
Asia	22,292	+0.340***	+0.090***	+0.033***	-0.056***	6.1x
47 Countries	**133,988**	+0.339***	+0.129***	+0.005	-0.084***	4.1x

Boys						
Region	***n***	**Belonging**	**Attendance**	**Academic**	**SM hours**	**Bel/SM**
Western Europe	35,145	+0.291***	+0.106***	-0.008	-0.043***	6.7x
English-speaking	6,865	+0.381***	+0.126***	-0.032**	-0.055***	7.0x
Central and Eastern Europe	43,374	+0.254***	+0.071***	-0.097***	-0.014**	18.2x
Latin America	14,163	+0.228***	+0.079***	-0.058***	+0.004	60.6x
Middle East and North Africa	8,392	+0.168***	+0.069***	+0.002	+0.007	24.2x
Asia	21,757	+0.296***	+0.054***	-0.014*	+0.003	119.5x
47 Countries	**129,696**	+0.271***	+0.081***	-0.044***	-0.019***	14.3x

Note: 47 countries. All variables z-scored within each country before pooling. Excludes students with no internet use. ***$p < 0.001$, **$p < 0.01$, *$p < 0.05$. Bel/SM = ratio of |Belonging| to |SM Hours| correlation with life satisfaction.

Even for those most at risk of harm from social media (girls in English-speaking countries), the life satisfaction gains associated with moving from the 10th to the 90th percentile in school belonging are four times larger than those of moving from the 90th to the 10th percentile of social media use.

Perhaps the most important finding from this expanded view of life at school is not apparent in the figure, but appears when we see how these four aspects of life – school belonging, social media use, academic scores, and school attendance – differ in their links to life satisfaction, as shown in Table 2.4.

For both boys and girls, in all regions, feeling a sense of belonging is the most important of the four variables by far. Even for those most at risk of harm from social media (girls in English-speaking countries), the life satisfaction gains associated with moving from the 10th to the 90th percentile in school belonging are four times larger than those of moving from the 90th to the 10th percentile of social media use. In the 47-country global sample, the belonging effect is six times larger.

The PISA evidence covers many countries and assesses students at an important stage of life and learning. The evidence is correlational, and in both cases is likely to overstate the direct causal effects, since both are likely to be reinforced by feedback loops. Unhappy students are likely to be drawn deeper into the vortex of social media excess, which in turn leads to more unhappiness. Happy students are more likely to feel, report, and contribute to high levels of belonging to the school community, which will tend, in turn, to lead to greater happiness for them and their school communities.

Although the correlations may overstate the one-way causal effects, the relative importance of belonging and social media seems well-established. The chapters in the rest of this report are devoted to measuring and reversing the downward spiral of social media overuse, while the *World Happiness Report* has, over many years, studied the positive feedback between belonging, social connection, trust, and happiness.

Summary

In the first part of our analysis, we revealed the basic puzzle to be explained: a large fall in youth wellbeing in the NANZ group of four mainly English-speaking countries, with later evidence suggesting a partially echoing drop in the UK and Ireland, the two English-speaking countries of Western Europe. Our task was to see if these patterns might be explained by international differences in social media prevalence and content.

First, we used individual data for cellphone access to the internet (for 2017–2025) and any use of social media in the previous 30 days (for 2022 only) to see if they correlated with individual life evaluations, after controlling for the six variables we use to explain differences in life evaluations. Cellphone access to the internet had a positive partial correlation with individual life evaluations in every global region, except in NANZ, where the coefficient was negative and large. When the UK and Ireland were split from the other countries in Western Europe, they also showed a significant negative relation, about one-third as large as the NANZ countries. The estimates for the coefficients on any social media use in the previous 30 days (well over 90%) were much less precise, but remarkably similar in magnitude to those for cellphone access to the internet (r = 0.93). These results suggested that social media and internet access were beneficial in most areas of the world, outside the NANZ group.

This evidence, although suggestive, did not measure the intensity or structure of social media use, did not separate social media use from other uses of the internet, or assess differences among social media platforms. Fortunately, we were able to harness other sources of internationally comparable data that allowed us to address these important questions.

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First, we used data from 47 countries in the 2022 PISA survey, which contained a special block of questions about the daily use of seven different types of internet activity, one of which was social media. Unfortunately, the four NANZ countries are not among the 47, since none of them collected life satisfaction data in the 2022 survey. Social media and other internet use data were collected for the United States and Australia, permitting them to be included in our internet use analysis even though they are excluded from the life satisfaction analysis.

For all global regions, excluding non-users of the internet, we found that some limited use (<1 hour per day) was associated with higher life satisfaction than no use for each of the seven activities. Higher rates of use were generally associated with lower life satisfaction, especially for social media, gaming, and browsing for fun, and more for girls than for boys. The other four uses (communication, news, learning, and content creation) showed smaller drops in average life satisfaction at higher rates of use, being essentially flat for boys.

The amount and structure of internet use by the PISA students were remarkably similar in all global regions covered. As a result, we concluded that differences in youth happiness among regions could not be explained by the number of hours devoted to social media. Figure 2.17 showed essentially no connection between national average hours of social media use and youth happiness. For six of the regions, there are substantial differences in youth happiness, but none in average hours of social media use. The two exceptions to this are the NANZ countries (represented in the social media use data by the United States and Australia), with by far the lowest relative youth wellbeing, and Latin America, with the highest average hours of social media use and quite high levels of relative youth wellbeing.

Higher rates of use were generally associated with lower life satisfaction, especially for social media, gaming, and browsing for fun, and more for girls than for boys.

Thus, for social media to play a major role in explaining the different levels of youth wellbeing around the world, their influence must depend on how they are used. If the content of social media depends on differences in culture and language, then the drops in youth wellbeing found in the NANZ countries should also be seen in the UK and Ireland, the two English-speaking countries of Western Europe. We found that the decline in youth wellbeing was much less in the UK and Ireland than in any of the NANZ countries, although it was slightly greater than the rest of Western Europe, but not significantly so (see Figure 2.13).[63]

The Latin American surveys further enriched our analysis by assessing the wellbeing links with specific social media platforms. We found significant differences between two platform types. Those emphasising social connections (SC) were more positively associated with life satisfaction than those with algorithmic content (AC). The Mexican data also had intensity of use, with positive linkages decreasing at higher use rates, and becoming negative for some of the AC platforms.

The generally positive relationships between social media use (at least at moderate levels) in both Latin American surveys provide some confirmation of the Table 2.4 evidence showing that Latin American students are apparently able to use social media in more positive ways than elsewhere.

Finally, we used the PISA data to take a broader view of the lives of 15-year-olds in 47 countries by adding school attendance, academic performance, and school belonging. We now had four outcomes, three of which showed evidence of the Goldilocks hypothesis, whereby the best outcomes were at moderate rates of social media use.[64] School attendance was different, as it was highest for those students who had internet access but did not use any social media. Life satisfaction was highest among those with modest levels of social

Social media platforms that emphasise communication are better at supporting happiness than those with algorithmic content.

media. The turning points for both academic performance and school belonging were at higher rates of social media use, but not by much. To get some idea of the relative strength of the life satisfaction correlations with social media use and having a high sense of school belonging, we calculated within-country standardised correlations. These were several times larger for school belonging than for social media use.

Averting negative consequences of bad design and misuse of social media, and supporting the positive spiral of trust, belonging, and happiness are both important. They are also likely to be linked. How are efforts to control social media use likely to affect the sense of school belonging, and how are efforts to build school belonging likely to affect the misuse of social media?

Getting the right answers to those questions is now more important than ever, as social media and social connections continue to change at what seem like ever faster rates. Platform design matters. As our Latin American evidence shows, social media platforms that emphasise communication are better at supporting happiness than those with algorithmic content. The extent and nature of such linkages deserve broad and timely tracking as social media, artificial intelligence, and their users respond to changes in technology, social norms, and regulatory frameworks.

Endnotes

1 Figure 19 in the online statistical appendix to this chapter shows changes of life evaluations of those under 25 years of age from 2006–2010 to 2023–2025. In that list of 136 countries, all four of the NANZ countries rank very low, with drops of 0.623 in Australia, 0.718 in New Zealand, 0.960 in the United States, and 1.138 in Canada. Several other Western industrial countries had drops in youth happiness of 0.4 points or more, putting them among the bottom 25 in the list of changes in youth happiness: Ireland at 0.461, Belgium at 0.576, the United Kingdom at 0.591, France at 0.599, Norway at 0.670, and Switzerland at 0.813.

2 Twenge (2019).

3 For instance see Nilsson et al. (2024), VanderWeele and Johnson (2025), VanderWeele et al. (2025).

4 See Annas (1993) for the Aristotelian view of happiness, and our previous writing on why "happiness" is an appropriate label for this scientific field of study (Helliwell & Aknin, 2018).

5 See Helliwell and Wang (2014) on weekend effects appearing only for emotions, and Kapteyn et al. (2025) for major life events having greater impacts on life evaluations than on emotions. See also the position in linguistic philosophy (Grice, 1975) that meaning is provided by the conversational context, in just the way we observe from the differing answers to 'happy yesterday' and 'happy about life as a whole'.

6 See Baumeister et al. (2001) for a comprehensive review of the prevalence of the negativity bias. Soroka (2006) presents UK evidence that this negativity bias is amplified by the media, so that "Mass media respond asymmetrically to economic information, and the public then responds asymmetrically to both media content and the economy itself."

7 Helliwell et al. (2026).

8 A country's average answer to the Cantril Ladder question is exactly equivalent to a notion of average underlying satisfaction with life under an assumption of cardinality: the idea that the difference between a 4 and a 3 should count the same as the difference between a 3 and a 2, and be comparable across individuals. Some social scientists argue that too little is known about how people choose their answer to the Cantril Ladder question to make this assumption and that if it is wrong enough, then rankings based on average survey responses could differ from rankings based on underlying satisfaction with life (Bond & Lang, 2019). Other researchers have concluded that answers to the Cantril Ladder question are indeed approximately cardinal (Bloem & Oswald, 2022; Ferrer-i-Carbonell & Frijters, 2004; Kaiser & Oswald, 2022; Krueger & Schkade, 2008).

9 For any pair of countries, the confidence intervals for the means (depicted in Figure 2.1 as whiskers) can be used to gauge which country's mean is higher than the other, accounting for statistical uncertainty in the measurement of each. The confidence interval for a country's *rank* (given in Figure 2.1 as text, in the form (*x*–*y*) represents a range of possible values for the ranking of their mean among all countries, accounting for uncertainty in the measurement of all of the means (following Mogstad et al. 2024). The ranges are constructed so that the chance that the range does not contain the country's true rank is no more than 5%.

10 Not every country has a survey every year. The total sample sizes are reported in the online statistical appendix and are reflected in Figure 2.1 by the size of the 95% confidence intervals for the mean, indicated by horizontal lines. The confidence intervals are naturally tighter for countries with larger samples.

11 See Helliwell et al. (2020) for a detailed analysis of the life satisfaction of immigrants to the United Kingdom and Canada from many source countries.

12 The East-West convergence has been happening within Germany itself. In 2008–2010, life evaluations were almost half a point lower in the former East Germany (0.46, $t = 5.8$), while by 2023–2025 that gap had essentially disappeared (0.01, which is effectively no different to zero). Given the East German population share of about 20%, the East German rise amounts to about 0.08 points for the German average. In that crowded section of the global rankings, that contribution covers about six ranks.

13 In 2013 there was no significant difference between the male and female responses while in this report (with data only from 2023, with surveys not feasible in 2024 and 2025) the male life evaluations (1.63) are 30% higher than for females (1.26). This is the largest gender gap ever seen in our reports, where at the global level there is a slight advantage favouring females.

14 Going from the larger to the smaller gains, these were Portugal, Iceland, Germany, and Finland.

15 All with increases of 0.15 points or more on the 0–10 scale.

16 All with drops of 0.11 or more on the 0–10 scale.

17 The online statistical appendix contains alternative forms without year effects (Table 9) and a repeat version of the Table 2.1 equation showing the estimated year effects (Table 8). These results continue to confirm that inclusion of year effects makes no significant difference to any of the coefficients. In these aggregate equations, adding country fixed effects (as in Table 10) lowers the coefficients on relatively slowly moving variables where most of the variance is across countries rather than over time, such as healthy life expectancy. Our equations based on individual observations, where income and health are measured by individual-level variables, include both year and country fixed effects, with coefficients very similar to those estimated without fixed effects.

18 The definitions of the variables are shown in Box 2.3, with additional detail in the online statistical appendix.

19 The model's predictive power is little changed if the year fixed effects in the model are removed, with adjusted R-squared falling only from 0.762 to 0.755.

20 The data and rankings for the 2023–2025 averages for the six variables are to be found in Figures 22–39 of the online statistical appendix. The rankings for positive affect are in Figures 40–42, and for negative affect in Figures 43–45.

The underlying annual data used in estimating the equations shown in Table 2.1 are currently not available on our website. At this time, we can only provide the data to researchers approved by Gallup.

21 For example, unemployment responses at the individual level are available in most waves of the Gallup World Poll from 2009 onwards. While they show an effect size similar to that found in other research, the coefficient has never been significant in the country-level equation and their inclusion does not influence the size of the other coefficients.

22 The main differences are a larger income effect, presumably flowing from the cyclical variations, higher coefficient on generosity, and the insignificance of the healthy life expectancy effect, probably due to its trend-like variation in most countries.

23 Box 2.3 explains how these measures are constructed.

24 Below, we use the term 'effect' when describing the coefficients in these regressions; some caveats to this interpretation are discussed later in this section.

25 In the equation for negative affect, healthy life expectancy takes a significant positive coefficient, despite its positive simple correlation with life evaluations in this aggregate dataset. This may be due to the fact that in the global sample there is a positive correlation between age and the frequency of reports of negative emotions. Countries with higher healthy life expectancies have respondents who are older on average, since the sample data are weighted to replicate the actual age shares of the population.

26 This influence may be direct, as many have found, e.g., De Neve et al. (2013). It may also embody the idea, as made explicit in Fredrickson's broaden-and-build theory (Fredrickson, 2001), that good moods help to induce the sorts of positive connections that eventually provide the basis for better life evaluations.

27 See, for example, the well-known study of the longevity of nuns, Danner et al. (2001).

28 See Cohen et al. (2003) and Doyle et al. (2006).

29 The meta-analysis by Chida and Steptoe (2008) shows significant linkages from positive affect to health, independent of the effects of negative affect. For a recent survey of the links running from positive emotions and life evaluations to subsequent morbidity and mortality, see Pressman et al. (2019).

30 The prevalence of these feedbacks was documented in Chapter 4 of WHR 2013 (De Neve et al., 2013).

31 For more detail, see Table 10 of the online statistical appendix for WHR 2018. We repeated the experiment this year, using data from 2017 to 2025, and confirmed the WHR 2018 findings. The latest results are shown in this year's online statistical appendix, specifically Table 11 that includes year fixed effects, and Table 12 that has both year fixed effects and country fixed effects.

32 We expected the coefficients on these variables (but not on the variables based on non-survey sources) to be reduced to the extent that idiosyncratic differences among respondents tend to produce a positive correlation between the four survey-based factors and the life evaluations given by the same respondents. This line of possible influence is cut when the life evaluations are coming from an entirely different set of respondents than are the four social variables. The fact that the coefficients are reduced, but only very slightly, suggests that the common-source link is real but very limited in its impact.

33 The income coefficient increases slightly since income is positively correlated with the other four variables being tested, so that income is now able to pick up a fraction of the drop in influence from the other four variables. We performed an additional test this year, using a specification that includes both year fixed effects and country fixed effects (our main specifications include year fixed effects only). Table 10 and Table 12 in the online appendix show the comparisons. Again, changes in estimated coefficients are small, with the biggest being the reduction in the effect of social support from 2.559 to 2.255, a 12% reduction that has borderline statistical significance. Again, we observe a slight increase in the effect of income per capita, and reductions in three of the other four factors. The only coefficient that increases in size is the effect of generosity, rising in magnitude by about 4%.

34 Actual and predicted national and regional average 2023–2025 life evaluations are plotted in Figure 49 of the online statistical appendix. The 45-degree line in each part of the figure shows a situation where the actual and predicted values are equal. A predominance of country dots below the 45-degree line shows a region where actual values are below those predicted by the model, and vice versa. The Middle East and North Africa region provides a slight example of the former case, and Latin America is an extreme case of the latter.

35 See Rojas (2018).

36 If special variables for Latin America and Southeast Asia are added to the equation in column 1 of Table 2.1, the Latin American coefficient is +0.50 (t = 5.2) and that for Southeast Asia is –0.30 (t = 2.1). Special variables for East Asia and South Asia are not significant.

37 See Chen et al. (1995) for differences in response style, and Chapter 6 of WHR 2022 for data on regional differences in variables thought to be of special importance in Asian cultures.

38 One slight exception is that the negative effect of corruption is estimated to be slightly larger (0.87 rather than 0.73), although not significantly so, if we include a separate regional variable for Latin America. This is because perceived corruption is worse than average in Latin America and its happiness effects there are offset by stronger close-knit social networks, as described in Rojas (2018). The inclusion of a special Latin American variable thereby permits the corruption coefficient to take a higher value.

39 Fortin et al. (2015).

40 Twenge (2019).

41 This definition is informed by panel reports from the American Psychological Association (APA, 2023) and the National Academies of Sciences, Engineering, and Medicine (Galea & Buckley, 2024).

42 The first wave of the survey was divided between 2005 and 2006.

43 Weighting by population tends to make each region represent mainly what is happening in the largest countries. The differences between the weighted and unweighted trends are analysed in Chapter 2 of WHR 2019. Population-weighted averages of average life evaluations by age group in WHR 2015 showed the youngest age group to be the happiest for the world as a whole, and for each global region. That same pattern is replicated for one-country one-vote data shown in Figure 2.2 for the 2006–2011 period. In the population-weighted data in WHR 2015, there was an apparent U-shape in age (where life evaluations are higher for the old and the young than for the middle age groups) only in the NANZ group of countries and in East Asia.

44 For reviews on children and adolescents, see OECD reports (2025a, 2025b, and 2025c), and especially OECD (2025b). For specific studies on children and adolescents see, for instance Boniel-Nissim et al. (2022), Keles et al. (2020), Orben et al. (2019), Thorisdottir et al. (2019), and Twenge et al. (2022). For research on emerging adults and older, see Coyne et al. (2020), Gaia et al. (2021), Jarman et al. (2023), Martingano et al. (2022), Shakya and Christakis (2017), Vannucci et al. (2017), and Vuorre and Przybylski (2023).

45 See Figure 3.6 in Fortin et al. (2015).

46 See Figure 3.8, Panel 6 in Fortin et al. (2015).

47 Although much social media research, including that in several chapters of this report, deals with adolescents, the Gallup World Poll data are limited to those 15 and over. The PISA survey we employ later covers a one-year range with an average age of 15.75 years.

48 This question was asked as part of the Gallup/Meta State of Social Connections study.

49 In the sample of data used for this figure, about 20% of the countries, and 35% of the total sample of those under 25 years of age, are in Sub-Saharan Africa, giving that region a large influence on the global panel.

50 Facebook came out in 2008, and had 600 million users by the end of 2010. Instagram was launched in October 2010 for Apple IOS only, and had 30 million users in April 2012 when it was acquired by Facebook and made available on Android in that same month. By the end of 2012 it was estimated to have 100 million users, and Facebook 1 billion. By the end of 2015, Facebook had about 1.6 billion users, and Instagram 400 million.

51 However, for the NANZ countries, and for Western Europe, the worry change is actually larger when the years 2020–2022 are removed from the recent comparison group.

52 Some reviewers have suggested that this result may be a consequence of universally high, and hence uninformative, internet access in the richer countries, with our netphone variable capturing the generally higher levels of economic development elsewhere, and the already demonstrated low youth happiness in NANZ. These are indeed possibilities worth checking. Including one variable denoting an individual aged <25, and another the log of GDP per capita to reflect the national level of development did not change any of the *netphone* coefficients materially, and shown in Table 14 of the online statistical appendix.

53 For the global sample of slightly more than 200,000 post-2016 respondents under the age of 25, the simple correlations between *netphone* and log income and college education are +0.42 and +0.25. For *social30*, with roughly 23,000 respondents <25 years in 2022, the corresponding correlations are very similar, at +0.40 and +0.13.

54 The sampling is based on age, with a minimum of 15 years and 3 months and a maximum of 16 years 2 months, with a fairly uniform sampling between those boundaries. The average age is 15.75 years.

55 It should be noted that past research on trajectories of life satisfaction suggests boys have an advantage around the age of 15. However, girls close this gap, and can even have higher life satisfaction, as they approach 23–24 years old, see Gestsdottir et al. (2015), Henkens et al. (2022), Marquez et al. (2024), and Orben et al. (2022).

56 See Huang et al. (2025).

57 This variable is the simple average of the following six questions: During the past week, did you __: feel you could not shake off the sadness? have trouble concentrating on what you were doing? feel depressed? feel that everything you did was an effort? not sleep well? feel sad? The response scale (treated as cardinal in a 0 to 3 range) is: Rarely or never (less than 1 day), Some or a little of the time (1–2 days), A considerable amount of time (3–4 days), All of the time or most of the time (5–7 days).

58 The SC and AC coefficients are 0.068 and 0.028 for females (p = .0021 for the difference), while being 0.075 and 0.023 for males (p = .0001).

59 The SC and AC coefficients for the young are 0.054 and 0.005 (p = .018 for the difference), and and 0.069 and 0.028 for those 25 and older (p = .0002 for the difference).

60 For young women, the coefficients are 0.050 and 0.013 (p = .189 for the difference) and 0.051 and -0.002 for young men (p = .079 for the difference). The smaller sample sizes are responsible for the decline in p-values in these cases.

61 A Wald test of the difference between the SC and AC coefficients is significant (p = .018).

62 It has been argued that lack of internet access (Hargittai & Hinnant, 2008), and unequal access to social media (Büchi & Hargittai, 2022) would increase wellbeing inequality among the young. However, for the PISA respondents, those without internet access have life satisfaction not far below those with some social media use, and, at least for girls, higher life satisfaction than among the heaviest social media users. Although we have tracked increasing within-country wellbeing inequality, the increases appear no greater among the young than their elders, thus limiting the possible role for social media as a driver of wellbeing inequality.

63 See Huang et al. (2025) for further evidence on the much larger drops in Canada and the United States.

64 Przybylski and Weinstein (2017) proposed the hypothesis and tested it with UK data. Brannigan et al. (2022) provided confirmation using Irish data. Most recently, Singh et al. (2026) used Australian data, while Nennistiel and Ulrich (2026) used an OECD sub-sample of the PISA data analysed in this report.

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Chapter 3

Social media is harming adolescents at a scale large enough to cause changes at the population level

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So where do digital media products fall on this spectrum? Are they more like bicycles or guns?

Key Insights

Is social media use reasonably safe for children and adolescents? We call this the "product safety question", and we present seven lines of evidence showing that the answer is no.

The evidence of harm is found in: 1) surveys of young people; 2) surveys of parents, teachers, and clinicians; 3) contents from corporate documents; 4) findings from cross-sectional studies; 5) findings from longitudinal studies; 6) findings from social media reduction experiments; and 7) findings from natural experiments.

We show there is now overwhelming evidence of severe and widespread direct harms (such as sextortion and cyberbullying), and compelling evidence of troubling indirect harms (such as depression and anxiety). Furthermore, we show that the harms and risks to individual users are so diverse and vast in scope that they justify the view that social media is causing harm at a population level.

We further argue that when these lines of evidence are considered alongside the timing, scope, and cross-national trends in adolescent wellbeing and mental health, they can help answer a second question: was the rapid adoption of always-available social media by adolescents in the early 2010s a substantial contributor to the population-level increases in mental illness that emerged by the mid 2010s in many Western nations? We call this the "historical trends question". We draw on our findings about the vast scale of harm uncovered while answering the product safety question to argue that the answer to the historical trends question is "yes".

Introduction

In this essay, we address an academic debate whose resolution carries enormous implications for public policy, legal liability, and parental decision-making: *is social media safe for adolescents?* By "safe" we mean a product whose ordinary use does *not* place young users at substantially elevated risk of mental health problems (especially depression and anxiety) or regularly expose them to serious direct harms. The average US teen now spends nearly five hours per day on social media (which includes roughly 2 hours on YouTube, 1.5 hours on TikTok, and 1 hour on Instagram).[1] A recent survey found that one-quarter of 13- to 14-year-olds in the US were on social media for seven or more hours each day.[2] While time spent varies across countries (see Chapter 5), five hours per day can be considered ordinary common use, and even seven is not unusual. Are these levels safe? We refer to this as "the product safety question".

By "adolescence" we mean the broad developmental period from roughly ages 10 to 19.[3] Puberty occurs in the first part of adolescence, usually beginning around ages 9 to 11 and reaching completion for most adolescents by age 15 or 16. Puberty is of special interest because it is well known as a period of very high brain plasticity. It is a "sensitive period" in which environmental factors and repeated experiences (such as watching very short videos for many hours each day) are especially likely to alter neuronal growth, pruning, and myelination.[4]

By "social media" we mean platforms that include user profiles, user-generated content, networking, interactivity, and (in most cases) algorithmically curated content. Platforms such as Facebook, Instagram, Reddit, Snapchat, TikTok, X, and YouTube all share these features.[5] This means that ordinary use includes interacting with anonymous adult strangers.

Photo Aisvri on Unsplash

Social media use can harm adolescents in many ways. *Direct* harms include exposing them to videos of graphic pornography and real-life violence, facilitating cyberbullying and deepfakes, promoting dangerous "challenges", connecting them with sexual predators, and facilitating the purchase of illegal drugs. As far as we know, no researchers challenge the claim that millions of adolescents around the world experience these harms every year on the major platforms.[6] These experiences are so common that they should also count as ordinary use.

But social media use can also harm adolescents *indirectly*, by gradually making them more anxious and depressed, or more prone to self-harm and eating disorders.[7] These mental health outcomes have garnered the largest body of research and are at the centre of the fiercest scientific debate. Therefore, in evidence lines four to seven we will focus on the *indirect* harms and, in particular, elevated risks of depression and anxiety from heavy use of social media (five or more hours per day) over an extended period of time. These harms are often found to be more substantial for girls. But our larger argument about the product safety question is about the totality of harms – direct and indirect, to boys as well as girls. Are these harms happening at a scale large enough to change population-level measures of mental health?

The historical trends question

There is a different but related question often asked about social media: was the spread of social media in the early 2010s (as smartphones were widely adopted) a major contributing *cause* of the big increases in adolescent depression, anxiety, and self-harm that began in the US and other Western countries soon afterward? We call this the "historical trends question" because it concerns changes across entire populations, measured over many years.

Multiple studies and long-running surveys show that adolescent mental health and wellbeing declined across many Western nations in the 2010s, before the arrival of the COVID-19 pandemic.[8] To take one example, between 2015 and 2018, there were nearly universal declines in life satisfaction among 15-year-olds in the Program for International Student Assessment (PISA). Out of 47 countries and territories with PISA data, for both 2015 and 2018, 40 revealed statistically significant evidence of a decline, six a statistically insignificant outcome, and only one – Republic of Korea – a statistically significant increase. These declines were strong and universal for both boys and girls.[9] Similarly, in that same dataset, there were nearly universal increases in adolescent school loneliness between 2012 and 2018 (increases in 34 out of 35 countries).[10] For additional studies and a discussion of cross-national trends in adolescent mental health and wellbeing, see the online appendix.

Multiple studies and long-running surveys show that adolescent mental health and wellbeing declined across many Western nations in the 2010s, before the arrival of the COVID-19 pandemic.

Answering the historical trends question is more difficult than answering the product safety question. Surveys and experiments run today can provide strong evidence about whether social media use is safe for individual teens right now, but they are insufficient, on their own, to settle debates about what caused historical trends that began over a decade ago.[11]

In this essay, we begin by focusing on the product safety question. We show that the answer is "no", social media is not safe for adolescents. Additionally, the evidence we lay out reveals direct and indirect harm on a scale so vast – affecting millions of adolescents each year in the US alone – that it becomes evidence that those harms are causing changes at the population level. This makes it more plausible that the answer to the historical trends question is "yes", which means the wholesale movement of adolescent social life onto social media platforms that began in most Western nations in the early or mid 2010s was a substantial contributor to the

large increases in mental illness (especially depression and anxiety) at the population level, which began soon afterward in many countries.

The structure of this essay

To address the product safety question, we present seven independent lines of evidence. We begin with three lines of evidence which, collectively, we refer to as "testimony". These testimonies reveal what adolescents report about their experiences; what parents, teachers, and clinicians observe; and what company documents and insiders reveal about design choices and known risks. These three lines of testimony are evidence that social media platforms are *causing* a variety of harms to adolescents.[12]

We then turn to the four lines of evidence that constitute most of the academic debate: cross-sectional studies, longitudinal studies, randomised controlled trials (RCTs), and natural experiments. These studies typically examine or manipulate the number of hours per day that young people spend using social media and relate them to measures of wellbeing or mental health. We show that these four lines, taken together, undermine the hypothesis favoured by Mark Zuckerberg and some researchers that social media use is merely *correlated* with poor mental health rather than *causing* it.[13]

Combining all seven lines of evidence reveals consistent and converging evidence that the major social media platforms such as Facebook, Instagram, Snapchat, TikTok, and X, as they are currently designed and commonly used, are dangerous consumer products that harm adolescents at a massive scale. The evidence of harm – both direct and indirect – is so strong and comes from so many sources in so many countries that we believe policymakers around the world now have enough evidence to justify action to protect children and adolescents.

Which standard of evidence?

We will present seven lines of evidence in a framework modelled after a legal proceeding. Most readers have seen enough courtroom dramas to understand how an attorney lays out a case against a defendant in a series of exhibits. But if the readers of this essay are the jury, then what standard of proof should they use? In a criminal case, the standard is very high: "beyond a reasonable doubt". The prosecuting attorney must convince the jury that the defendant is almost certainly guilty. This high standard is necessary because a false positive (convicting an innocent person) is a much graver error than a false negative (acquitting a guilty person).

Combining all seven lines of evidence reveals consistent and converging evidence that the major social media platforms such as Facebook, Instagram, Snapchat, TikTok, and X, as they are currently designed and commonly used, are dangerous consumer products that harm adolescents at a massive scale.

But a lower standard is used in a civil trial: "the preponderance of the evidence". The jury's task is simpler – decide, based on the evidence presented, whether the plaintiff is *probably* right or *probably* wrong. This standard is appropriate because there is little reason to think that either error is vastly or consistently worse than the other.

So what is the right standard for the jury in our imaginary legal case about the product safety question? It would be absurd to insist that the evidence must prove guilt "beyond a reasonable doubt". The cost of incorrectly concluding that social media is unsafe is not very large. The main cost is that children would have to wait a while – until the age of 16, according to some reform proposals – before they could open social media accounts. There are plenty of other ways for them to communicate and connect online and in person. And, as we'll show in Exhibit A, many young people say they would prefer to wait if everyone else waited too.

In contrast, the cost of the opposite error – incorrectly concluding that social media is safe for adolescents – is catastrophically high. If the case we lay out below is even partially correct, then the cost of not acting is to condemn millions of children to higher levels of mental illness, self-harm, and online victimisation.

We therefore ask you, the reader, to use the preponderance standard.[14] As you consider our seven lines of evidence, please evaluate whether the preponderance of the evidence indicates that the major social media platforms are *probably* safe for children and adolescents, or whether they are *probably not* safe.

We also want to be transparent about our own beliefs. We come to this essay having written a book (*The Anxious Generation*) that argues that social media use poses significant risks to adolescents, and that the current evidence base supports policy changes. We are making the case for the prosecution. Nonetheless, we aim to present the evidence fairly and transparently, and to engage with counterevidence where it exists. There are many researchers who agree with us,[15] and there are many who don't. We urge you to read the work of our critics alongside this essay.[16]

Let's begin.

Photo Jerry Wang on Unsplash

Evidence Line One: What the victims say

If the victim of a crime gets a good look at the alleged perpetrator, the prosecutor often calls that victim to the stand to tell her story. In this case, that victim is Gen Z (born 1996 to 2011 or so).[17] They were the first people to go through puberty while using social media platforms that were constantly accessible on their new smartphones (beginning around 2012). When they look at their lives so far, do they feel grateful that these products were a part of their childhoods? Or do they believe that the social media platforms harmed them? If we could call Gen Z to the witness stand, *what would they say?*

Exhibit A: Surveys of young people show harm and regret

Each year, the Pew Research Center releases a survey on US teens' experiences with social media, and consistently finds that many report direct negative effects firsthand.[18] In 2024, nearly one-third of respondents reported being on at least one social media platform "almost constantly".[19] Among teenage girls, 20% said it hurts their confidence, 25% said it harms their mental health, and 50% said it negatively affects their sleep.[20] 34% of teen girls (and 20% of teen boys) said it makes them feel worse about their own lives. At scale, this amounts to many millions of US adolescents.

The study also found that many adolescents point to benefits. The most common benefits cited were that "what they see makes them feel more accepted or as if they have people who will support them through tough times" (52%), that it gives them a creative outlet (63%), and makes them feel *more* connected to what is happening in their friends' lives (74%). However, the relevant product safety question is not whether some users (even a majority) report benefits, but whether a substantial share experiences harm. If teens were surveyed about alcohol, many would likely report benefits as well; that is not relevant to the product safety question.

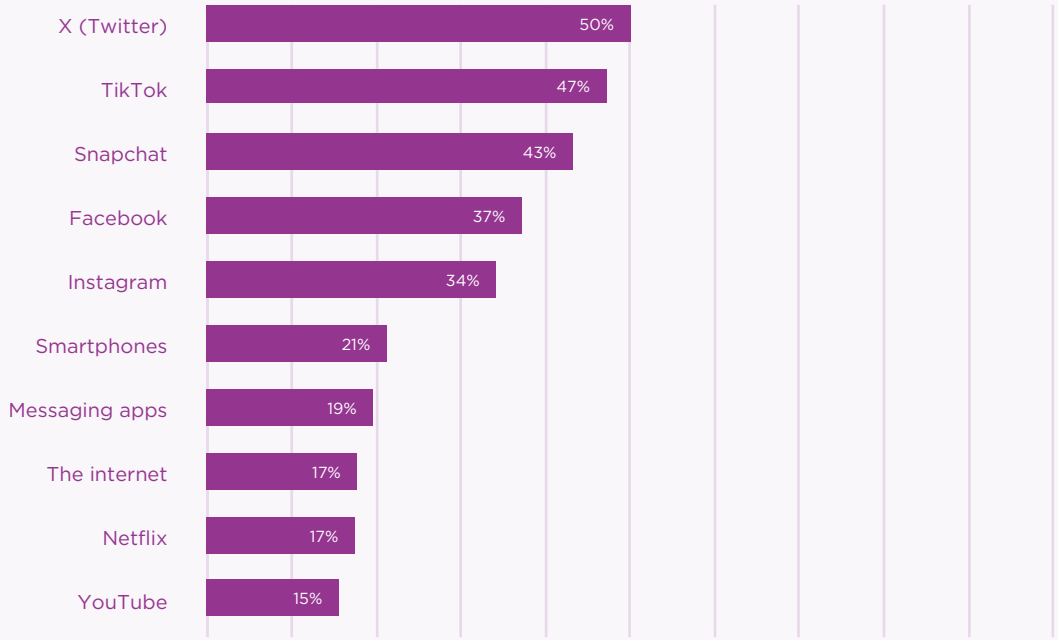
A more revealing test is to ask young people whether, in retrospect, they wish these products had never been invented. In a US survey of Gen Z adults (ages 18 to 27), that we conducted with the Harris Poll,[21] regret was low for products such as YouTube (15%), Netflix (17%), and messaging apps (19%), but much higher for social media platforms: 34% wished Instagram had never been created, 43% said the same about Snapchat, and nearly half expressed regret about TikTok (47%) and X (50%). In other words, one-third to one-half of young adults wish that some of the platforms they use for five or more hours each day had never existed.[22]

We are not the only ones to find this high level of regret. A 2023 study led by Leonardo Bursztyn found that 58% of US college students would prefer a world without Instagram and 57% without TikTok. Even among active users, one-third of TikTok users and over half of Instagram users said the same.[23] The researchers also asked how much money they would have to pay participants to give up TikTok or Instagram for a month. The answer? $59 and $47, respectively. But when asked how much it would take if most others on their campus also gave up the apps, the average answer dropped below zero. In other words, *the participants were willing to pay the researchers* to help them and their peers get off social media. You can read more about this study and the concept of 'product traps' in Chapter 6.

In the UK, a nationally representative survey conducted by More in Common in 2025 found that 62% of young people (ages 16 to 24) believe social media does more harm than good for those under 16, rising to 66% among Gen Z women. 55% said life would be better if social media were banned for under-16s, compared to 22% who said it would be worse.[24] A different survey, by BSI, the UK's national standards body, finds similarly grim assessments in 2025 from young people in the UK (ages 16 to 21) about their online lives.[25]

Australian survey data show similar patterns, with young people identifying social media as a leading contributor to declining youth mental health.[26] In sum, when the apparent victims are surveyed, they positively identify social media as the perpetrator. There is little gratitude[27] and a lot of regret expressed toward these companies and their products,[28] at least across three

Figure 3.1: % of US youth (ages 18–27) who wish social media platforms didn't exist
Harris Poll (2024)



English-speaking countries. More work is needed in other countries, but other chapters in this report analyse the global data we have so far.

Exhibit B:
Internal surveys from social media companies show that Gen Z perceives high levels of harm

In October 2021, Facebook whistleblower Frances Haugen released thousands of internal documents and screenshots revealing that the company was well aware of the many harms its platforms were causing teens.[29] We will cover what Facebook/Meta's leaders and employees said in a later exhibit. For now, we will focus on the surveys they conducted or commissioned about the experiences of their young users.

Among the most widely cited of these findings is an internal study – covering Brazil, India, Indonesia, Japan, Türkiye, and the United States – showing that one in three teen girls said Instagram made their body image issues worse (while 22% said it improved their body image).[30] Meta researchers also analysed qualitative data (i.e., what the teens said in their own words). From the report they submitted to Meta: "Teens blame Instagram for increases in the rate of anxiety and depression [...] This reaction was unprompted and consistent across all groups."[31]

A separate internal survey of 50,590 Instagram users across 10 countries – Australia, Brazil, France, Germany, India, Japan, Mexico, Republic of Korea, the UK, and the US – found that more than one-third of teen girls (37%) reported often

Photo Erik Mclean on Unsplash

or always seeing posts that made them feel worse about their bodies, compared to 26% of users overall.[32]

Two years after the release of the *Facebook Files*, another whistleblower, Arturo Béjar, came forward with internal research he had led at Instagram.[33] His study of more than 200,000 Instagram users, known as the Bad Experiences and Encounters Framework Survey, offered a snapshot of what teens were facing on the platform.[34] The picture was alarming. Among Instagram users aged 13 to 15, 13% reported receiving unwanted sexual advances – in *the past week alone*. That same percentage had seen violent, bloody, or disturbing images during the same time frame, and 28% reported witnessing bullying on the platform.

Additional internal research from other platforms – including Snapchat and TikTok[35] – reveals similarly troubling patterns. In a 2024 court filing by the Nebraska Attorney General, evidence drawn from TikTok's own internal studies showed that:

> [U]sers found that overuse of TikTok caused **"negative emotions", "interfered with [users'] obligations and productivity",** and led to **"negative impacts [...] on their lives",** including **"lost sleep, missed deadlines, poor school performance, running late, etc."** It reported that **"many participants described their use of TikTok disturbing their sleep, which limited their productivity and performance the following day",** and that **"[e]very participant indicated that time management on TikTok was especially difficult compared to other social media platforms."**

Across the board, these internal user surveys and related documents reveal that the companies *know* that millions of their young users perceive a great deal of harm to themselves and their peers from the ordinary use of these products.

Internal user surveys and related documents reveal that the companies know that millions of their young users perceive a great deal of harm to themselves and their peers from the ordinary use of these products.

In a courtroom, it is powerful when a victim points to the defendant and says "he did it". The exhibits we highlighted – surveys of adolescents from independent organisations like Pew as well as the social media companies themselves – make it clear that Gen Z is pointing to social media platforms as the perpetrator.

Of course, the victim could be mistaken or could be lying, so direct positive identification is strengthened when corroborated by eyewitness testimony. The same logic applies here, so let's move to our second line of evidence and call a variety of witnesses to the stand.

Evidence Line Two: What the witnesses say

One of the most striking patterns we encountered in our research and conversations is that in every group of adults that works closely with young people – parents, teachers, school counsellors, doctors, coaches, therapists, and more – many tell us they've seen firsthand a dramatic shift in kids' mental health beginning in the 2010s, well before the arrival of COVID-19. Their testimony corroborates the claims made by so many members of Gen Z.

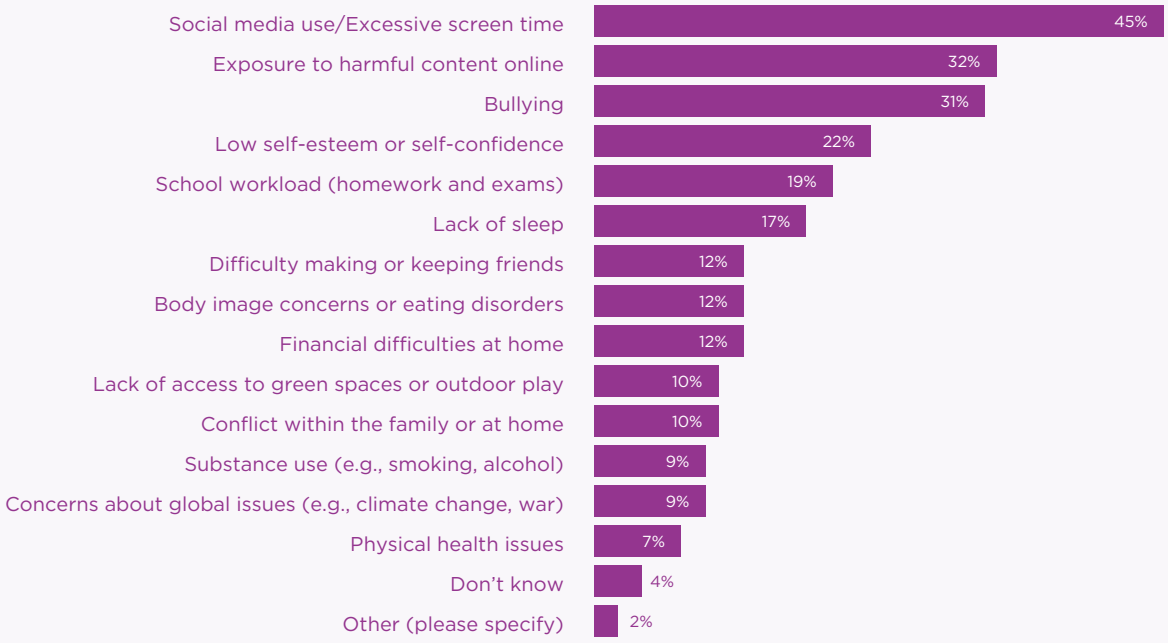
Exhibit C:
Parents fear social media and perceive harm

Parents are on the front lines. They know their children intimately. They watch closely as new experiences, relationships, and technologies shape their children's development. When something changes, parents are often the first to notice and to care.

When it comes to social media, most parents are deeply concerned about its impact on their children's wellbeing. They're not just reacting to headlines or stories about a crime committed far away, as in media-driven panics over comic books in the 1950s. Rather, parents are observing changes in their children's behaviour, moods, sleep, and self-esteem after they give their children touchscreen devices and social media accounts. Parents see how these products and platforms are affecting their kids' daily lives. In survey after survey, they corroborate the claims made by members of Gen Z in Evidence Line One.

A 2025 Pew survey of US teens and their parents found that 44% of parents identified social media as the single most negative influence on teen mental health, ahead of "technology generally".[36] Similarly, the 2025 UK survey by More in Common (discussed in Exhibit A) asked parents to identify what most negatively affects their own children's mental health. The top response was "social media use/excessive screen time", followed by concerns closely linked to digital technology, including exposure to harmful online content, bullying, low self-esteem, and lack of sleep (see Figure 3.2 below).

Figure 3.2: The biggest negative effects on young people's mental health, according to UK parents
More in Common (2025)



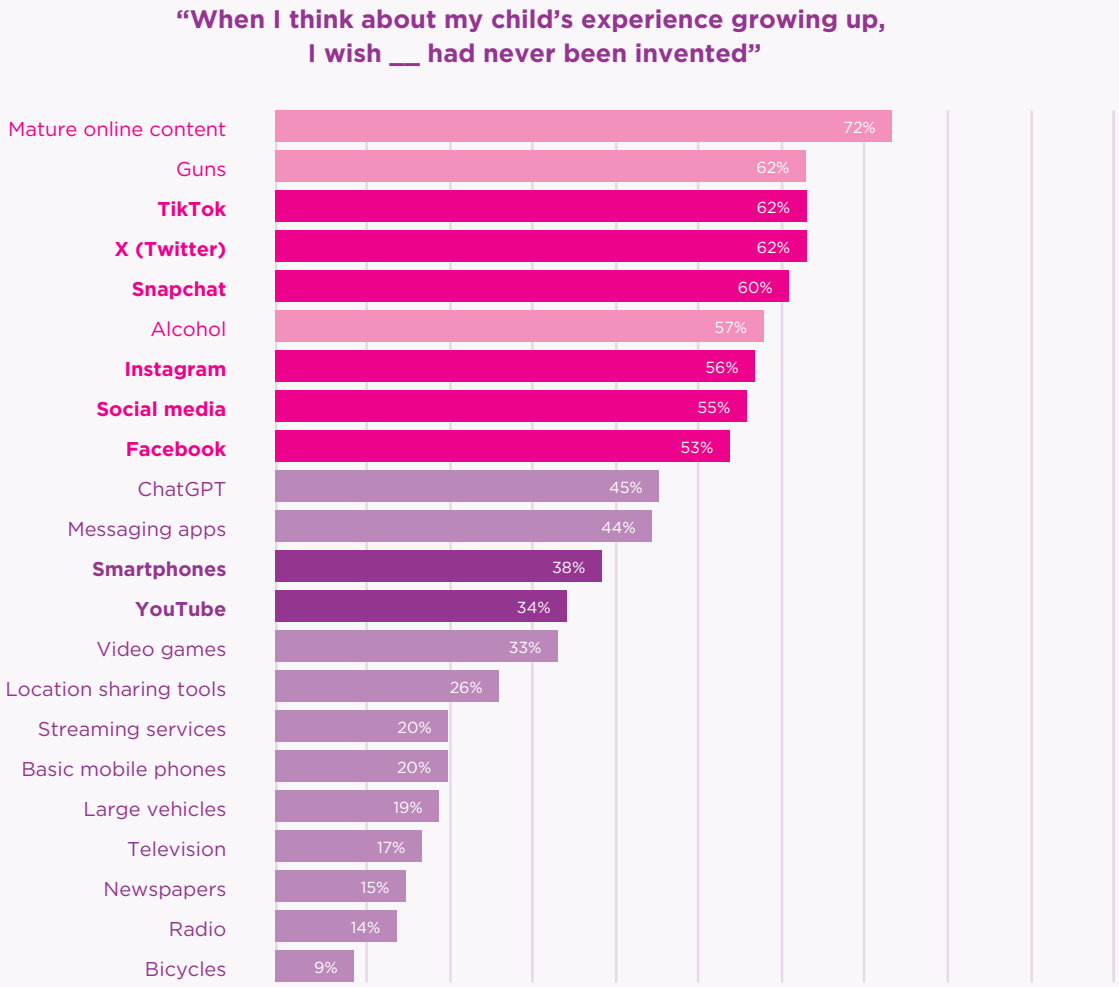
In our own research with the Harris Poll, we surveyed 1,013 US parents to gauge regret, as we did with Gen Z (see Exhibit A).[37] Specifically, we asked parents to reflect on the role of various products in their children's lives by considering the sentence: *"When I think about my child's experience growing up, I wish _____ had never been invented."* Their responses are shown in Figure 3.3.

Not surprisingly, few parents expressed regret about bicycles (9%), even though many children have been injured riding one. Bicycles are viewed as positive tools for growth and independence, despite their risks. In contrast, most parents see products like alcohol, guns, and pornography as clearly harmful in the context of childhood development.

So where do digital media products fall on this spectrum? Are they more like bicycles or guns?

For some items, like smartphones and YouTube, there was ambivalence: about one-third of parents said they wished these had never been invented, but the majority did not. But for social media platforms, especially Facebook, Instagram, TikTok, and X, the results were far more stark. A majority of parents said they wished social media had never been created. For TikTok and X, 62% of parents expressed regret – higher than for alcohol and equal to guns.

Figure 3.3: Percentage of US parents who wish social media platforms didn't exist
Harris Poll (2024)



It's not just parents in Anglophone countries who are worried.[38] An Ipsos survey of parents with school-age children, conducted in 30 countries, found that mental health was the top concern, far ahead of physical health.[39] The survey also found that majorities in all 30 countries favoured banning everyone under the age of 14 from having a social media account, although concerns about social media were generally higher in developed Western nations than in developing nations.

Parents are not unanimous, but increasingly, and across many nations, they are expressing their beliefs that smartphones and social media are harming their children.

Photo Fajar Herlambang Studio on Unsplash

Exhibit D:
Educators perceive harms to education and mental health

Another group of adults with a front-row view of what is happening to young people are the teachers and school administrators who see them every school day. These adults witness firsthand how students behave, focus, interact, and learn. Many have been around long enough to witness how students have changed since 2010. So what do they see? Do they view social media as a relatively benign tool for social connection, or as something more harmful?

In recent years, several important surveys have explored exactly this question. These studies span different countries and school roles.

One 2024 study conducted by the television network NBC surveyed 559 US elementary and secondary school principals about the impact of smartphones and social media on their students.[40] Just 1.3% believed that concerns about these technologies were "overblown". In contrast, 42.2% said they *firmly believe* that smartphones and social media are "major causes of deteriorating student mental health". When asked about the effects of smartphones on their own student bodies, large majorities said that they see these harmful effects: distraction and tiredness; depression, anxiety, and loneliness; as well as student conflicts and bullying. Few said they saw evidence of benefits, such as improving students' work (3.4%) or improving their mental health (5.6%).

What about the teachers themselves? A 2024 survey of 2,889 US educators – members of the National Education Association – asked participants to rate how much various factors contribute to student mental health challenges in their schools.[41]

The top concern was "lack of parental involvement and communication" (92%). But just below that were two factors that point directly to technology: 84% of educators said that "social media use" contributes to student mental health issues, and 81% said the same for "cell phone or personal device use after school hours".

Beyond mental health, US educators overwhelmingly agree that social media and smartphones are a major source of distraction that interferes with learning. In a recent Pew survey, 72% of US high school teachers said that cell phone distraction is a *major problem* in their classrooms.[42] Another survey of 595 US educators from EdWeek Research Center found that approximately nine out of ten believe social media harms students' communication skills, their treatment of others, and girls' mental health.[43]

We find similar concerns among teachers in other Western countries, including England,[44] Spain,[45] and France.[46] One survey of teachers (80% of sample), school leaders, and parents across the European Union found that 54% believe that mobile phone use negatively affects the overall school environment, 56% reporting a negative impact on social interactions and wellbeing, and 71% reporting that it worsens students' ability to focus.[47] Taken together, these findings show that the belief that social media and smartphones are harming students' education and mental health is not isolated or fringe. It is the *dominant perception* among educators across many Western nations. They stand in the witness box, point to social media platforms, and say: "They did it".

The belief that social media and smartphones are harming students' education and mental health is not isolated or fringe. It is the dominant perception among educators across many Western nations.

Exhibit E:
Clinicians perceive harm to mental health (according to Meta)

A third group with deep insight into young people's lives are mental health clinicians. They work closely with young people, observe their problems firsthand, are trained to identify and treat their distress, and see how those challenges change over time. So what do they report about social media's impact on their clients?

While there is limited research available on the views of clinicians, Meta itself conducted a mixed-methods study of more than 1,000 psychiatrists, psychologists, therapists, and social workers to answer this question.[48] According to findings disclosed in court documents from a Multi-District Litigation brought by US school districts, 81% of clinicians said social media exacerbates anxiety disorders in their patients, 78% said it worsens depressive disorders, and 85% agreed that social media can be addictive. In other words, Meta itself found that clinicians believe that social media platforms are *causing* harm to adolescents.

We close our discussion of Evidence Line Two with an observation about the witnesses. No group or occupational category that works closely with children has come forth to say that social media is, overall, *beneficial* for adolescent mental health. No group or professional body has stepped forward as a character witness to say that the defendants are benefactors to young people, or that they are not the sort of companies that would knowingly harm young people.

As we will show in Evidence Line Three, they are very much the sort of companies that knowingly harm young people.

Evidence Line Three: What company documents and insiders reveal

Executives and some employees at TikTok, Snap, and Meta know (or seem to believe) that they are causing widespread harm to adolescents on their platforms. Quotations and statistics revealed through whistleblowers, lawsuits, and leaked documents and studies from inside the major social media companies make this clear.[49] We've compiled and organised such quotes and statistics – including direct quotes, internal slide decks, and stories of teens harmed.[50] Journalists such as Jeff Horwitz at *The Wall Street Journal* and *Reuters* have also reported extensively on the matter.[51] We also created a website, MetasInternalResearch.org, which compiles all of the publicly available information about dozens of internal research projects carried out by Meta and brought out by whistleblowers, or in the process of discovery during legal proceedings.

Below we highlight just a few of the most revealing internal quotations and statistics. These are admissions from company insiders and external consultants hired to offer advice.

Exhibit F: TikTok knows or believes that it is harming children at an industrial scale

In our essay "TikTok Is Harming Children at an Industrial Scale",[52] we collected direct quotations from TikTok employees and executives, drawn from the briefs of two court cases, and posted online by the Attorneys General of Kentucky and Nebraska.[53] Here are just a few of the most incriminating quotations. The **text in boldface** comes directly from company employees and internal memos. The normal text around it was supplied by attorneys to frame the quotes.

> **"Compulsive usage correlates with a slew of negative mental health effects like loss of analytical skills, memory formation, contextual thinking, conversational depth, empathy, and increased anxiety",** in addition to **"interfer[ing] with essential personal responsibilities like sufficient sleep, work/school responsibilities, and connecting with loved ones."**
>
> *—TikTank Report, an internal TikTok research group* [54]

> **"The product in itself has baked into it compulsive use."**
>
> *—TikTok executive*

> **"The reason kids watch TikTok is because the algo**[rithm] **is really good [...] But I think we need to be cognizant of what it might mean for other opportunities. And when I say other opportunities, I literally mean sleep, and eating, and moving around the room, and looking at somebody in the eyes."**
>
> *—TikTok executive* [55]

> Internal documents highlight the fact that minor users are **"particularly sensitive to reinforcement in the form of social award",** have **"minimal ability to self-regulate effectively",** and **"do not have executive function to control their screen time".**
>
> *—TikTok internal document* [56]

The full list of quotations is much longer.[57] The evidence is clear: TikTok employees know they are harming millions of children.

Executives and some employees at TikTok, Snap, and Meta know (or seem to believe) that they are causing widespread harm to adolescents on their platforms. Quotations and statistics revealed through whistleblowers, lawsuits, and leaked documents and studies from inside the major social media companies make this clear.

Exhibit G:
Snap Inc. knows or believes that it is harming children at an industrial scale

Our second essay in this series was "Snapchat Is Harming Children at an Industrial Scale".[58] As we did for TikTok, we drew quotations from a legal brief that was posted online, in this case by the Attorney General of New Mexico.[59] The results are just as incriminating. One of the most widespread of the serious direct harms on Snapchat is sextortion, which causes great distress to its victims and sometimes leads directly to suicide as an escape from deep shame.[60] As of 2022, Snap was internally aware that they receive:

> **"[A]round 10,000 user reports of sextortion each month,"** and **"that 10k monthly reports likely represents a small fraction of this abuse as this is an embarrassing issue that is not easy to categorize in reporting."**
>
> *—Snap Trust and Safety Team Member* [61]

One year later, in March of 2023, an employee stated **"God I'm so pissed that we're over-run by this sextortion shit right now. We've been twiddling our thumbs and wrung our hands all f...ing year."**

—Snap employee [62]

It's not just sextortion; Snap's design makes it an excellent platform for cyberbullying, which is also a common cause of death by suicide:

> In a February 2022 'In-App Reporting Research' deck by Snap's consultant, Snap found, **"cyberbullying, both anonymous and from known contacts, was a commonly cited problem [among users] [...] Disappearing messages can embolden bullies to harass people with less fear of consequence."**
>
> *—Internal research deck from Snap consultant* [63]

Because Snapchat is a way by which anonymous adults can easily reach young people once they connect with any young person (via the "quick add" or "find friends" feature), it is a vector for the sale of many illegal and dangerous products:

> An undated internal Snap presentation acknowledged that Snap had a **"problem"** with drugs and guns; that dealers are using Snapchat's **"sharing mechanisms" "to reach teens on Snapchat they would never encounter in real life"** and that **"some teens have even died as result of buying drugs that they found through Snapchat".**
>
> *—Snap internal presentation* [64]

While quotations about depression and anxiety do not seem to be as common at Snapchat as they are at Instagram and TikTok, the evidence that Snapchat's design facilitates a variety of very dangerous encounters is strong, and these direct harms can cause anxiety and exacerbate mental illness. Snap employees know they are harming millions of young people, and they know that these harms are directly linked to specific product design choices that they made.

Exhibit H:
Meta knows or believes that it is harming children at an industrial scale

In September 2021, whistleblower Frances Haugen brought out thousands of pages of internal Facebook reports, memos, and emails. *The Wall Street Journal* published these revelations in a series of articles titled *The Facebook Files*.[65] Below we draw quotations from those documents, as well as from disclosures by Arturo Béjar,[66] another whistleblower from Meta, and from *New Mexico v. Meta* and *Northern District of California v. Meta*, two major ongoing lawsuits.[67]

> […] [A]n internal Meta email to Adam Mosseri stated **"[o]ur overall goal remains total teen time spent […] with some specific efforts (Instagram) taking on tighter focused goals like U.S. teen total time spent."** Another 2018 email stated Meta's focus succinctly: **"Short summary is 'the young ones are the best ones.' You want to bring people to your service young and early."**
>
> *—Internal Meta email* [68]

Facebook's founding President, Sean Parker, in 2017: **The thought process that went into building these applications, Facebook being the first of them […] was all about: "How do we consume as much of your time and conscious attention as possible?" "And that means that we need to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever. And that's going to get you to contribute more content, and that's going to get you […] more likes and comments." "It's a social-validation feedback loop […] exactly the kind of thing that a hacker like myself would come up with, because you're exploiting a vulnerability in human psychology." "The inventors, creators – it's me, it's Mark [Zuckerberg], it's Kevin Systrom on Instagram, it's all of these people – understood this consciously. And we did it anyway."**

—Facebook founding president [69]

"There are reasons to worry about self-control and use of our products" and presenting a **"quick rundown of evidence"** – including **"**[a]**n experiment** [which] **found that a 1-month break from Facebook improved self-reported wellbeing."** In response, another senior data scientist at Meta (who also holds a PhD in neuroscience, and taught a university course on addiction) warned: **"It seems clear from what's presented here that some of our users are addicted to our products. And I worry that driving sessions incentivizes us to make our product more addictive, without providing much more value. How to keep someone returning over and over to the same behavior each day? Intermittent rewards**

are most effective (think slot machines) reinforcing behaviors that become especially hard to extinguish – even when they provide little reward, or cease providing reward at all."

—A member of Meta's core data science team and a senior data scientist at Meta [70]

"Oh my gosh yall IG is a drug [...] We're basically pushers [...] We are causing Reward Deficit Disorder bc people are binging on IG so much they can't feel reward anymore [...] like their reward tolerance is so high [...] I know Adam [Mosseri] **doesn't want to hear it — he freaked out when I talked about dopamine in my teen fundamentals leads review but its undeniable! Its biological and psychological [...] the top down directives drive it all towards making sure people keep coming back for more. That would be fine if its productive but most of the time it isn't [...] the majority is just mindless scrolling and ads."**

—A chat between two UX Meta researchers [71]

Meta employees know they are harming millions of children and adolescents. They know this from their own research. As Sean Parker said, they knew what they were doing, and they did it anyway.

We have now examined the first three lines of evidence. Let us pause for a moment to evaluate the case so far. We have shown that:

- The victims identify the defendants as having harmed them (Exhibits A and B).
- Multiple witnesses who had a clear view of the scene agree (Exhibits C, D, and E).
- The defendants themselves talked and wrote extensively about the many ways that their products were harming adolescents (Exhibits F, G, and H).

We believe that these eight exhibits, comprising three distinct lines of evidence, are sufficient in themselves to answer the product safety question. The answer is: no, social media platforms are *not* safe for children and adolescents. Even the people who run them say so, in private, which may explain why many tech executives place very severe restrictions on their own children's exposure to smartphones and social media.[72]

Let us now turn from the three lines of "testimony" to the four lines of academic research that are at issue in academic debates over social media and adolescent mental health: cross-sectional studies, longitudinal studies, randomised controlled trials (RCTs), and natural experiments.

Our goal is not to provide a comprehensive review of the academic literature, but rather to explain the four main kinds of studies that researchers are debating, and to show that, within each line, there are many studies showing compelling evidence of harm. We also show that the studies most often cited as *failing* to show risk or harm do, in fact, show risk or harm when the analysis is "unblended" or when other problems are fixed.

Evidence Line Four: Cross-sectional studies

The most common type of study surveys hundreds or thousands of young people (often college students) about their daily social media use (self-reported in hours per day) and their mental health (also self-reported). Researchers who conduct these cross-sectional studies are trying to determine if there is an association between social media use and adolescent mental health outcomes. Cross-sectional studies do not establish causal relationships on their own, but they are a first step in public health and epidemiological research. If heavy users of social media are much worse off than light users (after controlling for relevant factors), then there is more reason to suspect a causal relationship than if there had been no association, or a reverse association.

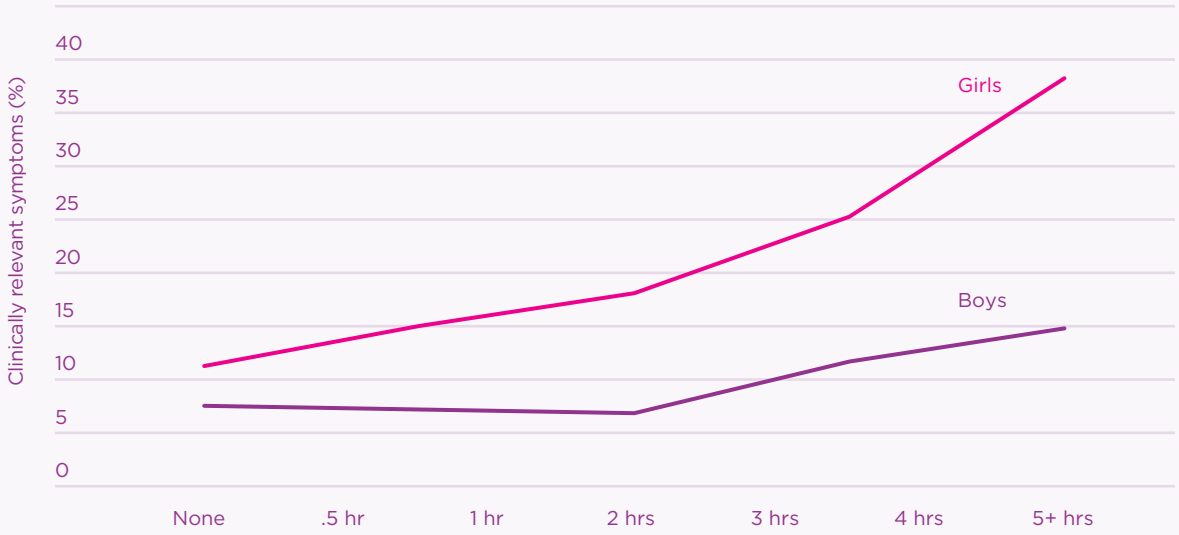
These cross-sectional (or correlational) studies now number in the thousands, but researchers differ on how to interpret the findings. Most studies find statistically significant associations; heavy users of social media are nearly always found to be in worse mental health than light users or non-users.[73] But some researchers interpret the associations as being "too small to warrant policy change"[74] while others (including us) interpret the associations as being much more worrisome, and comparable in size to other public health risks for which societies take action. Which camp is correct?

Exhibit I:
Cross-sectional studies show that heavy users have elevated risk of depression

One of the most careful studies to date analysed data from 10,904 14-year-olds in the UK Millennium Cohort Study.[75] The authors found that adolescents who spent five or more hours per day on social media were about *two times* more likely to meet criteria for depression than those who used it for less than one hour per day (see Figure 3.4 below). In this study, heavy social media users (five or more hours per day) constituted roughly *one-fourth* of 14-year-old girls and 10% of boys.

Additional studies reinforce these findings.[76] A 2022 meta-analysis found that the odds of depression increased by about 13% for every additional hour per day of social media use (*OR* = 1.13).[77] Given that the average adolescent now spends roughly five hours per day on social media in the US (4.4 hours for boys, and 5.3 for girls),[78] this translates into a very large cumulative risk. Using these numbers, we can extrapolate that even average daily use is associated with over a 50% increase in the risk of depression compared with little or no use – with even larger effects among girls.[79]

Figure 3.4: The association between depression in UK 14-year-olds and hours spent on social media per weekday
Kelly et al. (2019)



In this same UK Millennium Cohort Study dataset, the risk elevation of heavy social media use for depression among girls (*RR* = 2.65 between those who spend more than five hours a day and those who spend less than one) is comparable to that of sleep deprivation (sleeping less than seven hours per night, *RR* = 2.45) and victimisation by online harassment (*RR* = 2.56).[80] The risk elevation from heavy social media use is *greater* than the risk elevation from poverty (*RR* = 1.22) for adolescent depression.[81]

These elevated risk findings were central to the US Surgeon General's warnings in 2023 and 2024.[82] Citing studies which documented that high levels of social media use predicted double the future risk of depression among adolescents,[83] the Surgeon General cautioned that heavy and problematic use of social media poses "profound risk" to youth mental health.

Yet, some researchers do not account for these findings and argue that there is little or no association between social media use and adolescent mental health. They tend to cite a few influential studies to make their case. In the section below, we show that even these studies, when analysed correctly, reveal risks to adolescent mental health.

Exhibit J:
Studies that report null findings actually yield significant associations when examining adolescent girls, heavy social media use, and internalising disorders

Many of the most-cited "null" findings focus on broad wellbeing scales that dilute the primary outcomes of concern – anxiety and depression in adolescents. One of the most influential reviews that critics use to dismiss the harms of social media was conducted by Jeff Hancock and colleagues in 2022.[84] Their meta-analysis of 226 studies was prominently cited in the National Academies of Sciences report *Social Media and Adolescent Mental Health*, which Mark Zuckerberg cited for exoneration in front of the US Senate.[85]

The headline claim in their abstract was that "social media use is not associated with an aggregated measure of well-being" (*r* = 0.01). Here, the aggregated wellbeing outcome blended together questions about anxiety and depression with eudaimonic and hedonic wellbeing as well as social wellbeing, which is not a mental wellbeing outcome.

Yet, Hancock and colleagues *themselves* found that when the aggregated wellbeing measure is unblended and narrowed down to measures of internalising disorders, the correlations are much larger: *r* = 0.18 for anxiety, and *r* = 0.13 for depression.[86]

In another study widely cited by researchers in the "too small" camp,[87] a re-analysis found much larger associations.[88] When the three large datasets in that study were "unblended" so that associations between social media use (not all digital media) and internalising disorders (not a broad measure of many diverse outcomes) were calculated for girls (not all teens), the associations were, once again, much larger.

These examples show why apparent "null" findings should not be taken at face value. Blending populations, technologies, and outcomes can often suppress the associations at the centre of the debate about social media's effects on adolescent mental health.[89] Once these studies analyse the core hypothesis that *heavy social media use is causing internalising disorders in adolescent girls*, social media's exonerating evidence ends up pointing in the same direction as Exhibit I: adolescents who are heavy social media users are at substantially elevated risk for depression, especially girls.

Blending populations, technologies, and outcomes can often suppress the associations at the centre of the debate about social media's effects on adolescent mental health.

Evidence Line Five: Longitudinal studies

The longitudinal literature on social media and mental health allows researchers to follow individuals over time and can help clarify whether social media use predicts subsequent changes in mental health, whether poor mental health predicts subsequent social media use, or some combination of the two. The available longitudinal studies present clear and consistent evidence that social media use predicts later depression, as we'll see in Exhibits K and L.

Exhibit K: Social media use at Time 1 predicts depression at Time 2

Overall, recent high-quality work provides support for the hypothesis that heavier use of social media *predicts later increases* in depressive symptoms[90] – especially when the focus is on time spent on social media and depressive outcomes in adolescent populations. Bidirectional effects have also been documented, with some evidence that declining wellbeing predicts subsequent increases in social media use, particularly in studies that rely on broader definitions of use, wider age ranges, or broad measures of wellbeing.

The strongest evidence comes from recent large-scale cohort studies. An analysis of a sample of 6,595 US adolescents, ages 12–15, found that heavy social media use predicted later increases in internalising symptoms.[91] Using the longitudinal Adolescent Brain Cognitive Development (ABCD) dataset, findings showed that increases in social media use predicted subsequent increases in depression.[92] Meanwhile, other researchers using the ABCD dataset showed that earlier internalising disorders *failed* to predict subsequent social media use.[93] A study which focused on "screen time" extended this to younger children, documenting bidirectional relationships: heavier use of screens predicted later depression, and depression symptoms also

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Together, these studies suggest that while reverse pathways are sometimes found, the forward relationship from social media use to depressive symptoms is robust, particularly for adolescents.

predicted greater subsequent use.[94] Together, these studies suggest that while reverse pathways are sometimes found, the forward relationship from social media use to depressive symptoms is robust, particularly for adolescents.

However, some researchers claim that the literature shows that poor mental health at Time 1 predicts later social media use, but not the other way around. For example, psychologist Candice Odgers wrote in *Nature*:

> When associations over time are found, they suggest not that social-media use predicts or causes depression, but that young people who already have mental-health problems use such platforms more often or in different ways from their healthy peers.[95]

But the three studies Odgers cited do not in fact support her "reverse predictability only" claim.[96]

In sum, most of the recent high-quality longitudinal studies indicate that heavier social media use at one moment in time predicts later depression, especially for adolescent girls.[97]

Evidence Line Six: Randomised controlled trials of time reduction

We now turn to the major body of *experimental* research: social media time reduction experiments. These experiments randomly assign a portion of the participants to reduce or abstain from social media for a set period of time and then measure changes in their mental health outcomes, compared to a control group that made no change.[98]

The pattern of results is surprisingly consistent: sustained reduction in time on social media tends to improve mental health, particularly depression. As with correlational studies, disputes in the field often arise from how data are analysed and, especially, from the problem of blending together heterogeneous interventions, outcomes, and populations. Likewise, effects that appear small on a statistical scale can translate into meaningful improvements when considered across large populations.

Exhibit L: Experiments show that social media reduction leads to reduced depression

Among the most rigorous meta-analyses to date, researchers synthesised 32 randomised controlled trials of social media reduction experiments (5,544 participants, 91 effect sizes).[99] The analysis found that restricting social media produced consistent improvements in mental health and wellbeing outcomes, with pooled significant effects of:[100]

- **Depression:** Hedges' g = 0.19 (roughly 19% of one standard deviation)[101]
- **Anxiety:** Hedges' g = 0.28
- **Wellbeing:** Hedges' g = 0.22

In fact, among the 16 experiments that provided a clear measure of depression, 14 found reductions in depression, and among the 10 that offered a clear measure of anxiety, 8 found reductions.[102]

One especially important study[103] examined the effects of social media reduction among already distressed young people – a group of particular clinical concern. The researchers recruited 220 distressed US youth, ages 17–25, and randomly assigned them to either (a) reduce social media use to one hour per day for three weeks, or (b) continue their usual use. Compared to the control group, those who reduced their use showed significant decreases in depression, anxiety, and fear of missing out (FOMO), along with improved sleep. These benefits were observed for both men and women.

Exhibit M:
Studies that report no improvement from social media reduction actually do reveal benefits to depression when unblended

The first widely discussed meta-analysis of social media reduction experiments was conducted by psychologist Chris Ferguson, who analysed 27 studies and reported an average effect size of d = 0.088 with a confidence interval that included zero (–0.018, 0.197). He concluded that these findings "undermine causal claims [...] that reductions in social media time would improve adolescent mental health" (p. 205). However, this conclusion rests on major conceptual and methodological flaws.[104] Most notably, the analysis pooled together highly heterogeneous studies that varied widely in duration, design, and outcomes. The analysis also included several studies that did not examine reductions in social media use, and thus cannot be used to assess the effects of social media reduction.

By blending highly heterogeneous studies and outcomes, Ferguson's analysis obscured how short-term abstinence experiments (one or two days) often induce withdrawal-like responses (e.g., irritability, craving, and worse mood), whereas longer reductions (a week or more) usually improve mental health. Reanalysing Ferguson's dataset, researchers found that interventions lasting under one week worsened mental health (d = –0.175), while those lasting longer than one week improved it (d = 0.156).[105] Additionally, when the studies that included clinical outcomes like anxiety and depression were isolated from studies that used broad, blended, composite wellbeing measures, effects were substantially larger: a study found d = 0.22 (using Ferguson's own dataset) for experiments measuring symptoms of internalising disorders,[106] and another study reported (as noted above) robust pooled improvements (anxiety: g = 0.28; depression: g = 0.19).[107]

Taken together, these analyses show that when studies are unblended and properly analysed, they confirm that a sustained reduction in social media use (a week or longer) does in fact improve adolescent mental health – especially for anxiety and depression.

Exhibit N:
Meta's own RCT shows that social media reduction leads to multiple mental health benefits

In November 2025, documents obtained via discovery in a lawsuit brought by US school districts against Meta and other platforms revealed that Meta had run *its own reduction experiment* in 2020, with Nielsen (the media measurement company).[108] The project, code-named *Project Mercury*, asked a randomly selected group of users to deactivate their Facebook accounts for one week. According to Meta's own summary, "people who stopped using Facebook for a week reported lower feelings of depression, anxiety, loneliness, and social comparison."

An internal researcher noted, "the Nielsen study does show causal impact on social comparison", adding an unhappy-face emoji. Another staffer reportedly warned that burying such results would put the company in the same position as the tobacco industry "doing research and knowing cigs were bad and then keeping that info to themselves."

Internal documents show that Meta subsequently called off further work and dismissed the findings as being "tainted" by the "existing media narrative" around the company. Yet the core fact is that Meta's own experiment found that sustained abstention from their product led to improvements in user mental health.[109]

Evidence Line Seven: Natural experiments

One type of study rarely addressed in the debate over social media and mental health is the natural experiment, which is a research design that attempts to estimate causal effects without true random assignment.

Exhibit O:
The evidence from natural experiments points to harm

The most common natural experiments examine the rollout of high-speed internet during the late 2000s and early 2010s. These studies leverage variation in broadband expansion to estimate its

All four studies reach a similar conclusion: the spread of high-speed internet and social media platforms worsened mental health. The harms were most pronounced among young people and disproportionately affected women and adolescent girls.

causal impact on mental health in the newly connected region. This approach provides population-level insights that are not possible in short-term lab experiments. These studies rely on the assumption that the rollout of high-speed internet greatly increased access and time spent on social media platforms (which seems reasonable given that it was very slow to load photos and videos before high-speed internet).

Researchers[110] have examined four such studies in Germany,[111] Italy,[112] Spain,[113] and the US.[114] Across diverse contexts and datasets, including national health surveys, hospital admission records, and suicide statistics, all four studies reach a similar conclusion: the spread of high-speed internet and social media platforms worsened mental health. The harms were most pronounced among young people and disproportionately affected women and adolescent girls. Documented outcomes include declines in self-reported mental health in Germany, increases in hospital-diagnosed mental disorders in Italy, rising adolescent mental health diagnoses (especially among girls) in Spain, and higher suicide rates in the US, as well as increased depression symptoms among US college students. Similar conclusions were drawn in another recent review of these studies.[115]

Three further studies augment this body of evidence. The first found negative effects of the arrival of high-speed internet in England on adolescent wellbeing.[116] These effects were strongest among heavy users (>5 hours per day) and were associated with social networking site use in particular. The second found similar results looking at suicidal conduct among teens from 2009 to 2019 in the wake of broadband introduction in the US.[117] The impacts of broadband were associated with cyberbullying and body dissatisfaction for girls, and with decreases in sleep for boys. The third exploited a difference-in-differences design based on Facebook's staged rollout to US colleges and universities between 2004 and 2006.[118] They found that whenever Facebook arrived on campus, symptoms of mental illness soon increased.[119] Chapter 8 in this report also estimates that increased internet use reduced wellbeing on average in over 30 European countries from 2016–2024, with strong negative effects among Gen Z but near-zero or positive effects for older adults.

We have only found one study that points in the opposite direction.[120] It found improved aggregate wellbeing, reduction in suicides, and improved physical and mental health from broadband expansion in the US from 2000–2008.[121] The authors themselves interpret these gains as stemming mainly from improved local economic conditions (lower unemployment, reduced poverty, more business activity) rather than from changes in internet or social media use itself.

Summary of the evidence on the product safety question

We have now presented 15 exhibits organised into seven separate and independent lines of evidence. First, we presented three lines of "testimony" from the groups that had the clearest view of the effects of social media: Gen Z (Line One); parents, teachers, school administrators and clinicians (Line Two); and employees and consultants working for the major social media platforms (Line Three).

Next, we presented four lines of academic research showing that heavy users of social media suffer from substantially elevated risks of depression (Line Four); social media use at Time 1 predicts depression at Time 2 (Line Five); reducing time on social media causes improvements to mental health (Line Six); and, when high-speed internet entered into communities and regions, mental health outcomes got worse soon afterward, especially for girls and women (Line Seven).

These findings converge on the conclusion that when adolescents use social media for several hours every day, it causes their mental health to suffer (on average).

What do you think, readers? Is social media *probably* safe for children and teens, or *probably not*? Do you think that more research is needed before we can answer that question?

Of course, it is important to hear the arguments on the other side. You should hear from researchers who take a more positive view of social media, or who take issue with our work. We urge you to read the main essay cited by journalists as a rebuttal of our work – Candice Odgers' review in *Nature*.[122] We also recommend reading a new evidence review led by Amy Orben.[123] But after presenting our seven lines of evidence, including RCTs, natural experiments, and many quotes from social media employees stating directly that their products are causing harm to adolescents at a massive scale, we believe that the preponderance of the evidence points to a clear answer to the product safety question: no, social media platforms are *not* safe for children and adolescents.

Now let us turn, at last, to the historical trends question.

Harm to millions is change at the population level

As we noted in the introduction, the product safety question is easier to answer than the historical trends question, which we formulated like this: "Was the spread of social media in the early 2010s (as smartphones were widely adopted) a major contributing cause of the big increases in adolescent depression, anxiety, and self-harm that began in many Western countries soon afterward?"

While our seven lines of evidence do not prove that social media was a major cause of those population-level changes, which are still with us today, they make it much more plausible. Conversely, had the preponderance of the evidence shown that social media was *safe* for adolescents at the individual level, that would have made it less plausible that social media caused those big increases at the population level.

In this section, we present an estimate of the scale of direct harm, as well as an estimate of the scope of harm to mental health based purely on the size of the effect in the social media reduction experiments. For illustration purposes, we calculate the damage to adolescents in the United States, which, in 2023, had a population of approximately 43 million young people within the US Census age band of 10 to 19. If we assume that 90% of them use at least one social media platform,[124] that gives us about 39 million teens.[125] How many of those 39 million may have been harmed by social media usage in ways that might have affected their mental health?

Direct harms to millions

Addiction and problematic use: Rates of addiction and problematic use often fall around 10%.[126] Facebook itself determined that 12.5% of its users were engaging in compulsive use of social media that affected their sleep, work, parenting, or relationships, and they found that teens have even less self-control than adults.[127] So, if we assume that 10% of all adolescents suffer from problematic use of at least *one* platform, that gives us just under four million in the US alone.

Sleep deprivation: According to Pew's 2025 *Teens, Social Media, and Mental Health* report,[128] 45% of US teens (17.5 million) report that social media hurts the amount of sleep that they get. Given the widely acknowledged harmful effects of sleep deprivation on mental illness, this effect alone could account for substantial changes at the population level.

Sextortion: Snapchat was getting 10,000 reports of sextortion from its own users each month in 2022, which would be 120,000 cases per year.[129] One employee noted that this was likely just the "tip of the iceberg", meaning that most cases were not reported. Sextortion happens on many other platforms too, so the total number of victims per year could be well over a million.[130]

Sexual harassment: Meta whistleblower Arturo Béjar conducted a global study while working for Instagram.[131] He found that 13% of Instagram users, ages 13 to 15, self-reported having received unwanted sexual advances via the platform within

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the previous *seven days*. If the US is on par with this global average, 13% of 39 million is 5.7 million adolescents in any given week. Béjar explained that if "looked at over time, it is likely the largest-scale sexual harassment of teens to have ever happened, and one that clearly calls for action."[132]

We could go on. We could bring in the millions of teens cyberbullied each year,[133] and the millions of vulnerable teens who are fed self-harm content by the platforms' algorithms every week.[134] We could quantify the number of additional drug overdose deaths caused by the easy access to drugs on social media platforms.[135]

Our point is that the direct harms from social media are not just occasional events or freak accidents that are happening to a few hundred adolescents each year. It would be bad policy to remove consumer products from the market every time one child finds an unusual way to get hurt by it. But there are so many different kinds of harm happening to adolescents who use social media for several hours every day that *the number of victims likely exceeds ten million each year in the United States alone*. This estimate is consistent with the Pew finding that 25% of girls (and 14% of boys) in the US believe that social media is harming their mental health.[136]

Given the scale of these harms, we believe it is plausible and likely that the introduction of smartphones with chronically available social media caused a substantial portion of the decrease in adolescent mental health and wellbeing that has been documented in the English-speaking countries and Western Europe (see Chapter 2 of this report), and more broadly across the Western world in other datasets.[137]

Indirect harms to millions

Shifting to social media's indirect harms, we can use the effect sizes from the social media reduction experiments (Evidence Line Six) to estimate how a widespread reduction in social media use would affect a population's wellbeing and mental health.

As noted in Exhibit L, research has reported an average effect of roughly *g* = 0.22 (about one-fifth of a standard deviation) for "wellbeing" outcomes in sustained social media reduction studies.[138] The "wellbeing" outcome is often measured by the Warwick–Edinburgh Mental Wellbeing Scale (WEMWBS), which is normally distributed in national samples with a mean near 51 and a standard deviation near seven. On this scale, scores below 41 have been used as an indicator of probable clinical depression.[139]

Using these parameters, we can estimate that a plausible population impact of social media reduction for just two weeks by young adults would be a decline in the prevalence of clinical depression by *roughly one-third*, and a plausible impact of a consequent return to regular social media use would be the rise in the prevalence of clinical depression *by one-half* (see the online appendix for details).

If carried out at scale, we predict that the widespread reduction of social media use by adolescents would cause substantial improvements in population-level measures of wellbeing and mental health.

As a point of comparison, others estimate that the increased risk of depression and anxiety attributable to childhood maltreatment corresponds to effects of *d* = 0.22 and *d* = 0.25,

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respectively.[140] The fact that something as simple as a week or two of social media reduction produces improvements of a similar magnitude suggests to us that the relevant effect sizes are not "too small" to warrant policy change.

If carried out at scale, we predict that the widespread reduction of social media use by adolescents would cause substantial improvements in population-level measures of wellbeing and mental health.[141]

Group-level effects make population effects even larger

The cross-sectional, longitudinal, and experimental lines of evidence that we reviewed all examine the effects of social media and its associations with mental illness at the individual level, usually by measuring or manipulating the number of hours per day that each individual spends on social media. But when social media reconfigured teen social networks in the early 2010s, it had large group-level or emergent effects. Time spent with friends decreased rapidly, well before COVID-19,[142] and when teens are spending less time together then eye contact, physical touch, food-sharing, and other ancient human bonding mechanisms become rarer too, even for the minority who did not open accounts. Teens just aren't hanging out in person as much.

Once nearly everyone was on these platforms, everyone was stuck in a collective action trap. Even if the platforms were harming 100% of the adolescents who used them, any individual who quit might find herself even *worse* off because she would lose her online connections and might have difficulty finding ways to replace them offline.

Once nearly everyone was on these platforms, everyone was stuck in a collective action trap... any individual who quit might find herself even worse off because she would lose her online connections.

The 2023 study led by Leonardo Bursztyn that we discussed in Exhibit A gives us a vivid illustration of the collective-action trap.[143] College students said they'd have to be paid to quit social media, as individuals. But when the researchers asked them their price for quitting if most other students were also quitting, the students said they'd be willing to pay the researchers to make that happen.

These group-level effects change so many aspects of daily social interaction, for so many adolescents, that they could turn out to be much larger than the individual-level effects found in studies that ask individuals to decrease social media usage for one week. See Chapter 6 of this report for a more detailed discussion.

Sensitive period effects make population effects even larger

A key theme of *The Anxious Generation* was that puberty is a sensitive period during which habits of attention, emotion, and social interaction will guide the rapidly changing brain in ways that could yield permanent effects. Neurons that fire together, wire together, and this is especially true during the years of heightened neural plasticity known as puberty.

One study specifically examined whether the associations of social media use and poor mental health varied by age. Researchers[144] found that there did seem to be sensitive periods – age ranges within which hours-per-day measures showed higher correlations with measures of poor mental health. For girls, that period was ages 11 to 13. For boys, who hit puberty a bit later, it was ages 14 to 15. This is a good reason for nations to set minimum ages for opening social media accounts no lower than 16.

If radical changes in social and cognitive environments during puberty can lead to large and possibly lasting changes to an adolescent's brain and personality, then any effect sizes computed from brief reduction experiments using college students could be vast underestimates of the harms caused by heavy social media use over several years during puberty.

Conclusion

The academic debate over whether social media is harming adolescents has been complicated by the occasional confusion of two different questions: the product safety question and the historical trends question. Social media executives have deflected questions about product safety by asserting there is insufficient evidence to answer the historical trends question with certainty.[145] But as we have shown, there is now plenty of evidence to answer the product safety question. The preponderance of the evidence points to this conclusion: *social media is not safe for adolescents*. The seven independent lines of evidence we presented show, collectively, that the major social media platforms (such as Instagram, Snapchat, and TikTok) are causing substantial harm to the mental health of adolescents, especially girls.

Admittedly, it is more difficult to prove causality for historical population-level changes in adolescent mental health trends. However, while answering the product safety question, we have shown that the scale of harm from the ordinary use of these dangerous consumer products is so great, and affects such a large percentage of their users, that it justifies as highly plausible the following answer to the historical trends question: *the sudden introduction of always-available social media, made possible by the spread of smartphones in the early 2010s, was a substantial contributor to the sharp increases in mental illness observed in many Western nations, and beyond, in the 2010s*.[146]

Academic debates over media effects often take decades to resolve. We expect that this one will continue for many years. But parents and policy-makers cannot wait for resolution; they must make decisions now, based on the preponderance of the evidence.

We believe that the evidence is now sufficient to justify the sort of action that the Australian government took in 2025 when it raised the age for opening or maintaining a social media account to 16. Just as the recent international trend of removing smartphones from schools is beginning to produce educational benefits,[147] the research we have reviewed suggests that removing social media from early adolescence is likely to produce mental health benefits.

We believe that the preponderance of the evidence points to a clear answer to the product safety question: no, social media platforms are not *safe for children and adolescents.*

Countries around the world ran a giant uncontrolled experiment on their own children in the 2010s by giving them smartphones and social media accounts. The available evidence suggests that the experiment has harmed them. It is time to call it off.

Endnotes

1 Rothwell (2023). Note that Snapchat was not included in the survey options.

2 Sawyer et al. (2018); Twenge (2025).

3 World Health Organization (n.d.).

4 Steinberg (1985).

5 Haidt (2024).

6 See Evidence Line Three later in this essay.

7 We note that there are additional indirect harms, such as stunted social development, interference with cognitive development, and declining educational outcomes that fall beyond the scope of this essay. See Nagata et al. (2025). and Nguyen et al. (2025).

8 See Blanchflower et al. (2024); McGorry et al. (2024); Rausch and Haidt (2023a); Rausch and Haidt (2023b); Schrijvers et al. (2024); Twenge et al. (2021).

9 See Table A1.2 in Marquez et al. (2024). See Chapter 3 Appendix in Helliwell et al. (2024). We note there is variation by sex. For boys, there were 33 statistically significant decreases, 13 statistically insignificant outcomes, and 1 statistically significant increase (Republic of Korea). For girls, there were 41 statistically significant decreases, 5 statistically insignificant outcomes, and 1 statistically significant increase (Greece).

10 Twenge et al. (2021).

11 The difference between these two questions is important because they are often conflated. In his 2024 Senate testimony, Mark Zuckerberg told the US Senate that a report from the National Academies of Sciences "did not support the conclusion that social media causes changes in adolescent mental health *at the population level*." That statement pertains to whether current evidence can explain historical shifts in aggregate rates (the historical trends question). This conclusion does *not* speak to whether present-day use of specific platforms elevates risk for individual teens (the product safety question). Indeed, that same report includes a long chapter (Chapter Four) documenting a variety of harms at the *individual* level. In other words: it is possible to conclude that "social media is unsafe for young people" even when the causes of past population trends remain uncertain.

12 People's beliefs about causation may not be reliable for cancer or other diseases that don't become visible for many years after the events that caused them. People have much better insight into the foods that cause their allergic reactions. Social media is much more like allergies than like cancer in this regard. Like food allergies, some effects of social media show up within minutes, and people have many chances to observe the dose-response effect of their time on social media. This is why we consider these testimonials to be evidence of causation.

13 Fridman (2022); Odgers (2024).

14 We note that parents and legislators often use an even lower standard of proof: the precautionary principle, which says that when there is credible evidence that harm is possible, preventive action should be taken, especially when the costs of such action are low.

15 See Haidt and Rausch (2025c) on the Consensus Study, which found strong agreement among a large group of experts that 25 out of 26 claims drawn from *The Anxious Generation* were "probably true".

16 Our most vocal critic is Candice Odgers. See her main essay: Odgers (2024). Or see Schiffer (2024) for an essay that interviews several critics.

17 Pew says that Gen Z begins with the birth year 1997. Twenge (2017) said that "iGen" began with the birth year 1995. In *The Anxious Generation*, we split the difference and considered that 1996 was the first year. Of course the change in generations did not happen in a single year, but the mid to late 1990s seems to be the span of time in which it happened.

18 Faverio et al. (2025).

19 Faverio and Sidoti (2024).

20 The survey does not provide gender breakdowns for the experience of benefits. For teens in general, 4% report that social media improves their sleep, 19% report it improves their confidence, and 10% report it improves their mental health. Faverio et al. (2025).

21 Haidt and Johnson (2024).

22 Gen Z men and women showed similar amounts of regret across platforms, besides TikTok. Men were significantly more likely to wish that TikTok was never invented (55% to 39%). See Skiera (2024).

23 Bursztyn et al. (2023).

24 More in Common (2025).

25 The British Standards Institution (2025). This study found that, "half (47%) of young people aged 16 to 21 would prefer to be young in a world without the internet, with 50% also saying a social media curfew would improve their lives."

26 headspace and Brunton (2018).

27 We have been looking for writings by members of Gen Z that defend social media, or that claim that it has been good for their generation. Such writings are hard to find, while it is very easy to find essays by members of Gen Z that blame social media for personal or generational harm.

28 See also Coe et al. (2023) McKinsey Health Institute's 2022 Global Gen Z Survey of 42,000 people across 26 countries, although the key question about social media was actually about "technology and social media" so the regret numbers are lower, but they are consistently highest for Gen Z.

29 Wells et al. (2021).

30 Meta (2021).

31 Wells et al. (2021).

32 Appearance-Based Social Comparison Study, December 2020, available at MetasInternalResearch.org.

33 Béjar (2024).

34 *State of New Mexico ex rel. Torrez v. Meta Platforms, Inc. (2024)*.

35 Haidt and Rausch (2025a); Haidt and Rausch (2025b).

36 Faverio et al. (2025).

37 The Harris Poll (2025). Also see Haidt et al. (2025) for a summary of findings.

38 See country specific surveys in France (Fondation pour l'Enfance, 2024), Germany (Bitkom, 2025; Woessman et al., 2025), Netherlands (ANP, 2025), and Japan (Bay, 2017).

39 Ipsos Education Monitor (2025).

40 NBC New York Staff (2024).

41 National Education Association (2024).

42 Hatfield (2024).

43 Prothero and Harwin (2024).

44 UWE Bristol Media Relations Team (2025).

45 Fundación MAPFRE (2025).

46 Fondation pour l'Enfance (2025).

47 European School Education Platform Editorial team (2025).

48 Each had at least two years of experience post licensure and provided care for at least 30 patients in the past 30 months.

49 Although Evidence Line Three focused on three major companies (TikTok, Snap, and Meta), they are not the only digital platforms at which the leadership is aware that their products pose significant risk of harm to minors. For example, a 2016 internal presentation from the YouTube Main App Team stated that they **"aspire[d] to create an app that is [...] addictive."** Another presentation revealed their goal to **"increase habitual users"** and **"focus on making YouTube a daily habit."** *(In Re Social Media Addiction Litig., 2024).* Likewise, in litigation involving Roblox, one employee acknowledged: **You're supposed to make sure that your users are safe but the downside to that, if you're limiting user engagement, it's hurting our metrics. It's hurting our active users, the time spent on the platform, and in a lot of cases leadership doesn't want that. (See p. 31, paragraph 90 in** *Jane Doe v. Roblox Corp., 2025)*.

50 We compiled the quotes and statistics in open-source Google Docs and translated them into essays published on *After Babel*. See Haidt et al. (n.d.); Haidt and Rausch (2025a); Haidt and Rausch (2025b).

51 The Wall Street Journal (n.d.); Reuters (n.d.).

52 Haidt and Rausch (2025a).

53 Link NKY (2024); *State of Nebraska v. TikTok Inc.* (2024).

54 See p. 82, paragraph 213 in *Commonwealth of Kentucky v. TikTok Inc.* (2024).

55 See p. 10, paragraph 19 in *Commonwealth of Kentucky v. TikTok Inc.* (2024).

56 See p. 82, paragraph 216 in *Commonwealth of Kentucky v. TikTok Inc.* (2024).

57 Haidt and Rausch (2025a).

58 Haidt and Rausch (2025b).

59 *State of New Mexico v. Snap Inc.* (2024).

60 FBI Memphis (2024).

61 See pp. 59-60, paragraphs 132-134 in *State of New Mexico v. Snap Inc.* (2024).

62 See p. 54, paragraph 117 in *State of New Mexico v. Snap Inc.* (2024).

63 See p. 126, paragraph 317 in *State of New Mexico v. Snap Inc.* (2024).

64 See p. 100, paragraph 242 in *State of New Mexico v. Snap Inc.* (2024).

65 The Wall Street Journal (2021).

66 Written Testimony of Arturo Béjar before the Subcommittee on Privacy, Technology, and the Law (2023).

67 *State of New Mexico v. Meta Platforms, Inc.* Doc. 36–1, (2024); *In Re Social Media Addiction Litig.* (2024).

68 See p. 148, paragraph 296 in *State of New Mexico v. Meta Platforms, Inc.*, Doc 36–1 (2024).

69 See p. 151, paragraph 306 in *State of New Mexico v. Meta Platforms, Inc.*, Doc 36–1 (2024).

70 See p. 27 in *In Re Social Media Addiction Litig.* (2024).

71 See p. 33 in *In Re Social Media Addiction Litig.* (2024).

72 E.g., Bowles (2018).

73 Liu et al. (2022); Orben (2020).

74 Orben and Przybylski (2019).

75 Kelly et al. (2019).

76 Grund (2025); Twenge et al. (2022).

77 Liu et al. (2022).

78 Rothwell (2023).

79 See the online appendix for conversions from *OR* to *RR*.

80 Greb and Rausch (2025).

81 Relative risks (*RR*s) were calculated as simple proportion ratios using depression prevalence data from Tables 1 and 2 of Kelly et al. (2019). Each *RR* represents the prevalence of depression in the exposed group divided by the prevalence in the reference group, comparing: social media use >5hours/day vs. <1hour/day; <7 hours of sleep vs. >7 hours of sleep; cyberbullying victims vs. not involved; and lowest economic quintile vs. highest economic quintile. Values >1.0 indicate increased depression risk.

82 Murthy (2024); U.S. Department of Health and Human Services, Office of the Surgeon General (2023).

83 Riehm et al. (2019).

84 Hancock et al. (2022).

85 Committee on the Impact of Social Media on Adolescent Health, Board on Population Health and Public Health Practice (2024).

86 Also note that the study does not provide separate results for girls and boys, even though sex and gender-based factors play a widely known role in mental health risks.

87 Orben and Przybylski (2019).

88 Twenge et al. (2022). For more details, see Underestimating digital media harm. Here, 'wellbeing' included outcomes such as "Restless, overactive, cannot stay still for long"; "Shares readily with other children (treats, toys, pencils, etc.)"; and "Generally obedient, usually does what adults request." The 'wellbeing' measure was overwhelmed with outcomes unrelated to internalising symptoms. When Twenge et al. (2022) reanalysed the same dataset and code, restricting outcomes to internalising symptoms and focusing on girls' social media use, the associations increased dramatically: median standardised betas were roughly –0.20 for girls (most between –0.25 and –0.15), compared to –0.04 for boys.

89 For a much deeper analysis of "blending" and related problems in the cross-sectional studies, see Haidt and Rausch (2026).

90 McClean and Lebwohl (2025).

91 Riehm et al. (2019).

92 Nagata et al. (2025).

93 Grund and Luciana (2025).

94 Vasconcellos et al. (2025).

95 Odgers (2024).

96 McLean and Lebwohl (2025). The three studies cited by Odgers as showing only reverse prediction do not actually show it: (1) Puukko et al. (2020) did not measure time spent on social media, focusing instead on more positive forms of digital communication including emailing and direct messaging on WhatsApp. (2) Hancock et al. (2022) blended social media with other screen use, they mixed age groups and outcomes, and they still found *no evidence* for reverse predictability (the distress → social media path was zero). (3) Heffer et al. (2019) offers a case for reverse predictability – but only for girls, and even that study also found evidence for the forward direction. In other words, it suggests a reciprocal relationship, which still implies that social media use at Time 1 contributes to harm at Time 2.

97 A new longitudinal study was published when this report was in its final editing stage. Cheng et al. (2025) did not find that social media use at Time 1 predicted later internalising symptoms among boys and girls. We have requested access to data and code, but have been told it will take several months until they are publicly available.

98 This work faces both conceptual and empirical challenges including issues of compliance (how many really reduced their use?), short intervention windows (reduction for one day versus multiple weeks), individuals reducing use while all of their peers remain online, misinterpretation of withdrawal effects, and varying definitions of "reduction".

99 Burnell et al. (2025).

100 These values are from "Table 2. Social media restriction effects by individual outcome, problematic cases removed."

101 Hedges' g is a version of Cohen's d that includes a small-sample correction. In practice, they are interpreted the same – for example, $g = 0.20$ is roughly equivalent to $d = 0.20$. The values we give here are from their analyses that exclude problematic studies. The corresponding rates for the full dataset (including all studies) was $g = 0.22$ (for depression) and $g = 0.17$ (for anxiety).

102 See online appendix for details.

103 Davis and Goldfield (2025).

104 Rausch and Haidt (2025).

105 Thrul et al. (2025).

106 Stein (2024).

107 Similarly, another recent meta-analysis by Lemahieu et al. (2025) reported no significant effects of social media abstinence on affective wellbeing or life satisfaction. This study focused narrowly on short-term abstinence interventions (most lasting about a week or less) and on mood-related outcomes such as positive affect and negative affect. They also included life satisfaction. In other words, the authors did not examine clinical outcomes like anxiety and depression, nor did they include longer-term reduction studies. Their null findings are therefore exactly what we would expect: when the analysis is limited to short-term abstinence studies that measure immediate mood states, there is little benefit to be expected. As other research on behavioral addictions shows, withdrawal from an addictive or habit-forming behaviour can temporarily worsen mood before longer-term benefits emerge (Lembke, 2021).

108 Horwitz (2025).

109 Meta Internal Research (n.d.). We create a website that describes more than 20 other internal studies that Meta conducted, nearly all documenting various risks to young users via platform design. To learn more about *Project Mercury*, see metasinternalresearch.org.

110 McClean et al. (2025).

111 Golin (2022).

112 Donati et al. (2022).

113 Arenas-Arroyo et al. (2022).

114 Kyung et al. (2021).

115 Pugno (2025).

116 McDool et al. (2020).

117 Churchill and Johnson (2026).

118 Braghieri et al. (2022).

119 Although most of these natural experiments offer compelling evidence of population-level harm, they are not without limitations. First, most studies examine broadband internet access rather than social media use specifically. Meanwhile, the only study that examined a social media platform directly – Braghieri et al. (2022) – focused on Facebook's rollout in 2004–2006, when the platform was text-based, desktop-only, and limited to college students. This environment differed substantially from today's modern social media environment.

120 Johnson and Persico (2025).

121 Johnson and Persico (2025).

122 Others include Lebedikova et al. (2024), and Brown (2024).

123 Orben et al. (2025).

124 Pew Research Center (2025).

125 We previously estimated the number of US teen users (ages 13 to 17) of TikTok and Snapchat. We estimated that in 2023 about 13.7 million teens in the US used TikTok, and about 12.7 million of these teens were daily users of TikTok. Additionally, we estimated that between 2019 and 2023, there were about 13 to 15 million US teens (ages 13 to 17) on Snapchat. We estimated that as of 2021, there were nearly 3 million 8 to 12-year-olds in the US on Snapchat. See Haidt et al. (2025a) for our TikTok estimates and Haidt et al. (2025b) for our Snapchat estimates.

126 Boer et al. (2020).

127 Wells et al. (2021).

128 Faverio et al. (2025).

129 Haidt and Rausch (2025a).

130 Beauchere (2023).

131 Béjar (2024).

132 *Written Testimony of Arturo Béjar before the Subcommittee on Privacy, Technology, and the Law* (2023).

133 Meta Internal Research (2025). Bad Experiences and Encounters Framework (BEEF) Survey (2021). This survey found that 10.8% of Instagram users aged 13-15 reported being a target of bullying *in the last week*. Also see Anderson (2018) where 59% of US teens report having been cyberbullied.

134 Meta Internal Research (2025). Bad Experiences and Encounters Framework (BEEF) Survey (2021). This survey found that 8.4% of Instagram users aged 13–15 reported seeing someone harm themselves or threaten to harm themselves in the last week alone.

135 Bergman (2026); Gerber (2025).

136 Faverio et al. (2025).

137 See Schrijvers et al., (2024) on Europe; Twenge et al., (2021), which uses PISA internationally; Rausch and Haidt (2023a) on the Anglosphere; and Rausch and Haidt (2023b) on the Nordic Countries.

138 Burnell et al. (2025).

139 University of Warwick (2025).

140 Grummitt et al. (2024).

141 Burnell's Table 2 reports similar effects for internalising symptoms more directly tied to depression and anxiety: d = 0.19 for depression and d = 0.28 for anxiety. These results confirm that the wellbeing findings are not a fluke of measurement. The pattern is consistent across outcomes that matter most for adolescents.

142 Kannan and Veazie (2023). See graph of teens' weekly social outings data from Monitoring the Future, University of Michigan, graphed by Jean Twenge, as reproduced in De Visé (2023).

143 Bursztyn et al. (2023).

144 Orben et al. (2022).

145 Zuckerberg, Testimony before the US Senate in 2024. See *Big Tech and the Online Child Sexual Exploitation Crisis* (2024).

146 Blanchflower et al. (2024); Rausch and Haidt (2023a); Rausch and Haidt (2023b); Schrijvers et al. (2024); The Lancet Psychiatry (2024); Twenge et al. (2021).

147 Abrahamsson (2024); Sungu et al. (pre-print); Van Campenhout (2025).

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Chapter 4

Translating scientific evidence into effective policies for health and technology requires care

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Selecting high-quality evidence is only part of the challenge. “Good evidence” must be paired with the “good governance of evidence”.

Key Insights

Professional science organisations that have examined social media and adolescent mental health have reached different conclusions and policy recommendations despite examining similar research. Given their substantial influence on policy and public understanding, it is important to investigate their evidence synthesis practices.

Our analysis of three high-profile reports on social media and adolescent mental health finds that they cited broadly similar types of research, yet showed little overlap (<1%) in their sources.

We also found considerable variation in how the reports synthesise, communicate, and simplify evidence, including differences in citation accuracy, contextual detail, limitation acknowledgement, and conclusion strength.

The stakes of getting these syntheses right are substantial. Poor synthesis quality risks developing policies which may be ineffective or cause unintended harm, and may contribute to the erosion of public trust in scientific institutions more broadly.

When communicating the state of a complex scientific field, it is crucial to be honest about shortcomings and uncertainties, and to maximise fidelity to the underlying research. As scientists committed to rigorous, transparent, and replicable approaches to understanding complex phenomena, we have a responsibility to consistently uphold standards that justify claims to scientific authority and to identify opportunities for improving practices within our community.

Introduction

The question of how social media engagement relates to adolescent mental health attracts intense public concern and demand for scientific guidance.[1] Indeed, with adolescents spending substantial time on social media platforms and rising adolescent mental health concerns, policymakers, parents, educators, and practitioners are increasingly seeking evidence-based guidance on appropriate responses.[2] The stakes are high: policymaking in this domain directly affects vulnerable and young populations, involves significant resources, and shapes how technology companies design platforms used by billions of young people worldwide. This is hard to get right because balancing the potential benefits and unintended consequences of new policies requires rigorous synthesis and communication of the available research evidence.

Indeed, research indicates that reviewing and translating research into policy guidance is a challenging process.[3] Individual studies, however well-designed, cannot alone constitute what we know about a social phenomenon. Scientific understanding emerges from integrating findings across multiple investigations, navigating often contradictory results, weighing methodological differences, and accurately characterising what is known and what remains uncertain.[4] This synthesis work is fundamental to how research contributes to evidence-based policy. In this realm, professional science organisations, such as the American Psychological Association and the National Academies of Sciences, serve as crucial intermediaries in this process by translating complex research into accessible reports with policy recommendations designed to be read by diverse audiences.[5]

Because organisations represent distinct academic disciplines, it is possible they will produce and synthesise studies investigating the same question, but distinct methodological and disciplinary emphases means they might reach markedly different conclusions. For instance, while the US Surgeon General's Office advocates to "pursue policies that further limit access to social media for all children,"[6] the National Academies found that current evidence does not support population-level causal conclusions and noted that "the committee sympathizes with some parents' desire for authoritative prescriptions on teenagers' social media use but [are] also mindful of overreaching the data",[7] cautioning against strict age limits. What should readers and policymakers make of this difference?

When authoritative bodies reach different conclusions from scientific evidence, this raises questions about the practices governing evidence synthesis in these settings. Despite the substantial influence these reports wield,[8] the processes by which organisations synthesise and communicate evidence rarely receive systematic evaluation. And yet, these synthesis practices powerfully shape both policy development[9] and public understanding. Practitioners use them to stay current with rapidly evolving research fields,[10] policymakers draw on them to inform legislative and regulatory deliberation,[11] and the general public often encounters them as accessible explanations of "what the science shows" on complex questions.[12] Given this broad influence, the quality of evidence synthesis in these documents matters considerably for downstream policy development and public understanding.

The stakes of getting synthesis reports right are substantial. Poor evidence translation risks policy ineffectiveness when interventions are poorly calibrated to what research actually demonstrates,[13] potential for unintended harms when policies proceed on overstated evidence,[14] and risk the erosion of public trust in scientific institutions more broadly.[15] In a domain where scientific understanding remains genuinely uncertain, intellectual honesty about what we do and do not know with confidence serves evidence-based policy far better than premature certainty constructed through selective emphasis or strong rhetoric.

When authoritative bodies reach different conclusions from scientific evidence, this raises questions about the practices governing evidence synthesis in these settings.


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In this chapter, we take a step back from examining what makes empirical research good[16] and we focus instead on how empirical research is translated into influential policy recommendations. More specifically, we investigated how professional science organisations synthesise research into clear policy guidance by analysing three high-profile US-based reports published between 2023 and 2024: The National Academies of Sciences, Engineering, and Medicine (NASEM),[17] the American Psychological Association (APA),[18] and the US Surgeon General's Office (OSG).[19]

We focus on three US reports for several reasons. First, these documents are highly prominent and frequently referenced in policy debates internationally, not just domestically — reflecting the intensity of US attention to social media and adolescent mental health during 2023–2024. Second, their production within an 18-month window means the organisations were theoretically drawing from a largely overlapping literature base, enabling comparison of synthesis practices while controlling for both national policy context and evidence availability. This temporal proximity is particularly important given how rapidly the social media effects literature evolves.

We acknowledge that similar evidence syntheses have been produced in other regions, including reports from the WHO,[20] OECD,[21] and various national governments.[22] A comprehensive cross-national comparison was beyond our scope, but we encourage readers to consider how the evaluative framework applied here might illuminate evidence translation practices in these diverse global contexts.

We classified the peer-reviewed research on social media and mental health cited across the reports by methodological characteristics, study design features, and thematic content to determine how organisations identified evidence bases. We also conducted a qualitative analysis of how organisations synthesised and communicated their selected evidence, examining citation accuracy, evidence integration practices, acknowledgment of limitations and contradictory findings, and rhetorical construction of

conclusions. This mixed-methods approach enabled us to distinguish between differences stemming from evidence selection versus differences in synthesis and communication practices. In this chapter, we present our analysis, discuss what our findings reveal about evidence synthesis practices, consider implications for evidence-based policy in contested domains, and offer recommendations for improving synthesis quality based on our observations.

We retain confidence that scientific research can meaningfully inform policy deliberation on complex social questions, like the relationship between social media and adolescent wellbeing. However, realising this potential requires greater attention to the standards and practices governing how scientific research is synthesised and translated for policy guidance.

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Background

The challenge of evidence-based policy in the social sciences

The evidence-based policy (EBP) movement argues that systematic use of research evidence can improve policy effectiveness, reduce unintended consequences, and promote democratic accountability by providing more transparency in the policy decision process.[23] This evidence-based policy movement emerged from parallel developments in evidence-based medicine and the broader "what works" and "modernising government" agendas in social policy in the early 2000s.[24] While EBP has seen success in medicine, the transition between scientific research and policy decisions in the social sciences is rarely straightforward.[25] Social interventions often involve complex relationships difficult to isolate experimentally, ethical constraints limiting experimental manipulation, and contextual factors affecting generalisability.[26] Early EBP frameworks emphasised selecting high-quality evidence through hierarchies privileging randomised trials and systematic reviews,[27] but scholars increasingly recognise that directly applying medical approaches fails to account for social complexity.[28]

Furthermore, even with clear causal evidence, social policies are guided by values, societal goals, and political factors beyond empirical findings alone.[29] Parkhurst makes an important distinction between selecting "good evidence" and ensuring "good governance of evidence" which recognises that high-quality evidence is necessary but insufficient without faithful stewardship within complex decision-making processes.[30] Contemporary scholarship has moved beyond simple linear models to recognise evidence-based policy as fundamentally political, with research representing one input among many competing considerations.[31] IJzerman and colleagues propose "evidence-readiness levels" for the social sciences considering replication status, theoretical grounding, and policy applicability beyond methodological rigour alone.[32] While such frameworks represent crucial

advances in evidence quality assessment, they should be coupled with increased attention to how evidence is synthesised and communicated for policy audiences.

The current state of social media and adolescent mental health science

This domain presents particularly acute translation challenges: (a) methodologically limited evidence, (b) high public stakes, (c) intense political pressure for guidance, and (d) recent proliferation of competing overlapping professional statements addressing similar questions.

Despite demand for definitive guidance, experts in adolescent mental health have raised significant concerns about methodological limitations in the evidence base that constrain the ability to establish causal relationships or generalise findings to broader policy-relevant contexts.[33] One fundamental challenge is the difficulty in defining, testing, and demonstrating convincing evidence of causal relationships. Much evidence relies on correlational designs, with limited longitudinal research examining effects over time.[34] Additionally, it is incredibly challenging to conduct true experimental work in this domain given the near ubiquity of social media in adolescent lives. Even experimental studies employing social media "detox" strategies face significant limitations, as participants remain embedded in social environments where social media presence is pervasive.[35]

Conceptually, screen time research faces challenges: time is finite, so increased screen time necessarily entails decreased time spent on other activities. Displacement theory highlights that even when studies demonstrate associations between screen time and poorer outcomes, it remains unclear whether effects stem from the presence of screen time itself or from the absence of displaced activities — sleep, exercise, socialising — or some combination.[36] Most research measures only screen time without capturing broader time-use patterns, limiting our ability to identify mechanisms.

Correlational studies suffer from additional confounding factors, including generational differences (in both social media usage and in mental health outcomes) which make it difficult to isolate the specific contribution of social media use from other contemporary influences on mental health outcomes such as climate anxiety,[37] economic factors,[38] or increased mental health awareness and resultant clinical diagnoses.[39] Additional methodological challenges include self-report measurement limitations concerning both time spent on social media platforms and mental health indicators, which compromise the ability to validate findings or conduct meaningful comparisons across studies.[40] The literature consistently indicates that users, particularly adolescents, are poor estimators of their true screen time use.[41] Earlier research treated social media as homogeneous, focusing primarily on aggregate device screen time. Following critiques,[42] recent work adopts more sophisticated approaches; disaggregating platforms and considering specific features.

Experts in adolescent mental health have raised significant concerns about methodological limitations in the evidence base that constrain the ability to establish causal relationships.

Longitudinal studies generally report small or mixed effects, with meta-analyses highlighting limited practical significance despite statistical significance.[43] Considering publication bias favouring significant findings, some experts argue effects are likely very small at population levels.[44] The research base also suffers from limited sample diversity, predominantly featuring educated, affluent adolescents despite supporting nationwide frameworks,[45] with substantial portions conducted with adult rather than adolescent samples.[46]

These limitations exist within the broader context of psychology's "replication crisis" and subsequent reforms.[47] The scientific community has increasingly emphasised improving research production through open science practices including pre-registration of study designs, data and code sharing,

comprehensive conflict of interest reporting, and systematic replication efforts.[48] Despite the substantial attention on improving research production, less systematic scrutiny addresses how research synthesis might also be improved.

Professional science organisations and evidence synthesis

Professional science organisations occupy a distinctive position in this landscape.[49] Unlike advocacy groups, commercial interests, or individual commentators, these organisations explicitly claim scientific authority for their conclusions, positioning themselves as representing "what the research shows" or articulating "scientific consensus." These organisations are frequently called on to provide authoritative scientific guidance on topics including environmental and climate change research, public health issues such as COVID-19, and education research.[50] Such reports are influential in the policymaking process and also contribute to broader public understanding of important social topics.[51] When organisations with similar mandates reach different policy conclusions, it raises questions about the quality of synthesis processes.

Standards for evidence synthesis vary considerably across contexts. Systematic reviews and meta-analyses in scientific publishing follow established protocols including PRISMA and Cochrane guidelines specifying transparent search strategies, explicit inclusion criteria, and structured quality assessment.[52] However, policy-facing evidence syntheses take many forms, and operate without industry-wide standardised methodological frameworks. In some domains, organisations have worked to establish their own frameworks to promote clear and accurate syntheses of evidence.[53]

When organisations with similar mandates reach different policy conclusions, it raises questions about the quality of synthesis processes.

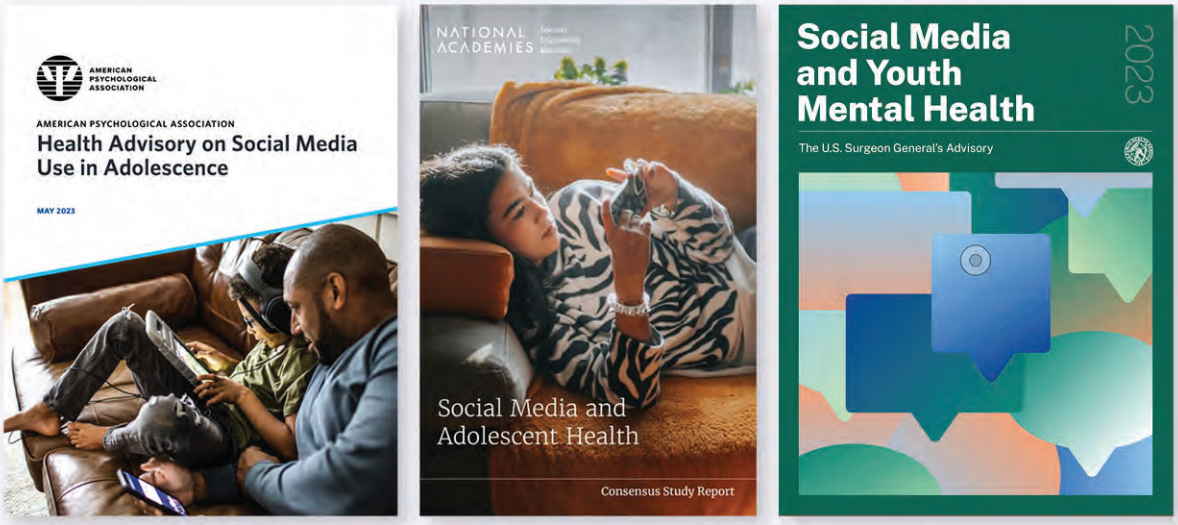
Few studies have examined evidence use in the social media and adolescent mental health domain specifically. Richards and colleagues[54] analysed evidence cited in US pre-trial filings against social media companies, revealing selective referencing including reliance on outdated research, limited population samples, and under-specified health outcomes. Their descriptive mapping approach quantified evidence characteristics related to scientific rigour, including methodology, thematic appropriateness, and population specificity. Examining evidence communication across policy documents, Elson and colleagues[55] analysed professional organisation policies on a wide range of media effects produced before 2018, finding systematic translation issues including overstatement of causal claims, selective citation, and inadequate representation of methodological limitations. Their work established approaches for evaluating translation fidelity, though it did not examine how individual evidence pieces are represented.

The present study

This chapter presents a systematic analysis of three major policy documents addressing social media and adolescent mental health, issued contemporaneously between 2023 and 2024: the American Psychological Association (APA), the National Academies of Sciences, Engineering, and Medicine (NASEM), and the US Surgeon General's Office (OSG). These organisations are well-resourced, scientifically sophisticated actors with explicit mandates to provide authoritative evidence synthesis for policy purposes, making their work especially informative for understanding how evidence syntheses are conducted in practice.

However, it is important to acknowledge that these organisations differ in institutional character and stated aims. Their reports also varied in scope: the OSG advisory aimed to "call attention to growing concerns" and provide urgent, actionable recommendations; the APA advisories sought to "summarise psychological science for stakeholders"; and NASEM explicitly aimed to "comprehensively examine current research"

Figure 4.1: Three major policy documents addressing social media and adolescent mental health



through systematic review, which partly explains its substantially greater length. All three focused broadly on adolescent health outcomes in relation to social media, encompassing both clinical mental health indicators and broader wellbeing measures, though the OSG report focuses more heavily on *mental* health outcomes more specifically. Table 4.1 outlines some key differences in the organisation types, stated goals, and policy conclusions of these three reports.

We employ a mixed-methods approach building on prior frameworks for critically appraising policy statement quality. Firstly, we characterise *what* evidence the reports cite. Our quantitative analysis adapts Richards et al.'s citation mapping methodology[56] to characterise the evidence base underlying each report, systematically coding all 617 unique academic sources for methodological characteristics, study design features, and thematic content. This enables comparison of whether organisations drew upon fundamentally different evidence or selected from similar research pools. Secondly, our qualitative analysis extends upon Elson and colleagues' framework[57] identifying common problems in *how* evidence is communicated to examine how organisations synthesised and communicated selected evidence, including citation accuracy, evidence integration practices, and rhetorical construction of conclusions.

Table 4.1 presents the policy documents analysed, highlighting key organisational differences and divergent policy positions. Despite all three organisations examining scientific understanding of social media and mental health during the same period, they reached notably different conclusions with correspondingly different policy recommendations ranging from urgent calls for population-level age restrictions to cautions against interventions that outpace empirical support. Please refer to Online Appendix 4A for a detailed comparison of the conclusions and policy positions of the three reports.

Table 4.1: Comparison of the APA, NASEM, and OSG reports

Organisation	Org type	Report title	Date	Length	Stated goals	Key conclusions and recommendations
APA	Professional scientific association	Health advisory on social media use in adolescents	May-23	6 pg	Science-informed recommendations for stakeholders	Concludes the use of social media is not inherently beneficial or harmful to young people. Recommends industry standards, parental monitoring, and platform design changes to prioritise youth safety.
		Potential risks of content, features, and functions	Apr-24	11 pg	Elaborate on science relevant to policy solutions	Focuses on specific platform features requiring modification; emphasises design-level interventions.
NASEM	Congressionally chartered advisory body	Social media and adolescent health	Dec-24	287 pg	Comprehensive systematic examination of current research	Finds the literature did not support the conclusion that social media causes changes in adolescent health at the population level. Concludes social media can both harm and improve adolescent health. Cautions against population-level interventions; emphasises individual differences and potential benefits alongside risks.
OSG	Federal government office	Social media and youth mental health	May-23	25 pg	Call urgent attention; provide actionable recommendations	Advocates pursuing policies to further limit access including strengthening age minimums. Strengthen protections to ensure greater safety for children interacting on social media platforms. Characterises there being insufficient evidence to conclude platforms are sufficiently safe for youth.

What types of evidence are included?

Methods

This study was exploratory rather than confirmatory, aimed at characterising patterns in evidence use across policy documents rather than testing pre-specified hypotheses. Accordingly, it was not pre-registered. We systematically analysed all citations from the three policy documents, extracting 617 unique peer-reviewed scientific articles from 1,063 total citations, to examine whether organisations' different policy conclusions reflected systematic differences in evidence selection patterns. Given our focus on social media effects research in particular, we only retained articles whose primary focus was on social media effects (n = 355). This criterion excluded articles written primarily about non-media-related neurological development, sleep, media literacy, and education technology. We defined social media very broadly, deferring to whether each article positioned itself as investigating social media. This means articles with varying definitions, some encompassing social networking, smartphone use, or general screen time, were included, whereas articles focusing only on video games

were excluded. We acknowledge the difficulty of drawing a line in the sand here. These criteria were constructed to enable our analysis to focus as far as possible on research that underlies much of the debate surrounding social media's effects, which has historically drawn on the broader literature on screen time and smartphone use.

Following Richards et al.'s[58] framework for evaluating social media evidence use in policy statements, we categorised each cited article along three dimensions: study methodology, thematic focus, and sample characteristics.[59] This mapping enabled systematic comparison of what types of social media research each organisation drew upon to support policy recommendations. We also assessed whether each study's methodology could plausibly support causal inferences,[60] given the centrality of causal claims in policy debates about social media effects.

Given the large citation volume, we employed an AI-assisted classification system with validation protocols to promote reliability.[61] The system processed article abstracts using structured prompts, with explicit instructions to respond with "inconclusive" when information was unclear or required inference beyond explicit abstract content. We implemented formal validation testing to ensure classification accuracy before proceeding with full analysis. Due to resource constraints, articles classified as "inconclusive" remained coded as such rather than conducting full-text reviews. Full reporting on inconclusive classifications appears in the results.

Chi-square tests of independence compared categorical distributions across organisations,[62] with appropriate corrections for multiple testing.[63] Given substantial sample size differences between reports, we conducted sensitivity analyses to assess whether findings remained robust to these imbalances. Statistical significance was assessed using both raw and corrected p-values at conventional $\alpha = 0.05$, with effect sizes reported to distinguish statistical from practical significance. More methodological detail is available in Online Appendix 4B.

Results

What types of evidence did organisations cite?

We analysed 1,063 total citations across the three reports to understand what types of sources these drew upon. Reports showed small but significantly different patterns in their sources,[64] though these differences may reflect varying approaches to supplementing core academic evidence rather than fundamental distinctions in evidential foundations.

The APA reports relied most heavily on peer-reviewed research (92%, $k = 77$), while the OSG and NASEM reports incorporated more diverse source types, with journal articles comprising 62% ($k = 64$) and 60% ($k = 527$) of their citations, respectively. However, these proportional differences mask important absolute numbers: the NASEM report's 60% still represented 527 peer-reviewed studies, nearly seven times more academic research than the APA reports and over eight times more than the OSG report. The OSG and NASEM reports' incorporation of diverse sources should be understood as expanding rather than substituting for scientific research. Table 4.2 shows the complete distribution of citation types.

The OSG report showed greater proportional reliance on professional reports (15.5%) and published documents (13.6%), while the NASEM report uniquely incorporated news articles (8.9%) and other academic publications including preprints and conference papers (4.6%). Notably, 20% of the APA reports' citations referenced professional reports from organisations including itself, the AAP, and similar bodies.

These differences in source type distribution, while statistically significant, primarily reflect organisational approaches to incorporating supplementary materials alongside substantial cores of peer-reviewed literature. The characteristics of the academic literature selected — which formed the majority of citations across all organisations — showed considerably more convergence, as examined in the subsequent analysis.

Table 4.2: Distribution of citation types by source (*k* = 1,063)

Item type	APA n (%)	NAS n (%)	OSG n (%)	Total n (%)
Journal articles	77 (91.7)	527 (60.2)	64 (62.1)	668 (62.8)
Reports	2 (2.4)	86 (9.8)	16 (15.5)	104 (9.8)
Documents	2 (2.4)	83 (9.5)	14 (13.6)	99 (9.3)
News articles[a]	0 (0.0)	78 (8.9)	4 (3.9)	82 (7.7)
Books[b]	2 (2.4)	45 (5.1)	3 (2.9)	50 (4.7)
Other academic publications[c]	0 (0.0)	40 (4.6)	0 (0.0)	40 (3.8)
Other online media[d]	1 (1.2)	17 (1.9)	2 (1.9)	20 (1.9)
Total	**84 (100.0)**	**876 (100.0)**	**103 (100.0)**	**1,063 (100.0)**

a Includes online newspaper or magazine articles.
b Includes books and book sections.
c Includes conference papers, preprints, and theses.
d Includes blog posts, miscellaneous webpages, and video recordings.

How did citations overlap across organisations?

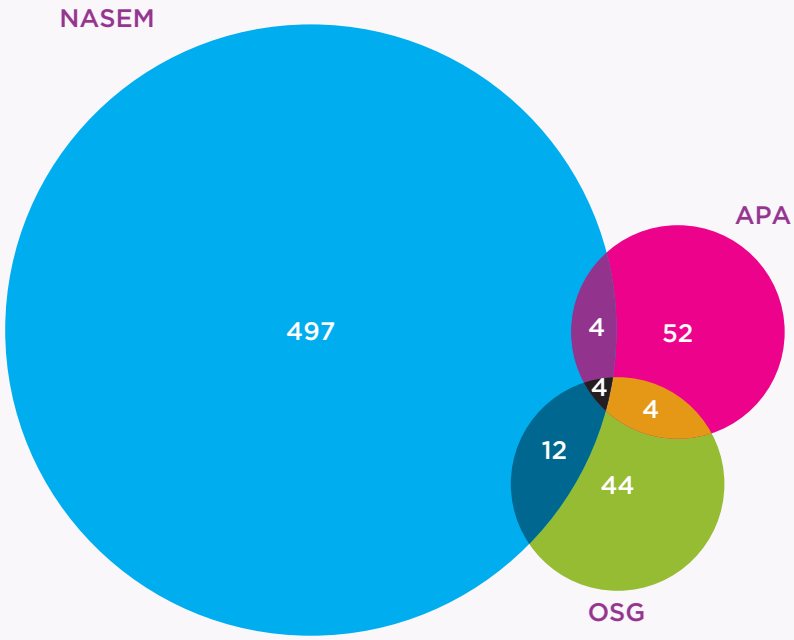
Despite organisations' broadly similar scientific evidence characteristics, analysis of citation overlap revealed very few shared pieces of literature. Of the 668 total cited journal articles, there were 617 unique works, with 24 articles present in multiple sources. Only four citations appeared across all three documents, representing less than 1% of the total unique academic literature.[65] Pairwise overlaps reveal a further 20 articles found in two of the three reports. Figure 4.2 visualises these shared citation patterns. Online Appendix 4C contains the information of the overlapping articles.

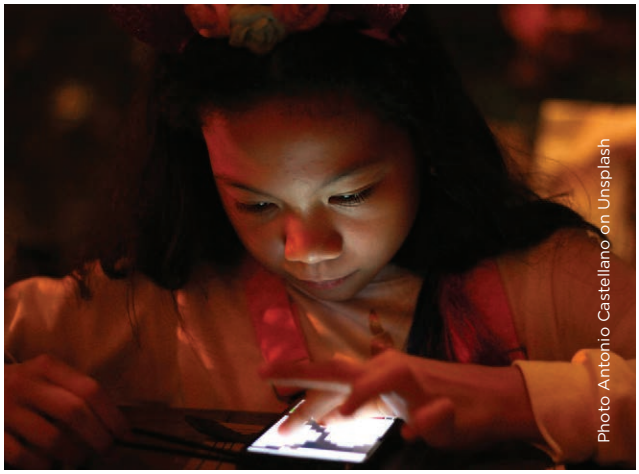
This low overlap raised questions about whether organisations were drawing from different but equally impactful segments of the research landscape, or whether some organisations might be systematically selecting less influential or peripheral studies. Of particular concern was the observation that 20% (*k* = 17) of the APA report's academic citations were authored by members of the report's own advisory panel, suggesting potential bias toward self-citation rather than field-representative selection. The NASEM report also included several studies written by its committee members, but made up considerably less of its overall scientific evidence base (3%, *k* = 27).

Methodological characteristics

To understand the types of research organisations selected, we systematically categorised all 617 unique peer-reviewed articles. Our analysis focused on the 355 articles whose primary topic was social media and adolescent health, which comprised 53% of the APA reports' journal

Figure 4.2: Proportional Venn diagram of shared citations across reports

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articles, 55% of the NASEM report's, and 77% of the OSG report's.[66] The academic literature cited across all organisations showed similar methodological distributions. The most frequently cited study types were meta-analyses or systematic reviews (35.8%, *k* = 127), cross-sectional studies (31.3%, *k* = 111), experimental studies (17.5%, *k* = 62), ethnographic or qualitative studies (6.5%, *k* = 23), and longitudinal designs (4.8%, *k* = 23). Notably, only 16.6% (*k* = 59) of cited articles employed methodologies that could plausibly support causal inferences.[67] Table 4.3 shows methodological characteristics by report.[68]

Table 4.3: Methodological characteristics by report

Study characteristics	APA n (%)	NAS n (%)	OSG n (%)	Total n (%)
Methods				
Meta-analyses, systematic, or narrative reviews	13 (31.7)	104 (36.2)	18 (36.7)	127 (35.8)
Experimental studies	5 (12.2)	49 (17.1)	12 (24.5)	62 (17.5)
Cross-sectional or cohort studies	14 (34.1)	94 (32.8)	14 (28.6)	111 (31.3)
Longitudinal studies	7 (17.1)	9 (3.1)	1 (2.0)	17 (4.8)
Mixed-methods studies	1 (2.4)	7 (2.4)	1 (2.0)	9 (2.5)
Ethnographic or qualitative studies	1 (2.4)	22 (7.7)	0 (0.0)	23 (6.5)
Inconclusive	0 (0.0)	2 (0.7)	3 (6.1)	6 (1.7)
Causality				
Plausible	7 (17.1)	44 (15.3)	15 (30.6)	59 (16.6)
Unable to be determined by method	34 (82.9)	243 (84.7)	34 (69.4)	296 (83.4)
Inconclusive	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total documents	**41 (100.0)**	**287 (100.0)**	**49 (100.0)**	**355 (100.0)**

Statistical testing revealed no significant organisational differences in methodological distributions after appropriate corrections for multiple comparisons.[69] Figure 4.3 indicates absolute counts and proportions of methodological characteristics in each report's cited evidence.

Thematic characteristics

Thematic analysis revealed broad similarity in research focus across organisations. Most articles (82%, k = 292) studied general social media use or screen time without specifying platforms, potentially inclusive of TV or gaming. When platforms were specified, Facebook was most common (9%, k = 32), followed by Instagram (3%, k = 12). The most common health outcomes studied were generalised or unspecified mental health (39%, k = 137), depression (15%, k = 53), and body dissatisfaction (6%, k = 21). This is consistent with the historical focus on the negative impacts of media use on mental health, rather than the potential positive outcomes. Approximately 63% (k = 223) focused specifically on adolescent populations. Table 4.4 shows thematic characteristics by report.

Figure 4.3: Methodological characteristics of cited academic work by report

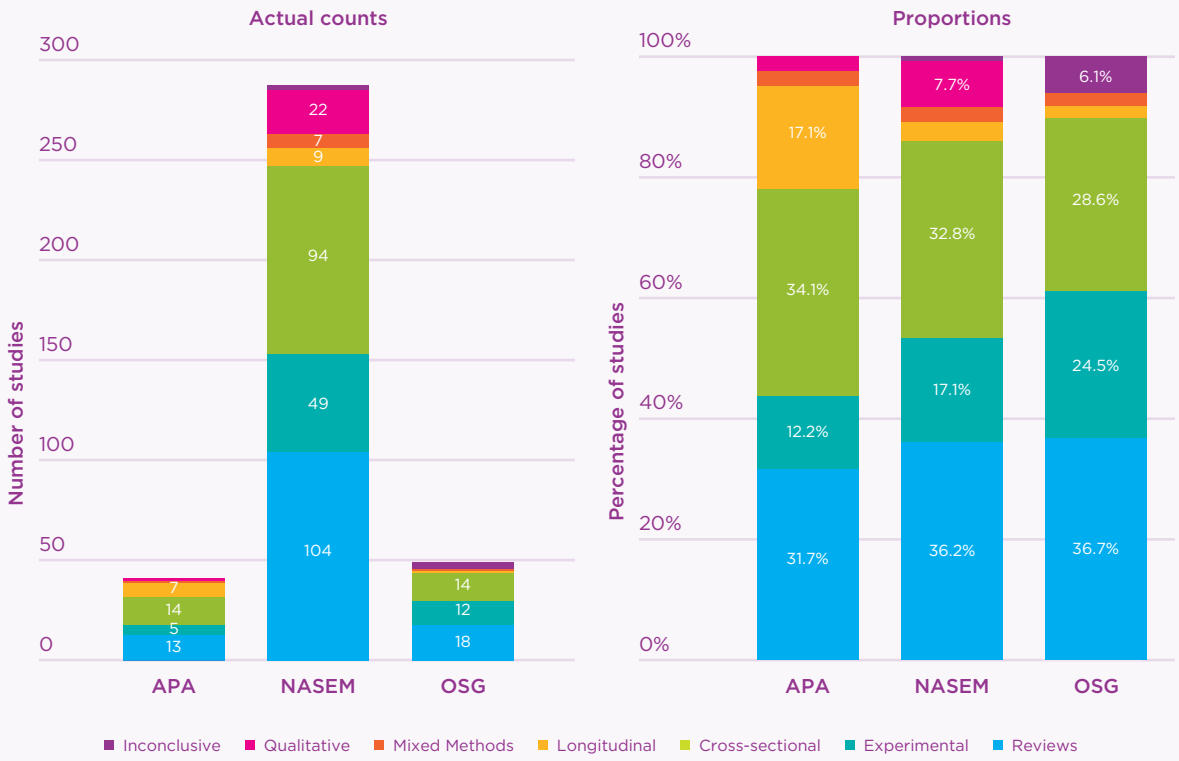

Table 4.4: Thematic characteristics by report

Study characteristics	APA n (%)	NAS n (%)	OSG n (%)	Total n (%)
Platforms studied				
General social media or screen time	36 (87.8)	235 (81.9)	38 (77.6)	292 (82.3)
Facebook	0 (0.0)	26 (9.1)	8 (16.3)	32 (9.0)
Instagram	3 (7.3)	9 (3.1)	1 (2.0)	12 (3.4)
Combination of platforms	1 (2.4)	6 (2.1)	2 (4.1)	6 (1.7)
TikTok	1 (2.4)	3 (1.0)	0 (0.0)	4 (1.1)
Twitter	0 (0.0)	4 (1.4)	0 (0.0)	4 (1.1)
Inconclusive or unspecified	0 (0.0)	3 (1.0)	0 (0.0)	4 (1.1)
Youtube	0 (0.0)	1 (0.3)	0 (0.0)	1 (0.3)
Health outcomes measured				
Generalised mental health	15 (36.6)	106 (36.9)	24 (49.0)	137 (38.6)
Depression	2 (4.9)	28 (9.8)	7 (14.3)	53 (14.9)
Body dissatisfaction	2 (4.9)	17 (5.9)	3 (6.1)	21 (5.9)
Wellbeing or life satisfaction	3 (7.3)	17 (5.9)	3 (6.1)	20 (5.6)
Sleep outcomes	2 (4.9)	13 (4.5)	0 (0.0)	15 (4.2)
Eating disorders or body dysmorphia	1 (2.4)	6 (2.1)	3 (6.1)	10 (2.8)
Generalised physical health	1 (2.4)	7 (2.4)	1 (2.0)	8 (2.3)
Suicidal ideation, attempts, suicide	2 (4.9)	6 (2.1)	1 (2.0)	8 (2.3)
Isolation and loneliness	2 (4.9)	3 (1.0)	1 (2.0)	6 (1.7)
Child Sexual Abuse	0 (0.0)	5 (1.7)	1 (2.0)	5 (1.4)
Anxiety	1 (2.4)	3 (1.0)	0 (0.0)	4 (1.1)
Drug or alcohol addiction	1 (2.4)	2 (0.7)	1 (2.0)	4 (1.1)
Neurological development	1 (2.4)	2 (0.7)	1 (2.0)	2 (0.6)
Social connections	0 (0.0)	1 (0.3)	0 (0.0)	1 (0.3)
Inconclusive or unspecified[70]	8 (19.5)	71 (24.7)	3 (6.1)	61 (17.2)
Focused on adolescent populations				
Yes	34 (82.9)	175 (61.0)	32 (65.3)	223 (62.8)
No mention	5 (12.2)	90 (31.4)	12 (24.5)	105 (29.6)
Inconclusive	2 (4.9)	22 (7.7)	5 (10.2)	27 (7.6)
Total documents	**41 (100.0)**	**287 (100.0)**	**49 (100.0)**	**355 (100.0)**

Statistical tests revealed no significant organisational differences in platforms studied, health outcomes investigated, or focus on adolescent populations.[71]

Summary

The three reports appeared to select broadly similar types of scientific evidence, but contained little overlap with each other. Citation mapping revealed minimal differences in the methodological and thematic characteristics of cited evidence after robust statistical testing. However, only four publications appeared in all three reports, with a further 19 shared between two reports — comprising less than 1% of all cited literature. This fragmentation might reflect methodological differences, distinct disciplinary foci, or the inherently fragmented nature of a rapidly growing research area.

The patterns identified through this analysis reflect broader methodological and thematic constraints well documented by experts in the social media field, including reliance on correlational methodologies and under-specification of both platforms and outcomes. We found that 75–90% of cited work on social media and mental health did not specify which platforms were studied, while over 50% examined general or unspecified mental health outcomes. Only 17% of cited work employed methodologies that could plausibly support causal inferences. These findings echo calls from field experts for future research to prioritise specificity and avoid treating social media use as homogeneous.

The "evidence profiles" of each report can be best described as follows: the OSG report citations appear highly focused and selective of influential work, the NASEM report citations demonstrate comprehensive breadth across diverse research areas, while the APA reports' cited work show lower overall engagement with literature and are highly self-referential. This raises important questions about evidence readiness for strong policy recommendations from this literature, and suggests that divergences emerge instead from how organisations synthesised, contextualised, and communicated similar bodies of research. This constitutes the focus of our subsequent qualitative analysis.

75–90% of cited work on social media and mental health did not specify which platforms were studied, while over 50% examined general or unspecified mental health outcomes.

How is evidence synthesised and communicated?

Methods

Having established that these reports selected broadly similar types of research evidence, we now examine how they communicated it differently using qualitative analysis approaches. The analysis operates at two levels: (1) individual evidence use (how specific studies are cited and interpreted) and (2) broader evidence engagement patterns across each report. Building on Elson et al.'s[72] framework identifying common problems in evidence translation, we developed a coding scheme addressing citation accuracy, evidence integration practices, and rhetorical construction of conclusions. Two researchers initially worked collaboratively to establish protocols and refine categories before systematic coding. Following calibration, the primary coder (SLH) completed analysis using NVivo qualitative software, with themes refined through iterative rounds of coding. The complete coding schema, and list of included examples, is given in Online Appendix 4D. Given the qualitative nature of this analysis and substantial variation in document length (APA: 6-25 pages; NASEM: 287 pages; OSG: 25 pages), quantification of observed instances should be interpreted cautiously. Our findings identify practices that appeared more frequently in certain reports, with examples provided to illustrate these patterns, rather than providing a comprehensive catalog of all instances, or a full citation audit. Complete methodological details are available in Online Appendix 4D.


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Results

Thematic analysis identified three distinct dimensions along which the reports varied in their evidence translation practices: (1) citation accuracy and contextual detail, (2) engaging with complexity in evidence integration, and (3) calibrating certainty to conclusion strength. These patterns emerged through systematic application of the coding framework to all reports, examining both individual citation fidelity and broader organisational approaches to evidence synthesis. Variations ranged from rigorous scientific communication practices that maintained research fidelity, to concerning patterns that, at times, these authors believe misrepresented scientific evidence.

Citation accuracy and detail

Analysis revealed substantial variation in how the reports handled individual citations. Some of the most concerning instances involved citations that appeared to be unrelated to the claim they were used to substantiate. For example, the APA report asserted that "infinite scroll is particularly risky for youth since their ability to monitor and stop engagement on social media is more limited than among adults" (APA 2024, p. 2). The citation supporting this claim investigated factors influencing adolescents' development of effortful control among Mexican-American teenagers, finding that those who experience more hostility from their parents, live in more violent neighbourhoods, or experience more ethnic discrimination tend to exhibit an exacerbated dip in effortful control in their mid-teen years.[73] While the most generous interpretation might

Some of the most concerning instances involved citations that appeared to be unrelated to the claim they were used to substantiate.

connect this research to claims about adolescent self-regulation abilities, the cited study made no conclusions about social media, infinite scroll features, or comparative abilities between youth and adults. Similarly, the claim that "lack of time limits on social media use" (APA 2024, p. 2) is challenging for youth cites studies investigating laptop distraction in classrooms that did not examine social media or mention time limits.

However, most forms of citation inaccuracies involved subtler misrepresentations of findings. For example, the OSG report claimed that graphic self-harm content "can normalise such behaviors," (OSG, p. 8) citing research that also found social media platforms "commonly supportive and provided a sense of community among users" offering "suggestions for formal treatment, advice on stopping self-harming behavior, and encouragement."[74] Presenting only the negative findings while omitting supportive aspects of what is clearly a highly nuanced piece of research reflects an oversimplification of the cited research leaving readers with misleading impressions of research conclusions.

In terms of broader simplification patterns, we found considerable differences in contextual detail given when citing research. The difference between organisational approaches is best exemplified through varying levels of specificity conveying the same piece of evidence. Discussing a large UK study,[75] the NASEM report specified that "the power of social media to influence well-being depended on developmental stage, with girls between ages 11 and 13 and boys between ages 14 and 15 to be in particularly sensitive window" (NASEM, p. 95), compared to the APA report's less-detailed approach to the same study: "potential risks are likely to be greater in early adolescence" (APA 2023, p. 3), omitting the developmental specificity and gender differences identified in the original research.

A common pattern in simplification involved generalising studies across distinct contexts to make broad claims. For example, the APA report writes "data suggest that youths' psychological development may benefit from this type of online social interaction [social support and online companionship], particularly during periods of social isolation" (APA 2023, p. 4), citing four studies that investigated: positive and negative online experiences during COVID-19, experiences of Peruvian youth online, TikTok-based treatment adherence for young adults with chronic conditions, and social media self-disclosure among users with Type 1 Diabetes. While individual aspects of these studies support some aspects of the broader claim, this conflation obscures specific findings and inappropriately generalises across distinct contexts to make a broad claim about social support benefits for development.

Engaging with complexity

Moving beyond individual citations, organisations also demonstrated markedly different approaches to synthesising and evaluating the overall evidence base. The NASEM report showed the highest engagement with limitations and contradictory evidence, compared to moderate engagement in the OSG report and the least engagement in APA reports. All reports acknowledged broader constraints in the social media research field, for instance noting that "relatively few studies have been conducted with marginalized populations of youth" (APA 2023, p. 3). However, limitation acknowledgment for individual studies varied substantially. The NASEM report regularly qualified findings: "A 2018 meta-analysis found mobile phone use in the classroom to modestly interfere with student learning and academic performance, although this small effect was driven more by undergraduates than K through 12 students" (p. 101), acknowledging both limited effect size and population specificity affecting generalisation.

Engagement with disconfirmatory evidence also varied considerably. The NASEM report consistently presented contradictory findings even when they complicated organisational positions. After discussing the potential impacts of laptop use in college classes on neighbours learning, the NASEM report noted: "That said, an experiment banning laptops from undergraduate classrooms found no benefit, even a possible detriment to learning (as students in the no-laptop group simply did not come to class)" (p. 101). This demonstrated tolerance for presenting genuinely mixed evidence rather than constructing apparent consensus through

selective emphasis. Other reports emphasised supportive evidence while minimising contradictory findings, occasionally acknowledging claims as held by "some researchers" (OSG, p. 9) without fully engaging with contested positions.

Calibrating certainty to conclusion strength

The culmination of these different evidence translation choices shaped how each report navigated communicating scientific uncertainty into policy guidance, which resulted in clear differences between the reports' overall rhetorical angle and strength in presenting conclusions. Reports varied substantially in language modality signaling confidence levels. Claims that engagement metrics "likely lead to problematic use" (APA 2024, p. 2) was an unsupported claim not linked to cited literature. Vague quantification such as "significant negative effects" or "substantial data" (APA 2024, p. 3) limited readers' ability to evaluate conclusions independently. Frequent references to undefined "harms" further obscured specific risks under discussion.

These choices culminated in different overall positions. The NASEM report concluded that evidence "did not support the conclusion that social media causes changes in adolescent health at the population level" (p. 94) and noted they "sympathise with some parents' desire for authoritative prescriptions [...] but [are] mindful of overreaching the data" (p. 120). In contrast, OSG concluded there was insufficient evidence "to conclude that [social media] is sufficiently safe" (p. 11), characterised children as "unknowing participants in a decades-long experiment" (p. 11) and advocated that "we must urgently take action," (p. 4) concluding that "the evidence noted throughout this Surgeon General's Advisory necessitates significant concern with the way it is currently designed, deployed, and utilised" (p. 13).

Summary

The aggregation of these practices creates distinct organisational profiles for evidence translation. The NASEM report's approach — characterised by high limitation acknowledgment, detailed contextual explanations, and consistent engagement with disconfirmatory evidence — reflected extensive methodological transparency. The APA reports' pattern of citation clumping, minimal limitation acknowledgment, and inappropriate definitiveness at times, suggested prioritisation of clear or actionable guidance over methodological detail. The OSG report demonstrated more moderate limitation acknowledgment, but occasionally gave selective presentation of findings. Together, these dimensions reveal distinct organisational approaches to balancing scientific rigour with public accessibility and policy urgency, at times veering into concerning citation inaccuracies warranting critical attention.

Discussion

Adolescent mental health and social media engagement is an area of active scientific study[76] and it is critical that policymakers benefit from evidence syntheses which present the clearest and highest quality analysis of what is and is not empirically known. To that end, our analysis investigated how three key US professional reports on social media and adolescent mental health used scientific evidence to formulate policy recommendations. We found that divergent policy conclusions did not stem primarily from systematic differences in the types of evidence cited — citation mapping revealed all three reports cited broadly similar types of peer-reviewed research with comparable methodological and thematic characteristics. However, we found considerable heterogeneity in how organisations framed evidence and integrated studies. These findings suggest that synthesis quality among professional organisations warrants greater scrutiny than it typically receives, with implications for evidence-based policy in domains characterised by scientific uncertainty and high public stakes.

Balancing nuance, uncertainty, and utility

The patterns we observed reflect different approaches to handling the challenge of translating complex, uncertain research into clear policy guidance. This translation work involves important trade-offs that organisations must balance between policy utility and scientific specificity.

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Evidence synthesis efforts can be understood as existing along a continuum from rigour and comprehensiveness to simplicity and accessibility. Simplified presentations are significantly easier for policymakers and the public to digest and act upon, though as documented throughout this work, this accessibility can sometimes come at the cost of inappropriate overgeneralisations of research findings. NASEM's comprehensive 287-page report showcases more of a preference for scientific precision, conveying extensive methodological transparency, but also creates substantial barriers to practical engagement given its length. APA and OSG's briefer formats (6-25 pages) prioritise clear, actionable recommendations but run the risk of oversimplifying a complex and developing research area.

Evidence-based policy reviews take a wide range of forms, serving different audiences and institutional contexts. Strategic simplification is understandable given the practical constraints organisations face: policymakers require guidance they can act upon, public audiences need accessible communication, and lengthy technical reports risk being ignored regardless of scientific merit. Some variation in communication approach therefore reflects legitimate choices about format, audience needs, and the balance between comprehensiveness and utility. In most cases, the variation we observed reflects different organisational tolerance for expressing uncertainty and ambiguity versus preferences for clarity and simplicity in translational choices. This is a hard balance to strike, and much of the variation we documented represents reasonable differences in how organisations navigate these competing demands.

A central aspect of engaging with complexity involves how organisations navigate scientific uncertainty when providing policy guidance. It is important to acknowledge that scientific uncertainty represents intellectual honesty rather than inadequacy. Complex social phenomena — including the relationship between social media use and adolescent wellbeing — often yield findings that are nuanced, context-dependent, and resistant to simple characterisation.[77] When evidence is genuinely mixed or methodologically limited, intellectual honesty about what we do and do not know with confidence serves evidence-based policy better than premature consensus forced through selective emphasis or rhetorical construction of certainty.

This stance does not render scientific evidence unhelpful for policy: policy decisions necessarily proceed despite incomplete information. The question is not whether to act under uncertainty, but how to characterise the evidentiary foundation for different courses of action. Honest synthesis that acknowledges what remains uncertain or contested provides essential information for policy deliberation about appropriate responses under conditions of imperfect knowledge. In contrast, synthesis that obscures complexity or transforms tentative findings into definitive conclusions can misrepresent the state of knowledge and undermine the foundation for informed deliberation. The different approaches to conveying contextual detail and study specifics that we observed reflect varying organisational judgments about how to handle this uncertainty in policy-relevant communication.

However, regardless of format or audience, it is important to promote rigorous quality standards when dealing with complex high-stakes evidence. The differences we observed, particularly in terms of citation accuracy and contextualisation, affect whether readers can independently assess the evidentiary basis for recommendations or must accept claims on organisational authority alone. Our findings suggest considerable variation in how different organisations conducted this synthesis work. Given that all three organisations examined here are well-resourced, scientifically oriented, and operate with explicit mandates to provide authoritative evidence synthesis, it is perhaps reasonable to expect greater consistency in the quality and fidelity of scientific communication. This is important research addressing complex policy questions that affect vulnerable populations, where quality ought to be consistently high.

Some of our observations here are particularly worrying, even if rare. Inaccurate citations where claims are not supported by referenced evidence cannot be justified as a legitimate communication choice. Nor can selectively omitting contradictory

Researchers and other end users should have more or less confidence in these reports based on whether they demonstrate citation accuracy, balanced presentation of evidence, and appropriate qualification of conclusions.

findings or major limitations that would fundamentally alter interpretation of research conclusions. Such practices are better characterised as using evidence as "ammunition", a phrase termed by Weiss which describes invoking the authority of science to legitimise conclusions without substantively engaging with their complexity.[78] This is distinguished from genuinely rigorous evidence-based syntheses, which require maintaining fidelity to source material, honest acknowledgment of uncertainty, and thoughtful treatment of contradictory findings.

When we systematically compared these reports, differences in translation quality became evident. It is clear that researchers and other end users should have more or less confidence in these reports based on whether they demonstrate citation accuracy, balanced presentation of evidence, and appropriate qualification of conclusions. All reports have their limitations, but for high-stakes research in domains affecting adolescent wellbeing, the standards ought to be consistently higher. The substantial variation in approaches to balancing nuance and practical utility suggests that greater care should be taken when translating scientific evidence into policy recommendations. This is particularly important in contested domains characterised by methodological limitations and genuine scientific uncertainty, as is the case for social media and adolescent mental health.

Implications

Effective evidence-based policy development requires clear and accurate information on what science can and cannot tell us about key questions of societal importance. Indeed, scientific evidence represents one input among many in democratic policy deliberations. The knowledge we derive from the scientific method can only be as strong as an honest reading of the evidence we have.[79] It will be weighed alongside political considerations, stakeholder perspectives, and value judgments about social priorities.

Low-quality evidence synthesis carries material costs for policymaking. If evidence is mischaracterised or selectively presented, policies may be poorly calibrated to what is scientifically known. For example, some experts have warned that strict age-based access restrictions for social media use risk disadvantaging young people who benefit from online connection while failing to address actual mechanisms of potential harm.[80] If syntheses misrepresent the state of knowledge, even unintentionally, the resulting policies may target the wrong outcomes or lack strong empirical foundation for their likely effectiveness.

Beyond immediate policy impacts, synthesis quality matters for maintaining public confidence in scientific institutions and the broader credibility of evidence-informed policymaking. When synthesis processes are revealed to mischaracterise research findings — such as through citation inaccuracies, selective omission of contradictory evidence, or inappropriate certainty about contested findings — this can affect public perception of scientific reliability more broadly.[81, 82]

Many types of input inform democratic policy-making, including advocacy, anecdote, and values-based arguments about social priorities.[83] In this chapter, we have focused specifically on scientific research evidence as it is translated into policy guidance. As scientists committed to rigorous, transparent, and replicable approaches to understanding complex phenomena, we have a responsibility to consistently uphold standards that justify claims to scientific authority and to identify opportunities for improving practices within our community.

Good governance of evidence

The value of high-quality evidence synthesis has been recognised in many domains. Indeed, scholars have increasingly emphasised the need for improved rigour in primary social and psychological sciences through reproducibility, transparency, and robust methodological practices.[84] Different fields have developed distinct approaches to evaluating evidence quality: formal protocols for systematic reviews and meta-analyses exist (such as PRISMA and Cochrane guidelines), while medicine employs established hierarchies for assessing evidence strength. Social sciences face different methodological constraints, prompting calls for field-appropriate frameworks such as "evidence-readiness levels" that consider replication status and theoretical grounding alongside study design.[85] However, as our findings highlight, selecting high-quality evidence is only part of the challenge. As Parkhurst notes, "good evidence" must be paired with the "good governance of evidence".[86] Some domains have developed best practices guidance for authoritative bodies conducting science syntheses.[87]

Our analysis identified six practices which, where present, indicated good governance of the scientific literature.

First, **citation accuracy and fidelity**, the clear correspondence between specific claims and the cited studies, was the most fundamental standard of good evidence governance. Less rigorous synthesis contained some citation inaccuracies, or subtler misrepresentations of evidence. Even though strictly inaccurate citations were rare, their presence at all is worrying. Better reports avoided using evidence as "ammunition" and engaged precisely with every piece of cited literature.

Secondly, strong synthesis provided **suitable contextualisation** about cited studies including information about methodology, sample characteristics, and specific findings. Less detailed work cited multiple studies relating to a single claim without substantive discussion of their content, seeming to use citations decoratively instead of supporting a specific point of knowledge. At times, research was generalised very broadly across diverse national, cultural, ethnic, or other contexts. Better instances of evidence integration were highly specific about the contexts in which the studies were conducted, enabling an accurate representation of the underlying research.

Thirdly, good governance was characterised by **systematic limitation acknowledgement** where such limitations impact how a study, or a field of studies, might be interpreted including practical effect sizes, constraints on generalisability, and methodological constraints. Reports which convey field-wide limitations can help their readers qualify the findings of individual studies and gain a more accurate picture of the state of scientific knowledge as it grows and develops over time.

Fourthly, reports which contained **engagement with disconfirmatory evidence** demonstrated tolerance for presenting contradictory findings enacted better evidence governance than those which sought to construct apparent consensus through selective emphasis. When research yielded mixed results, rigorous work acknowledged this complexity rather than highlighting only supportive evidence.

Fifthly, the best syntheses used **language appropriately calibrated to confidence** in the underlying research. Less strong approaches demonstrated inappropriate definitiveness, and used vague terms such as "significant effects" or discussed unspecified "harms". In general, better reports erred on the more cautious end of the spectrum, demonstrating intellectual humility and avoiding certain statements.

Finally, high-quality reviews documented how evidence was identified, selected, and evaluated, displaying **process transparency** including committee composition, funding sources, any conflicts of interest, and the scope of literature reviewed. It is important for readers to be able to understand the intended aims and goals of the organisations, such that they might be able to critically calibrate their level of trust in these types of reports.

Table 4.5 summarises these practices and tentatively suggests some practical ways in which they might be better achieved. Some of these approaches are more feasible and simple, whereas others are more of an ideal requiring some level of systemic change.

These six practices are consistent with those proposed by other scholars almost a decade ago who recommended that professional organisations acknowledge disconfirmatory data, focus on effect sizes, acknowledge methodological limitations, solicit balanced views, avoid secondary sources, distinguish scientific statements from advocacy statements, be mindful of unintended harms, and prioritise open science practices.[88] The persistence of these issues, documented first by Elson and colleagues, suggests that translation quality in policy statements still requires attention.

Table 4.5: Practices supporting rigorous evidence synthesis

Practice observed	Indicator of quality	Possible implementation approaches
Citation accuracy and fidelity	Clear correspondence between specific claims and cited studies; absence of subtle misrepresentation	Dedicated verification staff (cf. legal scholarship); external citation audits; citation styles requiring authors to specify how sources support claims**
Suitable contextualisation	Substantive discussion of methodology, sample characteristics, and specific findings for cited studies; citations used to support specific knowledge claims rather than decoratively	Structured presentation moving from most to least relevant context (e.g., national context first, then international evidence); required methodological summaries for key cited studies
Systematic limitation acknowledgement	Explicit discussion of practical effect sizes, generalisability constraints, and methodological limitations that affect interpretation	Standardised limitation reporting requirements*; consideration of publication bias analogous to systematic review protocols**
Engagement with disconfirmatory evidence	Acknowledgment of mixed findings and contradictory evidence; tolerance for complexity rather than construction of apparent consensus	Explicit statement of what evidence would change authors' conclusions*; adversarial collaboration or intentional recruitment of authors with opposing views**
Language is appropriately calibrated to confidence	Precision in communicating uncertain findings; avoidance of inappropriate definitiveness and vague terms like "significant effects"	Editorial review specifically for overclaiming*; standardised confidence language (cf. IPCC uncertainty guidance)**
Process transparency	Documentation of how evidence was identified, selected, and evaluated; disclosure of committee composition, conflicts of interest, and scope	Development of reporting checklists for reports analogous to Cochrane protocols or PRISMA*; public pre-registration of synthesis scope and methods**

*Lower-resource approaches
**More resource-intensive or systemic changes


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Limitations and future directions

This chapter would be remiss to neglect thorough discussion of our own limitations.[89] Further methodological particulars are available in the online appendices.

Scope constraints

Our analysis examined the reports of three US-based organisations during a specific period (2023–2024) when social media regulation received heightened political attention, potentially creating unique pressures that may not apply during routine policy development. Findings may not generalise to non-US organisations, other types of scientific advisory bodies, or policy domains with different characteristics. The focus on total cited evidence, rather than distinguishing which citations directly supported organisational arguments versus those cited for critique or context, represents another constraint. This approach cannot distinguish between confirmatory and disconfirmatory treatment of evidence (e.g., a report might include studies primarily to critique them, affecting quality metrics in ways that do not reflect actual selection patterns.)

Further, we did not systematically examine how organisations reasoned from evidence to specific policy recommendations. In other words, we did not judge whether proposed interventions were themselves supported by empirical evidence. Identifying that a problem exists — whether rightly or wrongly — does not necessitate or justify any particular policy action. Intervention science examines such questions systematically, comparing policy approaches and their likely effects. Future research examining this dimension would provide important insights into the complete evidence-to-policy chain, evaluating not only how organisations synthesised evidence about problems but also how they justified specific interventions as appropriate responses.

Methodological limitations

Our classification approach for coding evidence characteristics, despite achieving high accuracy in validation testing overall, produced a number of "inconclusive" classifications that restricted statistical analysis precision for the "effects" category.[90] Future studies might employ hybrid approaches combining automated classification with comprehensive human verification to improve reliability. More fundamentally, document-based analysis cannot access deliberative processes such as committee discussions, internal organisational pressures, or external political factors that may have significantly influenced synthesis choices but remain inaccessible through examining final outputs alone.

Our qualitative analysis reflects analytical decisions about how to characterise evidence translation practices. As widely noted, qualitative research is poorly suited to direct replication efforts, but nonetheless our reporting aims to promote systematic transparency in our analytical choices.[91] Different researchers might construct alternative categorisation schemes revealing different patterns. Our qualitative analysis is not a

comprehensive catalog of every instance a theme was identified and is not intended as a complete citation audit. Resultingly, there may be other instances of each category within the reports that other researchers might identify.

Additionally, resource constraints limited full comparative analysis to a single coder following collaborative protocol development. We welcome future research appraising quality patterns in evidence use for professional science organisations reviewing social media and mental health research, whether using our framework or developing alternative approaches (see Online Appendix 4D for more detailed qualitative methodology).

Future directions

These limitations suggest several promising research directions. First, investigating the deliberative processes through ethnographic observation of evidence synthesis committees or interviews with committee members could reveal how organisational context, political pressures, and interpersonal dynamics shape synthesis choices in ways not visible in final documents. Second, examining how different stakeholders, including policymakers, practitioners, advocacy groups, and journalists, actually use and interpret translated evidence in policy processes would illuminate how much the synthesis quality differences we identified matter for downstream policy development and public understanding. Third, systematically comparing evidence bases invoked to support specific policy interventions would extend our focus beyond problem characterisation to intervention justification. Fourth, applying similar analytical frameworks to other policy domains (climate science, public health, education policy) would assess whether patterns we identified in social media and adolescent mental health research reflect broader challenges in evidence synthesis or domain-specific issues. Additionally, longitudinal analysis tracking how synthesis practices evolve as research fields mature and evidence accumulates could identify factors that promote improvement in synthesis quality over time. Finally, it would be beneficial to track whether differences in synthesis report styles or qualities predict uptake by government or policy leaders. This might enable a better understanding of whether highly detailed and balanced reports are leveraged by policymakers more or less than shorter, simplified, or perhaps over-confident, reports.

Many of the practices we identified, like fidelity to source material, precision in citations, and intellectual humility in the face of uncertainty, distinguish scientific synthesis from other aspects of policymaking such as lobbying and advocacy.

Conclusions

Making the best use of scientific knowledge to inform effective policy is challenging. Today, the question of social media engagement and adolescent mental health is framed mainly in terms of producing high-quality original research,[92] but less emphasis has been placed on how to rigorously translate this literature into coherent policy recommendations. Our study represents a step towards developing higher standards for this process. We demonstrated there are considerable qualitative differences in how well organisations synthesise and communicate evidence. Indeed, many of the practices we identified, like fidelity to source material, precision in citations, and intellectual humility in the face of uncertainty, distinguish scientific synthesis from other aspects of policymaking such as lobbying and advocacy. If history is any guide, today's focus on young people and social media will, in time, give way to new hopes and concerns about augmented reality and artificial intelligence. It is our sincere hope that when this time comes, those producing and using scientific research will understand that taking these questions of societal importance seriously requires equal rigour in the interpretation and communication of our science as it does in its creation.

Endnotes

1 For example, see Science and Technology Committee (2019).

2 Pew Research Center (2025).

3 Cairney and Oliver (2017); Rapport et al. (2018); Young and Borland (2011).

4 Oreskes (2004).

5 APA (American Psychiatric Association) (2021).

6 HHS (U.S. Department of Health and Human Services) (2023, p. 15).

7 National Academies of Sciences et al. (2024, p. 120).

8 Elson et al. (2019); Gundersen (2024).

9 Oliver and Pearce (2023).

10 APA (2021).

11 Bogenschneider and Corbett (2021); Lakoff (1991).

12 HHS (U.S. Department of Health and Human Services) (2006).

13 Przybylski and Vuorre (2025); Sigaud et al. (2025); Sewall and Parry (2024).

14 Ferguson (2020); Livingstone and Ringmar Sylwander (2025).

15 Cologna et al. (2025); Miller (2004); National Coalition Against Censorship (2013); Oreskes (2004).

16 For reviews, see IJzerman et al. (2020); Mansfield et al. (2025); Vuorre et al. (2022).

17 National Academies of Sciences et al. (2024).

18 APA (2023); APA (2024).

19 HHS (U.S. Department of Health and Human Services) (2023).

20 Boniel-Nissim et al. (2024).

21 OECD (2018).

22 For example, see, Joint Select Committee on Social Media and Australian Society (2024).

23 Davies et al. (2000); Head (2010); Nutley et al. (2009); Sanderson (2002).

24 Hansard UK Parliament (1999).

25 Cairney and Oliver (2017).

26 Head (2016); Young et al. (2002).

27 Davies et al. (2000); Graham et al. (2006); See (2018); Straus et al. (2011).

28 Cairney and Oliver (2017); IJzerman et al. (2020).

29 Weiss (1979).

30 Parkhurst (2016).

31 Cairney (2022); Oliver et al. (2014); Oliver and Pearce (2023).

32 IJzerman et al. (2020).

33 See Mansfield et al. (2025); Orben and Matias (2025); Vuorre et al. (2021).

34 Coyne et al. (2023); Odgers and Jensen (2020).

35 Ferguson et al. (2025); Sutton (2020).

36 Hall and Liu (2022).

37 Hickman et al. (2021).

38 Adjei et al. (2021); Nelson et al. (2020); Zozaya and Vallejo (2020).

39 Foulkes and Andrews (2023).

40 Verbeij et al. (2021); Zhao et al. (2025).

41 Coyne et al. (2023); Júdice et al. (2023); Ohme et al. (2021).

42 E.g., Granic et al. (2020); Livingstone and Pothong (2022); Orben and Przybylski (2019).

43 Appel et al. (2020); Meier and Reinecke (2021); Orben and Przybylski (2019); Valkenburg et al. (2021); Vuorre et al. (2021).

44 Galea and Buckley (2024).

45 Ghai et al. (2022).

46 Livingstone and Third (2017).

47 Anvari and Lakens (2018); Korbmacher et al. (2023).

48 Clarke et al. (2024); Ghai et al. (2025); Munafò et al. (2017); Nelson et al. (2018); Nosek et al. (2015); Open Science Collaboration (2015); Simons et al. (2017).

49 Neuman (2018).

50 Elson et al. (2019).

51 Dunnwald et al. (2025); Oliver and Pearce (2023).

52 Higgins et al. (2024); Page et al. (2021).

53 For instance, the Intergovernmental Panel on Climate Change (IPCC) established calibrated language frameworks specifying how to characterise and communicate uncertainty in assessment processes (Mastrandrea et al., 2010), providing a model for how organisations might standardise synthesis practices.

54 Richards et al. (2025).

55 Elson et al. (2019).

56 Richards et al. (2025).

57 Elson et al. (2019).

58 Richards et al. (2025).

59 Classification framework details: articles were classified by study methodology (experimental designs, observational studies, systematic reviews, meta-analyses, narrative reviews, qualitative studies), thematic focus (health outcomes studied including depression, anxiety, body dissatisfaction, wellbeing; social media platforms examined; population age characteristics), and whether methodology could support causal inferences. We focused on articles whose primary research question concerned social media and adolescent mental health, excluding tangentially related work. Complete coding schema available in Online Appendix 4B.

60 Operationalisation of causality was a coarse measure used to determine whether it was *plausible* that the research article could make causal claims based on its overarching methodology. For example, study designs that might support causal reasoning include experimental studies, A/B testing, some longitudinal designs, randomised controlled trials, or other causal modelling techniques. Study designs such as cross-sectional, surveys, observational studies, and narrative reviews were considered unable to support causal reasoning.

61 AI-assisted classification with validation: we used ChatGPT-4o-mini via OpenAI API to process abstracts. Following emerging best practices (European Commission, 2024; Feng, 2024; Oxford Communications, 2025; University of York, 2025), we conducted pilot testing with 5 citations followed by formal reliability testing on 25 randomly selected citations coded both manually (by SLH) and via AI. Analysis proceeded only after achieving >90% agreement across all categories. Complete procedures are documented in Online Appendix 4B.

62 We note that standard assumptions of independence are imperfectly met here: organisations drew from overlapping literature, later reports may have been influenced by earlier ones, and citations within each report were strategically curated rather than independently sampled. We therefore present inferential statistics primarily as heuristics for identifying notable distributional differences, with effect sizes reported to contextualise practical significance. Our goal is descriptive comparison of these three documents rather than generalisation to a broader population of evidence syntheses.

63 Statistical testing and corrections: Cramér's V calculated effect size magnitudes. We applied Benjamini-Hochberg false discovery rate correction ($\alpha = 0.05$) to address multiple testing. Sample sizes: APA (84 citations), NASEM (876), OSG (103). Sensitivity analyses proportionally down-sampled NASEM to assess robustness to sample size imbalances. Detailed statistical procedures in Online Appendix 4B.

64 ($\chi^2 = 47.77$, $p < 0.001$, Cramér's $V = 0.15$)

65 These were: Alonzo et al. (2021); Maza et al. (2023); Nesi and Prinstein (2015); Orben et al. (2022). Online Appendix 4C contains the details of all overlapping citations.

66 Excluded articles included research primarily focused on non-media-related neurological development, sleep, media literacy, or education technology. Full procedural account in Online Appendix 4B.

67 See Online Appendix 4B for details on how this was operationalised.

68 We attempted to assess how many of these articles were pre-registered, but this information is rarely included in abstract text (typically appearing elsewhere on the article landing page). Given our reliance on abstracts for classification, we could not reliably estimate pre-registration rates.

69 Initial chi-square analysis suggested small but significant differences in methodological distributions ($\chi^2 = 23.73$, $df = 10$, $p < 0.01$, Cramér's $V = 0.18$, small effect). Initial analysis also suggested OSG cited more studies supporting causal inferences ($\chi^2 = 6.77$, $df = 2$, $p = 0.03$, Cramér's $V = 0.13$, small effect). However, these differences did not survive statistical correction. The causal inference difference was not robust to FDR correction for multiple testing (p_corrected = 0.19). While methodological differences remained significant through FDR correction, they were not robust to sensitivity analysis correcting for sample size imbalance (p_corrected = 0.10), indicating that apparent differences were likely artifacts of unequal citation sample sizes rather than systematic selection biases.

70 These inconclusive results included studies which investigated non-health related outcomes such as identity development, parental perspectives, or were focused on characterising social media behaviours rather than investigating a specific outcome.

71 Chi-square tests revealed no significant organisational differences in platforms studied, health outcomes investigated, or focus on adolescent populations, both before and after FDR correction for multiple comparisons. The persistence of null findings across multiple analytical approaches strengthens confidence that organisations broadly selected similar types of scientific evidence.

72 Elson et al. (2019).

73 Atherton et al. (2020).

74 Dyson et al. (2016).

75 Orben et al. (2022).

76 Mansfield et al. (2025).

77 Bastow et al. (2014); Cairney and Oliver (2017); Young et al. (2002).

78 Weiss (1979).

79 Cairney (2016); Cairney (2022); Weiss (1979).

80 Livingstone and Ringmar Sylwander (2025).

81 Cologna et al. (2025); Gundersen (2024); Miller (2004); Oreskes (2004).

82 For example, in 2005, the APA issued a policy statement on violent video games that was widely criticised by researchers for mischaracterising evidence (National Coalition Against Censorship, 2013). Over 200 scholars signed an open letter expressing concerns about the report's quality, noting problems with selective citation and overstated conclusions (Ferguson et al., 2020). See also Elson et al. (2019) for further discussion.

83 Cairney and Oliver (2017).

84 Clarke et al. (2024); Ghai et al. (2025); Simons et al. (2017).

85 IJzerman et al. (2020).

86 Parkhurst (2016).

87 For example, the Intergovernmental Panel on Climate Change (IPCC) has developed systematic guidance for characterising uncertainty in synthesis reports, including calibrated language frameworks that specify "a common approach and calibrated language that can be used broadly for developing expert judgments and for evaluating and communicating the degree of certainty in findings of the assessment process" (Calvin et al., 2023). Such approaches provide helpful models for how professional scientific bodies might standardise synthesis practices in other domains.

88 Elson et al. (2019).

89 For an excellent paper calling for more thorough treatment of the limitations section in psychological science, see Clarke et al. (2024).

90 We therefore did not include the effects category in our analysis. Methodological and thematic characteristics were unaffected by this issue. See Online Appendix 4B for more details.

91 Braun and Clarke (2006).

92 For example, see Ghai et al. (2025); Mansfield et al. (2025).

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Chapter 5

Adolescent life satisfaction and social media use: gender differences in an international dataset

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Among girls worldwide, non-users and light users of social media were more satisfied with their lives than heavy users.

Key Insights

Although many studies have documented links between heavy social media use and poor mental health, fewer studies have explored associations with positive wellbeing, especially in international datasets.

In 2022, the OECD's PISA survey, conducted in 47 countries, asked over 270,000 15- to 16-year-olds how many hours a day they spent using social media and how satisfied they were with their lives.

Among girls, mean life satisfaction was highest among light users of social media (less than an hour a day) and declined with further hours of use. Among boys, this pattern held only in Western Europe and English-speaking countries.

The mean differences obscure a notable pattern, especially among boys. Compared to light users, a larger percentage of the heaviest users (7+ hours a day) had both the highest level of life satisfaction (10) and the lowest levels (0–4). The same was true for non-users of social media, with higher levels of both very high and low life satisfaction.

Thus, there is more variation in life satisfaction among non-users and heavy users of social media compared to light or moderate users. Among girls in most regions, non-users of social media were the most likely to report complete satisfaction with their lives, although in some regions, heavy users were also more likely to report complete satisfaction than moderate users.

Introduction

Social media use is extremely common among teens around the world. An analysis of the international *Health Behaviour in School-Aged Children (HBSC)* study found that 78% of adolescents were active social media users.[1] On average, teens in the US use social media 4.8 hours a day, including Instagram, TikTok, and YouTube.[2]

Thus, it seems important to determine if social media use is associated with lower wellbeing. Although many studies have examined these associations, the size and importance of links between social media use and wellbeing are still debated in the field.[3] In addition, more studies have examined associations between social media use and negative outcomes, such as depression,[4] with fewer studies examining positive outcomes, such as happiness or life satisfaction.

Furthermore, most studies of adolescent social media use have been conducted on populations in the US, Canada, or the UK.[5] Studies examining adolescent social media use and psychological wellbeing in other countries and regions, especially from nationally representative samples, are scant, and even fewer have examined these associations across many regions using the same measures.

In 2022, the *Programme for International Student Assessment (PISA)* survey, which collects nationally representative samples of 15- to 16-year-olds in countries around the world, asked teens how much time they spent using social media each day. Students were also asked how satisfied they were with their lives, a common measure of positive psychological wellbeing. Thus, the 2022 PISA dataset makes it possible to examine associations between self-reported social media use and life satisfaction across many regions around the world using the same measures.

Most studies of adolescent social media use have been conducted on populations in the US, Canada, or the UK.

Method

Participants

Participants were students completing the OECD PISA survey, which obtains nationally representative samples of 15- to 16-year-olds enrolled in school in each country. Schools were required to have at least an 80% response rate for student participants. The survey was administered in the same language used for instruction in the school. We drew from the 2022 administration of the PISA dataset (maximum n = 270,096 for the items of interest).

Measure of social media use

Students were asked: "During a typical weekday, how much time do you spend doing the following leisure activities? … Browse social networks (e.g., Instagram, Facebook)". Response choices were: no time at all (coded as none), less than one hour, between 1 and 3 hours a day (coded as 1–2 hours), more than 3 hours and up to 5 hours (coded as 3–4 hours), more than 5 hours and up to 7 hours (coded as 5–6 hours), and more than 7 hours a day. We focused on this item as the other item mentioning social media – "Communicate and share digital content on social networks or any communication platform (e.g., Facebook, Instagram, Twitter, emails, chat)" – also included platforms not usually considered social media (e.g., emails, chat).

Measure of life satisfaction

Students were asked: "Overall, how satisfied are you with your life as a whole these days?" with response choices ranging from 0 (not at all satisfied) to 10 (completely satisfied). We examined the means, as well as those low in life satisfaction (0 to 4) and very high in life satisfaction (10). These groupings were used as they came the closest to one standard deviation below and one standard deviation above the mean, a common cutoff for clinical issues across several types of scales.[6]

Grouping by region

The social media and life satisfaction questions were asked in 47 countries, which we grouped by cultural regions, as shown in Table 5.1.

Photo Denis Pozdeev on Unsplash

Table 5.1: Regional groupings of 47 countries

Asia	Brunei, Hong Kong SAR of China, Japan, Macau SAR of China, Malaysia, Republic of Korea, Taiwan Province of China, Thailand
Central and Eastern Europe	Albania, Bulgaria, Croatia, Czechia, Estonia, Georgia, Greece, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, Ukraine
English-speaking countries	Ireland, United Kingdom
Latin America	Argentina, Brazil, Chile, Costa Rica, Dominican Republic, Panama, Uruguay
Middle East & North Africa	Jordan, Morocco, Saudi Arabia, Türkiye
Western Europe	Austria, Denmark, Finland, Germany, Iceland, Italy, Malta, Spain, Sweden, Switzerland

Results

The distribution of time spent browsing social media networks is shown below in Figure 5.1. The results for each region are broadly similar, with the highest proportions of heavy users (five or more hours) in Latin America (24.2%) and the Middle East and North Africa (20.2%). In all regions, the majority of adolescents reported spending less than two hours browsing, but this may not include time spent watching videos on YouTube.

The associations between social media use and mean life satisfaction are shown in Table 5.2, separated by gender and region. Among girls worldwide, non-users and light users of social media were more satisfied with their lives than heavy users. Among boys, a different relationship was observed, with both light and heavy users reporting higher life satisfaction than non-users.

Figure 5.1: Social media use across six regions
PISA (2022)

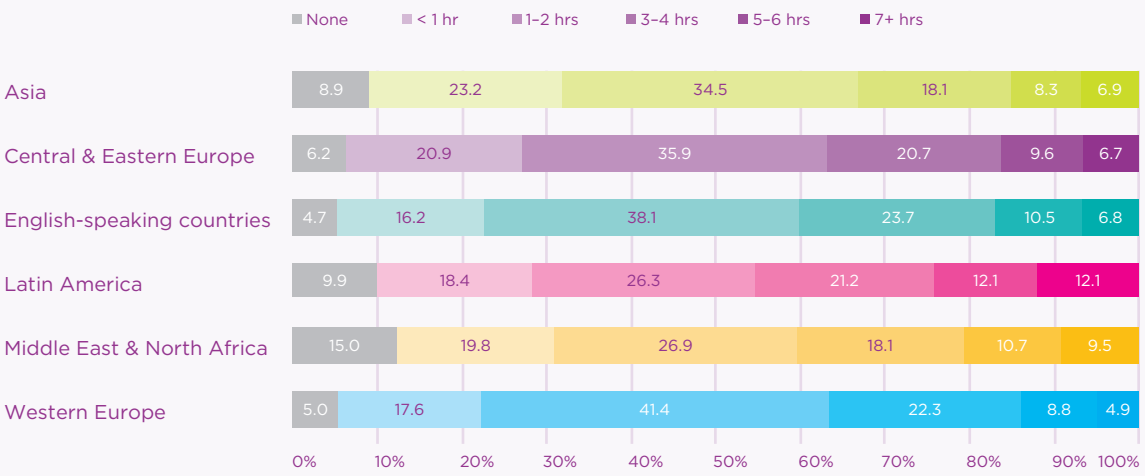
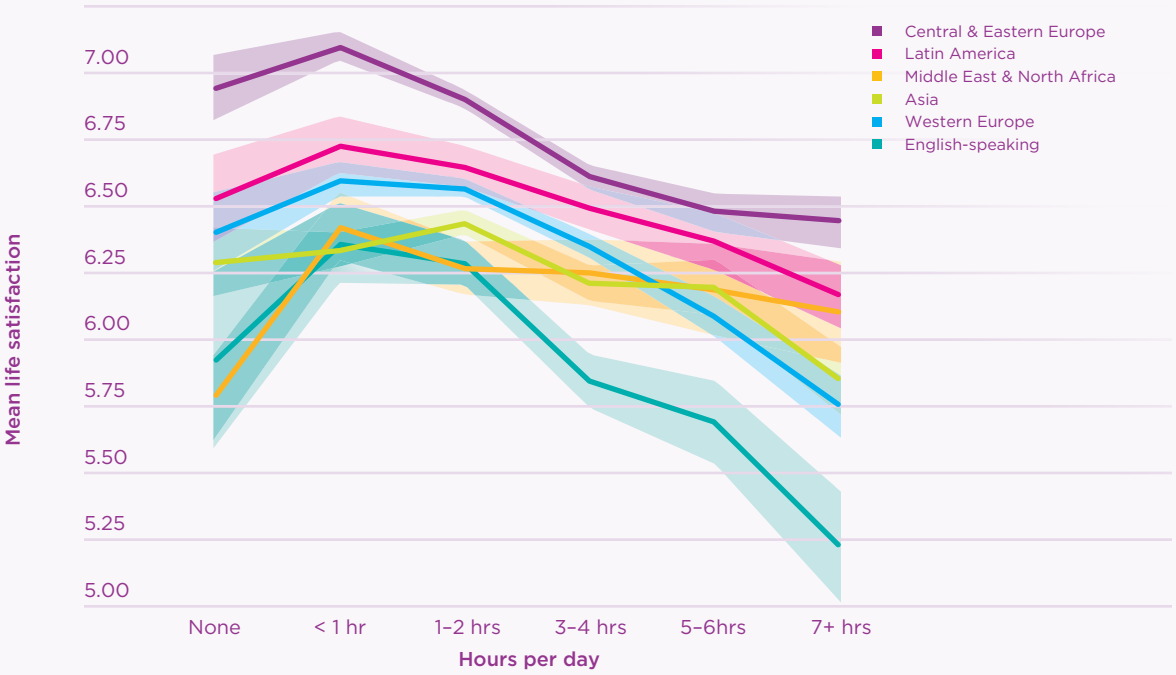


Table 5.2: Associations between social media use and mean life satisfaction, by gender and region

	None	<1 hr	1-2 hrs	3-4 hrs	5-6 hrs	7+ hrs	None vs. 7+ hrs d (95% CI)	<1 hr vs. 7+ hrs d (95% CI)
Girls								
Worldwide (n = 144,346)	6.4 (2.95) 5.7%	6.71 (2.54) 16.8%	6.64 (2.33) 36.2%	6.4 (2.41) 22.9%	6.26 (2.57) 10.7%	6.07 (2.88) 7.8%	**-0.11 (-.14, -.09)**	**-0.24 (-.26, -.22)**
Asia (*n* = 23,395)	6.29 (2.62) 6.9%	6.34 (2.32) 21.2%	6.44 (2.18) 36.8%	6.21 (2.27) 19.4%	6.2 (2.40) 8.8%	5.85 (2.63) 7.0%	**-0.17 (-.24, -.10)**	**-.20 (-.26, -.15)**
Central & Eastern Europe (*n* = 47,560)	6.95 (2.84) 4.3%	7.11 (2.52) 17.5%	6.91 (2.36) 36.8%	6.61 (2.46) 23.3%	6.48 (2.62) 10.8%	6.44 (2.93) 7.3%	**-0.18 (-.23, -.12)**	**-0.24 (-.29, -.21)**
English-speaking (*n* = 7,457)	5.93 (2.71) 3.4%	6.37 (2.38) 12.9%	6.29 (2.22) 36.5%	5.85 (2.28) 26.7%	5.69 (2.43) 12.4%	5.22 (2.59) 8.0%	**-0.27 (-.42 -.12)**	**-0.46 (-.57, -.36)**
Latin America (*n* = 16,594)	6.53 (3.09) 8.2%	6.73 (2.8) 16.1%	6.65 (2.58) 25.8%	6.5 (2.51) 22.2%	6.37 (2.59) 13.5%	6.16 (2.93) 14.1%	**-0.12 (-.19, -.06)**	**-0.2 (-.26, -.14)**
Middle East & North Africa (*n* = 11,762)	5.78 (3.35) 14.4%	6.43 (3.08) 19.0%	6.27 (2.91) 28.1%	6.25 (2.95) 18.6%	6.19 (3.08) 10.5%	6.1 (3.25) 9.6%	**0.1 (.03, .20)**	-0.1 (-.17, .00)
Western Europe (*n* = 37,578)	6.41 (2.67) 3.3%	6.6 (2.35) 13.4%	6.57 (2.15) 42.1%	6.35 (2.24) 25.3%	6.09 (2.40) 10.4%	5.75 (2.70) 5.5%	**-0.24 (-.29, -.15)**	**-0.34 (-.40, -.29)**
Boys								
Worldwide (n = 141,612)	7.09 (2.83) 8.7%	7.39 (2.38) 22.8%	7.38 (2.22) 34.8%	7.29 (2.36) 18.8%	7.29 (2.54) 8.5%	7.2 (2.88) 6.4%	**0.04 (.01, .07)**	**-0.08 (-.10, -.05)**
Asia (*n* = 23,114)	6.75 (2.66) 10.90%	6.87 (2.34) 25.1%	6.93 (2.26) 32.4%	6.9 (2.39) 16.9%	6.93 (2.48) 7.8%	6.87 (2.73) 6.9%	.05 (-.02, .11)	.00 (-.05, .05)
Central & Eastern Europe (*n* = 47,287)	7.48 (2.77) 8.0%	7.81 (2.25) 24.3%	7.71 (2.16) 35.1%	7.62 (2.33) 18.2%	7.7 (2.48) 8.4%	7.7 (2.79) 6.1%	**.08 (.03, .13)**	**-.04 (-.09, -.01)**
English-speaking (*n* = 7,342)	6.79 (2.58) 6.0%	6.85 (2.29) 19.5%	6.87 (2.17) 39.9%	6.67 (2.30) 20.8%	6.56 (2.48) 8.5%	6.32 (2.82) 5.4%	**-.18 (-.31, -.04)**	**-0.21 (-.33, -.11)**
Latin America (*n* = 16,369)	7.27 (2.88) 10.5%	7.5 (2.55) 20.1%	7.5 (2.34) 27.2%	7.51 (2.29) 21.1%	7.41 (2.45) 11.1%	7.45 (2.73) 10.0%	.06 (.00, .13)	-.02 (-.08, .04)
Middle East & North Africa (*n* = 10,132)	6.35 (3.43) 14.6%	6.43 (3.10) 20.5%	6.4 (2.95) 25.9%	6.65 (2.96) 18.1%	6.69 (3.09) 11.2%	6.55 (3.37) 9.7%	0.06 (-.04, .15)	.04 (-.03, .14)
Western Europe (*n* = 37,368)	7.2 (2.55) 6.5%	7.46 (2.14) 21.8%	7.48 (2.00) 40.7%	7.29 (2.17) 19.5%	7.27 (2.36) 7.3%	7 (2.81) 4.2%	**-.07 (-.14, -.01)**	**-.18 (-.27, -.16)**

Note: Numbers are mean, standard deviation in parentheses, and percent in each usage category. *d* = difference in standard deviations. CI = confidence interval. 95% confidence intervals that do not include zero are statistically significant and are shown in bold.

Figure 5.2: Social media use and mean life satisfaction for girls
PISA (2022)



Note: Solid lines indicate statistically significant differences in life satisfaction from <1 hr to 7+ hrs of use. Dashed lines indicate no statistically significant difference between these two categories of use.


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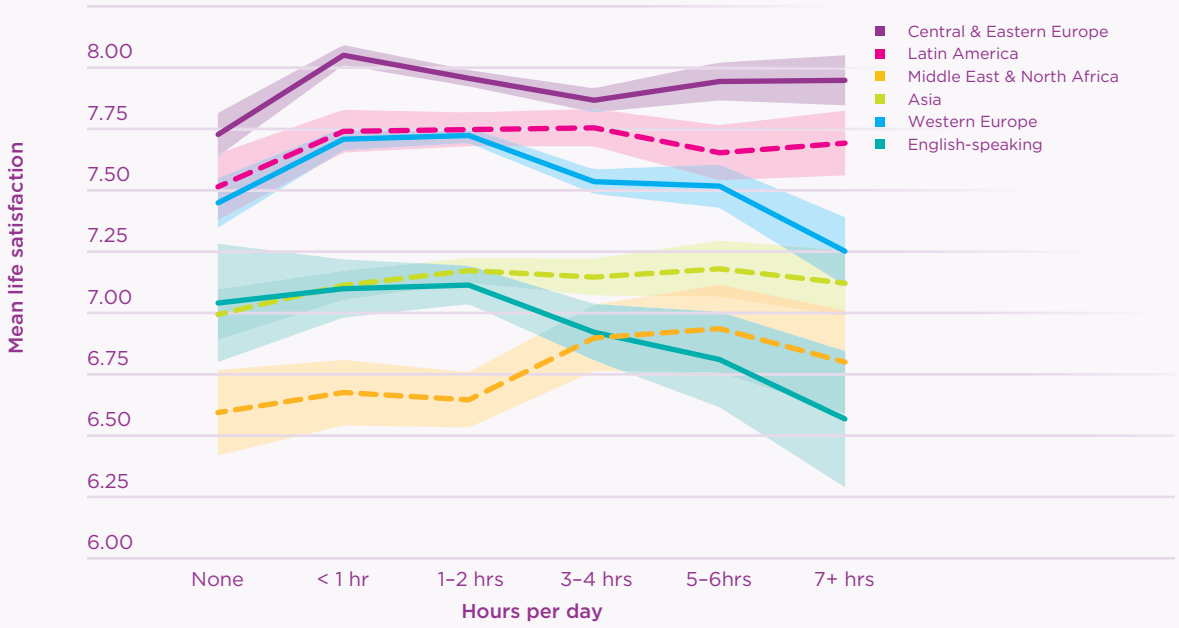
Figure 5.3: Social media use and mean life satisfaction for boys
PISA (2022)



Note: Solid lines indicate statistically significant differences in life satisfaction from <1 hr to 7+ hrs of use. Dashed lines indicate no statistically significant difference between these two categories of use.

Within regions, that held true in Asia, Central and Eastern Europe, English-speaking countries, Latin America, and Western Europe, but not in the Middle East and North Africa (see Figure 5.2). The dose-response curve for social media use and mean life satisfaction appears to be curvilinear, with the lightest use (less than an hour a day) associated with the highest mean life satisfaction among girls. After more than an hour a day of social media use, life satisfaction declines.

Among boys worldwide, light users of social media (though not non-users) were more satisfied with their lives than heavy users (see Table 5.2). However, there was considerable variation across regions (see Figure 5.3). In English-speaking countries and Western Europe, boys who were non-users and light users reported higher life satisfaction than heavy users. In Central and Eastern Europe, light users were more satisfied with their lives than heavy users, but non-users were less satisfied. In Asia, Latin America, and the Middle East and North Africa, differences were not statistically significant.

These differences in mean levels of life satisfaction obscure a notable pattern. Compared to light or moderate users, both non-users and heavy users of social media were more likely to report the lowest levels of life satisfaction (0–4 on a 0–10 scale) and were more likely to report the highest levels of life satisfaction (10 on a 0–10 scale).

Figure 5.4: Percentage of girls reporting low life satisfaction (0–4) by levels of social media use
PISA (2022)

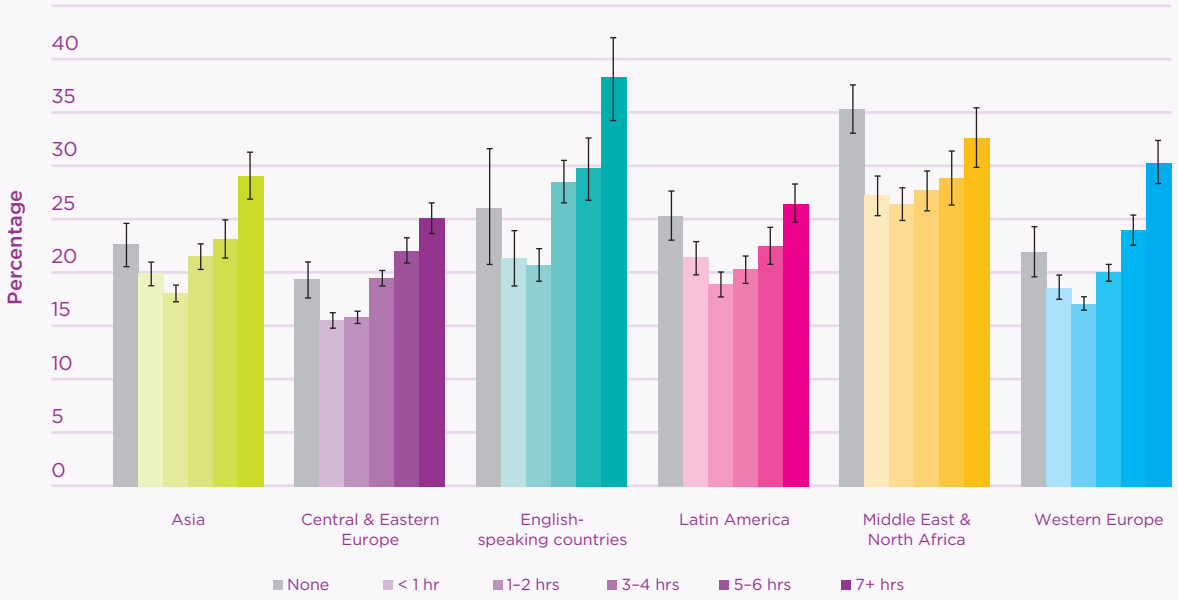



Photo: Chen Li on Unsplash

Among girls in Asia, Central and Eastern Europe, English-speaking countries, and Western Europe, heavy social media users were the most likely to report low life satisfaction (see Figure 5.4). For example, among girls in Western Europe, heavy users were 63% more likely to report low life satisfaction than light users. In Asia, they were 46% more likely, and worldwide, they were 49% more likely.

Figure 5.5: Percentage of boys reporting low life satisfaction (0–4) by levels of social media use
PISA (2022)

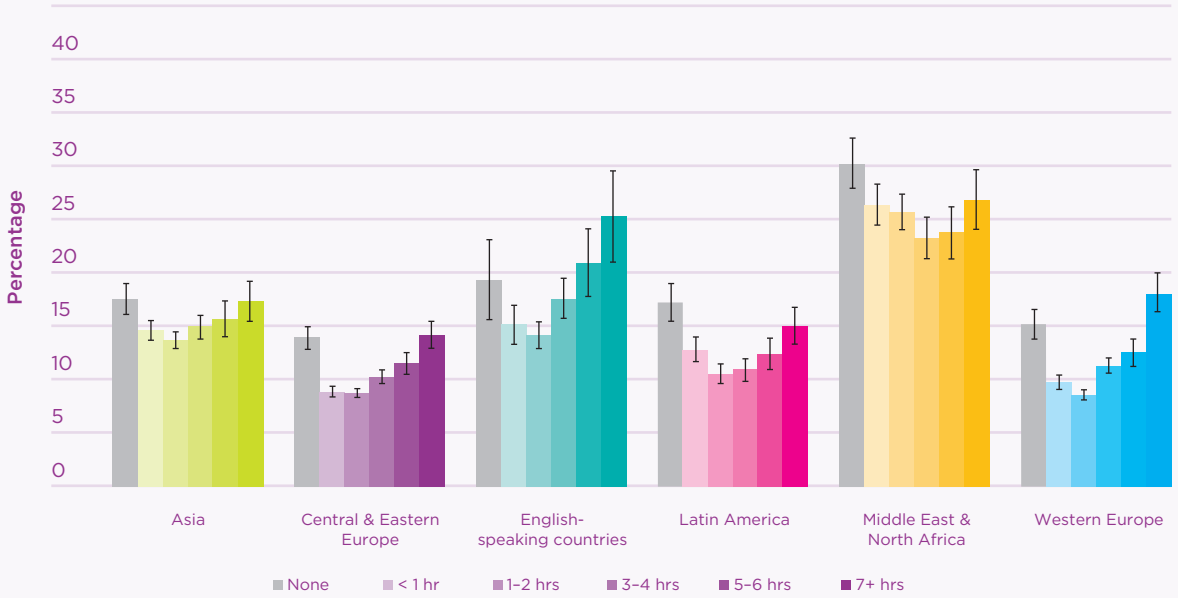
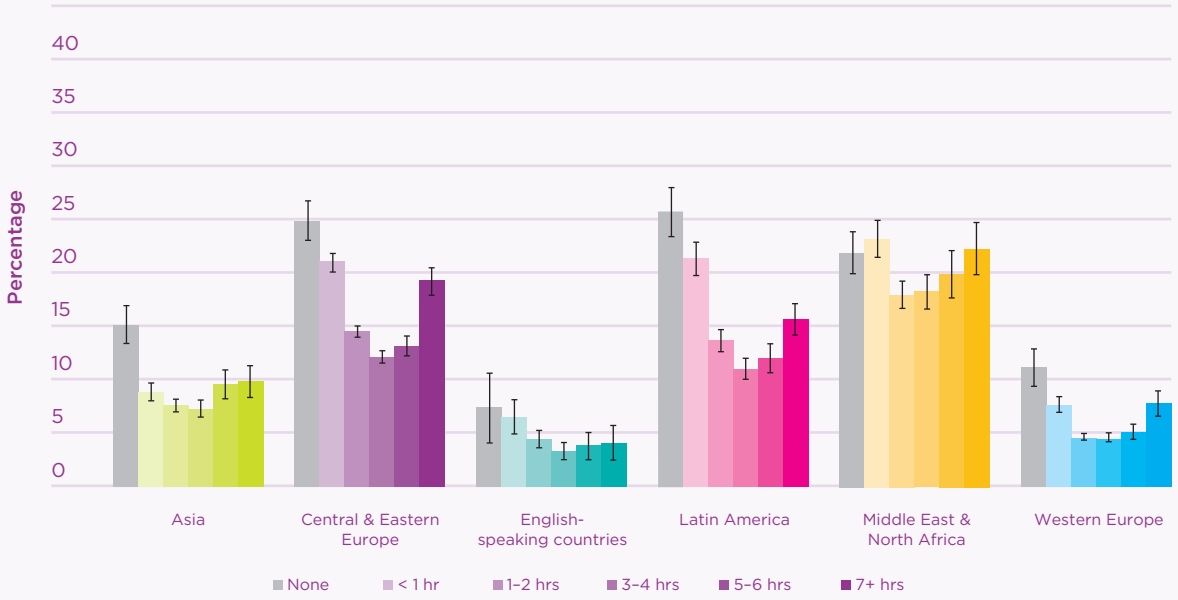



Photo Caspar Rae on Unsplash

Among boys, heavy users and non-users were equally likely to report low life satisfaction, with the exception of English-speaking countries, where heavy users were the most likely to report low life satisfaction (see Figure 5.5). However, heavy users were more likely than light users to report low life satisfaction. In Western Europe, for example, heavy users were 84% more likely than light users to report low life satisfaction. The worldwide average was 44% more likely.

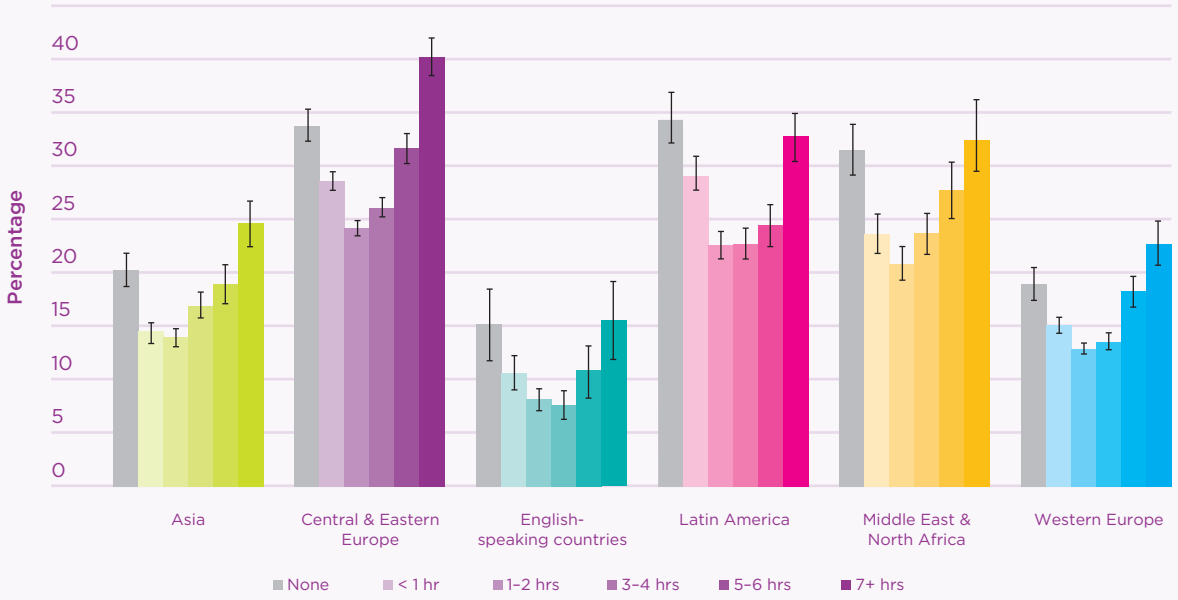
Figure 5.6: Percentage of girls reporting very high life satisfaction (10) by levels of social media use
PISA (2022)



Among girls, both non-users and heavy users of social media were more likely to report complete satisfaction with their lives, choosing a 10 on the 0–10 life satisfaction scale. In Asia, Central and Eastern Europe, English-speaking countries, Latin America, and Western Europe, non-users were more likely to report very high life satisfaction (see Figure 5.6). For example, among girls in Latin America, non-users were 65% more likely to be completely satisfied with their lives than heavy users. In Central and Eastern Europe and Western Europe, heavy users were also more likely than moderate users to report high life satisfaction.

Among boys, both non-users and heavy users were more likely to report very high life satisfaction than light or moderate users (see Figure 5.7). Thus, there is more variation in levels of life satisfaction among non-users and heavy users of social media compared to light or moderate users, with more individuals at the extremes of life satisfaction, especially among boys. This is also demonstrated by the larger standard deviations among non-users and heavy users in Table 5.2.

Figure 5.7: Percentage of boys reporting very high life satisfaction (10) by levels of social media use
PISA (2022)

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Discussion

In an international survey of 15- to 16-year-old adolescents, girls who were light users of social media had the highest mean life satisfaction, and heavy users the lowest, in Asia, Central and Eastern Europe, English-speaking countries, Latin America, and Western Europe. Among boys, this pattern held only in English-speaking countries and Western Europe.

The differences in mean life satisfaction obscured a wider variation in life satisfaction among non-users and heavy users. Especially among boys, non-users and heavy users had higher numbers of both low (0–4) and very high (10) life satisfaction. Among girls in most regions, heavy users were the most likely to report low life satisfaction, and non-users were the most likely to report complete satisfaction with their lives.

These results are consistent with previous research, which has found lower life satisfaction and higher levels of depressive symptoms among heavy users of social media, especially among girls.[7] Other studies have also found that light users report the highest levels of wellbeing,[8] especially in samples of older teens.[9] However, the null results for boys in some regions are discrepant with previous research, which has usually found significant, though smaller, links between social media and lower wellbeing among boys. These findings could be due to several factors, including cultural differences.

These results are consistent with previous research, which has found lower life satisfaction and higher levels of depressive symptoms among heavy users of social media, especially among girls.

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The effect sizes of these findings should be put in the context of previous research. Several meta-analyses have found that negative outcomes, such as depression and anxiety, are more strongly related to social media use than measures of positive wellbeing, such as life satisfaction.[10] Thus, it is not surprising that the significant effect sizes here were in the range of *RR* (relative risk) = 1.50 (representing a 50% difference in low life satisfaction from light to heavy use) compared to the *RR* of 2 or more often found for social media use and depressive symptoms.[11]

These results also illustrate the severe limitations of relying solely on linear correlation to understand the association between social media use and wellbeing. These limitations are (at least) twofold. First, linear correlation is poorly suited for curvilinear associations. For example, among boys in Central and Eastern Europe, social media use was correlated r = -.01 with life satisfaction, a result close to zero. Yet, because the association is curvilinear (see Figure 5.2), linear r obscures the significant finding that heavy users were 59% more likely to report low life satisfaction than light users.

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Second, linear *r* alone is not sufficient for understanding the association between two variables in many cases. For example, the correlation between receiving the polio vaccine and developing paralytic polio is *r* = .01. Yet, those who did not receive the vaccine were 3.56 times more likely to develop paralytic polio than those who did (*RR* = 3.56).[12] The correlation between daily aspirin use and heart attacks is *r* = .03, but those who did not take aspirin were 89% more likely to have a heart attack (*RR* = 1.89).[13] The correlation between not wearing a seat belt and dying in a car accident is *r* = .07, but those not wearing a seat belt were 3.43 times more likely to die.[14]

Correlations of this size are often dismissed by psychologists as "small" or of "limited practical significance",[15] yet relative risk makes their practical significance very clear. The same is true of associations between social media and wellbeing. Researchers are increasingly recognising that labelling effects as "small" is not informative, especially as effects are often cumulative and can have substantial impacts when they affect many people.[16] Social media use, which occurs multiple times a day across many hours for most adolescents, certainly meets this standard.

Researchers are increasingly recognising that labelling effects as "small" is not informative, especially as effects are often cumulative and can have substantial impacts when they affect many people.

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The use of linear *r* compared to relative risk is also one reason why conclusions about the association between social media use and wellbeing have varied across fields.[17] Social and personality psychologists are trained to rely on correlation, which assumes linearity, focuses on average outcomes, and, when squared, presumably answers the question, "What percentage of the variation among individuals is linked to this factor and not others?" Physicians and public health experts have been trained to use relative risk (and the closely related statistic, odds ratios), which highlight negative outcomes and answer the question, "What is the difference in wellbeing associated with this activity?" A linear *r* of .10 or .15, categorised by psychologists as "small", often corresponds to a 50% to 100% difference in depression rates among heavy users vs. non- or light users, which many would consider a meaningful elevation in risk.

Still, nearly all meta-analyses in the field have relied on linear *r* and, thus, concluded that the association between social media use and wellbeing is present but "small".[18] One of the few, or perhaps the only, meta-analyses that used relative risk found that the risk of depression increased 13% for each hour of social media use. Thus, those who used social media 7 hours a day would be 91% more likely to be depressed than non-users.[19] Most observers would not consider that small. These choices of statistics may be one reason why reports on social media and mental health (such as those from the National Academies of Science and the Office of the Surgeon General) have differed in their conclusions. Those relying on linear *r* may conclude the association is not practically important, while those using relative risk may conclude the association is practically important.

Those relying on linear r *may conclude the association is not practically important, while those using relative risk may conclude the association is practically important.*

The greater variation in life satisfaction among non-users and heavy users could be due to several factors. Adolescents who spend more time using social media also spend more time seeing friends in person,[20] and seeing friends in person is linked to higher levels of happiness and life satisfaction. Thus, some of the higher levels of life satisfaction among heavier users of social media may be due to higher levels of in-person social interaction. We were unable to address this directly as PISA does not include measures of in-person social interaction with friends outside of school. In low- and middle–income countries, the lower levels of life satisfaction among non-users of social media may, in some cases, be due to economic deprivation, another factor we were unable to address directly as PISA does not include a measure of family income. Non-users of social media may also be socially isolated or display other confounding factors leading to low life satisfaction. It is also important to note that this research is correlational and, thus, cannot rule out reverse causation or third variables.

Survey response patterns may also play a role. Heavy use of social media and very high life satisfaction (10) are both extreme choices on the survey. Some respondents may have routinely responded with the highest-level choice, introducing measurement error. Thus, future research should explore whether this finding replicates. There may also be regional and cultural differences in the meaning of choosing "10" for life satisfaction, which also deserves further examination.

Overall, associations between social media use and life satisfaction among boys are only statistically significant in some regions. Among boys, heavy users of social media are more likely to report low life satisfaction and more likely to report very high life satisfaction, suggesting variation among heavy users that should be examined in future research. Among girls, the results are more straightforward, with light users reporting the highest life satisfaction and heavy users the lowest. It is notable that, in most regions, girls who did not use social media were the most likely to report complete satisfaction with their lives, although heavy users were also more likely to report complete satisfaction than moderate users in some regions.

Endnotes

1 Boniel-Nissim et al. (2022).

2 Rothwell (2023).

3 Orben (2020); Twenge and Hamilton (2022); Van der Wal et al. (2026).

4 Kelly et al. (2019); Riehm et al. (2019).

5 Kelly et al. (2019); Orben et al. (2022); Riehm et al. (2019); Sampasa-Kanyinga and Lewis (2015); Twenge et al. (2018).

6 Schalet et al. (2014).

7 Kelly et al. (2019); Twenge and Farley (2021); Twenge and Martin (2020); Viner et al. (2019).

8 Twenge et al. (2018).

9 Orben et al. (2022).

10 Burnell et al. (2025); Liu et al. (2024).

11 Kelly et al. (2019); Twenge and Farley (2021).

12 Rosnow and Rosenthal (1989).

13 Rosnow and Rosenthal (2003).

14 Twenge and Hamilton (2022).

15 Przybylski and Weinstein (2017); Ferguson (2009).

16 Funder and Ozer (2019); Götz et al. (2022).

17 Twenge and Hamilton (2022).

18 Cunningham et al. (2021); Ivie et al. (2020); Liu et al. (2024).

19 Liu et al. (2022).

20 Steinsbekk et al. (2024); Twenge et al. (2018).

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Chapter 6

Social media, wasting time, and product traps

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doi.org/10.18724/whr-4fk1-g247

This version was last updated on 11 March 2026. Please see worldhappiness.report for the latest data.

The key point is that many social media users wish the platform they use did not exist and would even be willing to pay to put it out of existence.

Key Insights

Three empirical studies raise serious doubts about whether social media use makes people happy, with implications for valuation, choice, and wellbeing. The central conclusion is that many people use social media because other people use social media. If social media use were somehow reduced or even stopped, many people would be better off, and they are aware of that fact.

The first study finds that people are willing to pay far less to use social media platforms than they would demand to stop using them. The fact that people would pay little or nothing to use such platforms raises the possibility that many think they are wasting time when doing so.

The second study finds that people lose welfare from using Facebook. Even after experiencing a happier month without Facebook, however, they would demand a significant amount of money to stop using the platform for an additional month. The fact that people are more anxious and depressed when using Facebook provides strong cautionary notes about the idea that such use increases wellbeing.

The third (and, in important ways, the most revealing) study finds that while many young people would demand a significant amount of money to stop using Instagram and TikTok, they would also be willing to pay to eliminate those platforms from their community. Social media platforms impose a "negative non-user externality", i.e., they impose a cost on people who do not use them.

A reasonable conclusion is that if social media platforms did not exist, many users would be better off.

A valuation problem

Do social media platforms increase wellbeing? Do they promote welfare? Do they make people happier? These questions can be addressed in many ways. My goal here is to approach them in light of three empirical studies, which in turn raise three puzzles. While I will be emphasising that the puzzles are indeed challenging to resolve, two clear conclusions emerge. First, social media platforms make many of their users more anxious and depressed. Second, many active social media users would prefer that the platforms they use did not exist. These conclusions strongly suggest that social media platforms reduce the happiness and impair the lives of many of their users – and that many of those users are entirely aware of that fact. That is a problem, but it is also an opportunity.

The first study[1] offers evidence, from a nationally representative sample in the United States, that people are willing to pay something for the use of social media platforms, and they would demand something in exchange for giving up use of those platforms. The puzzle is this: the amount they are willing to pay to use these platforms is far lower than the amount they would demand to give up using them. What accounts for this disparity? And which is a better indicator of the wellbeing effects of social media? I will suggest that, if we care about those effects, both measures have serious problems. I will also suggest that it is reasonable to speculate that some, or perhaps many, social media users think that they are wasting their time on these platforms, which helps explain why they are willing to pay little or nothing for the privilege.

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Like the first study, the second study[2] finds, from a large sample of users recruited through Facebook display ads, that users would demand something significant to give up use of Facebook. But after randomising these users into two treatment groups (continuing users and deactivated non-users), the second study also finds that when people do give up use of that platform for a month, they are better off in every measured respect. They are happier, less anxious, more satisfied with their lives, and less depressed. Yet, after that month off (and this is the puzzle), people demand a significant amount to give up Facebook for an additional month. Why do people require a substantial sum of money not to suffer? Why do they ask for a substantial sum to feel less happy, more anxious, and less satisfied? Whatever the answers to these questions (and I shall offer some), the central finding remains: people who stop using Facebook are better off along multiple dimensions.

The third study[3] is the most important. Like the first two studies, the third finds, from a substantial sample of college students in the United States, that people would demand a substantial sum of money to give up use of social media platforms (in this case, Instagram and TikTok). In fact, the numbers are fairly close to those in the first two studies. The puzzle is this: if people are asked how much they would demand to give up use of those two platforms, contingent on others in their community also giving up use of those platforms, their answer flips. Many people would now be willing to pay real money to eliminate Instagram and TikTok from their lives. Why is this? Why would people demand money to give up use of a platform that they would also wish out of existence?

It seems to follow that social media platforms are reducing the welfare of many of their young users, who are entirely aware of that fact. The problem is simple: non-users suffer a loss of wellbeing. The existence of the two platforms (Instagram and TikTok) imposes an externality, in the form of negative utility, on those who decline to use the platform, and many people are entirely aware of that fact. Many users stay on the platform for just one reason: other people are on the platform. For that reason, they are essentially trapped. They would like to find a way out.

Many users stay on the platform for just one reason: other people are on the platform. For that reason, they are essentially trapped. They would like to find a way out.

Of willingness to pay and willingness to accept

In April 2018, I conducted a pilot experiment to obtain some answers to questions about the value of Facebook and the welfare effects of its use. Using Amazon's Mechanical Turk, I asked 439 Facebook users to say how much their use of the platform is worth in monetary terms.[4] More specifically, I asked 215 Facebook users a simple question: "Suppose that you had to pay for the use of Facebook. How much would you be willing to pay, at most, per month?" At the same time, I asked 234 other Facebook users a different question: "Suppose that you are being offered money to stop using Facebook. How much would you have to be paid per month, at a minimum, to make it worth your while to stop using Facebook?"

The first question asks about willingness to pay (WTP), whereas the second focuses on willingness to accept payment (WTA). According to standard economic theory, the two questions should produce identical answers. The influential Coase Theorem, which helped produce a Nobel Prize for Ronald Coase, so suggests.[5] But behavioural economists have shown that, in important contexts, they do not.[6] In many experiments, WTA is about twice as much as WTP. This is evidence of the "endowment effect": the allocation of the initial entitlement significantly affects people's valuations; people place a higher value on goods that they own than they place on the same goods when they are in the hands of others.[7] The endowment effect occurs instantly; it is not a result of prolonged experience with goods. For example, people would pay less to buy a coffee mug or lottery ticket than they would demand to

In the context of WTP, valuation of Facebook was extremely low. Many users appear to think that it is worthless. They would pay little or nothing for it.

give up a coffee mug or a lottery ticket that they own.[8] The endowment effect is often said to be a product of "loss aversion"; people dislike losses more than they like equivalent gains. One issue for social media platforms is whether an endowment effect would be observed; another issue is its magnitude.

For the first question, the median answer was just $1 per month. The average was $7.38. Most strikingly, nearly half of the participants (46%) said that they would pay $0 for a month of Facebook use. In the context of WTP, valuation of Facebook was extremely low. Many users appear to think that it is worthless. They would pay little or nothing for it.

For the second question, by contrast, the median answer was $59 per month. The average was $74.99.[9] In the context of WTA, Facebook has genuine value, and it is not small. It should be clear that the disparity between WTP and WTA observed here is unusually large. We might describe it as a "super endowment effect." This is in contrast to the one-to-two ratio often observed in previous studies (and also in contrast, of course, to the "no endowment effect" observed for money tokens, for goods held for resale, and sometimes for goods with well-established economic values).

I followed this pilot survey with a larger one, involving a nationally representative sample of Americans. This larger survey also randomly divided people into two groups, asking the

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Table 6.1: Willingness to pay (WTP) and willingness to accept payment (WTA) for Facebook

	WTP to use ($ per month)		WTA to stop ($ per month)	
	Median	Mean	Median	Mean
Pilot survey (*n* = 439)	1	7.38	59	74.99
Full survey (*n* = 828)	5	16.70	98.50	98.80
Current users	5	17.58	99	95.54
Non-users	5	11.65	N/A	N/A

same two questions. But it focused not only on Facebook but on a wide assortment of social media platforms, and it included people who do not use those platforms. The results were broadly in line with those in the pilot survey, with some modest differences across platforms (see Tables 6.1 and 6.2).

For the entire population, the median WTP for the use of Facebook was $5, with a mean of $16.70. The WTA numbers were much higher: $98.50 and $98.80. The figures were close for Facebook users: a median of $5 and a mean of $17.58 for WTP, and $99 and $95.54 for WTA. For non-users, the median WTP number was again $5, but the mean was much lower: $11.65. The obvious explanation is that many Facebook users would be willing to pay a large amount for use of the platform, driving up the mean. Not surprisingly, non-users do not show a high WTP, compressing the mean.

The patterns are strikingly similar for all nine platforms in the survey. Most importantly, WTP is far lower than WTA, sometimes with a ratio (for the medians) of 1 to 20. I am unaware of any area in which the disparity between WTP and WTA is so high. The magnitude of the difference raises a serious puzzle, and it is the first of the three I shall be exploring.

At first glance, the central feature of this puzzle is the very low median for WTP, with many people saying they would be willing to pay nothing at all. Given the significant time that people spend on social media platforms, they certainly seem to have some value for users. Their use, sometimes extending to many hours per week, would seem to demonstrate a significant positive valuation. Is it even plausible to think that for a substantial percentage of users, the value is zero, or close to it?

An especially interesting possibility is that, for such people, social media is a good they willingly use, but also consider, on reflection, to be useless or valueless. Hence, they are willing to pay little or nothing for it. Using Facebook might be a way of spending time, perhaps as a result of habit or some kind of addiction, but people might think they would be better off, or as well off, doing something else instead. On this account, there are some goods – call them 'Wasting Time Goods' (WTG) – for which there is an interesting but

Table 6.2: Willingness to pay (WTP) and willingness to accept payment (WTA) for nine social media platforms (excluding non-users)

	WTP to use ($ per month)		WTA to stop ($ per month)	
	Median	Mean	Median	Mean
Facebook	5	17.58	99	95.54
Instagram	5	21.67	100	102.60
LinkedIn	8	25.71	99	97.80
Pinterest	5	20.97	100	102.92
Reddit	10	27.72	99	97.73
Snapchat	5	24.92	100	106.2
WhatsApp	10	34.90	100	101.16
X (Twitter)	5	19.94	100	104.18
YouTube	5	17.27	88	90.78

explicable disparity between choices and valuation. People choose to use or consume WTG, but they would not be willing to pay much, if anything, to continue to do so.

WTG are real, important, and understudied. Importantly, some periods of wasting time might not be regretted; they might be a way of relaxing and recharging. People might well pay for such periods. But other such periods seem not only pointless but also some kind of loss. People would not pay for such periods. Social media may well count as a WTG, in the regretted sense, for some users. But I speculate that the low WTP numbers are not fully explicable in those terms. Another reason for those low numbers may well be expressive. They are in the nature of protest answers, reflecting a kind of indignation, and to that extent, not at all a reliable measure of the welfare benefits of using social media platforms.

In short: having had to pay nothing to use such platforms, people dislike the idea of a monthly fee. When people say they are willing to pay $0, or only slightly more, they were effectively announcing: "If you are going to start charging me, well, then, forget about it!" Something similar might be said about those who reported they would only pay a small monthly amount (say, $5 or $10). They might well have been registering their displeasure at the idea of suddenly having to buy something that has long been provided for free. Here, then, is a reason to think that the low median WTP does not offer adequate information about the wellbeing effects of using social media platforms.

There is a separate point, and it involves opportunity costs. The WTP question puts opportunity costs on the cognitive table, at least for many people, much of the time. When people are asked how much they are willing to pay for

a good, they will often think about what else they could do with that money. The WTA question is different. When they demand a very high amount of money to give up a good that they own (coffee mugs, lottery tickets), they might not be focused on other potential uses of that money.[10] It follows that there is reason to doubt whether a high median WTA is sufficiently informative about the wellbeing effects of using a social media platform. These points suggest severe limitations to both WTP and WTA surveys as measures of the welfare effects of goods that have formerly been provided for free. We might want to distrust the resulting figures. If we are interested in the wellbeing effects of social media, what might be better?

Demanding payment to be made worse off

The experiment in the previous section focused only on WTP and WTA; it did not investigate the effects of social media platforms on subjective experience. Hunt Allcott and collaborators sought to do that and, hence, to answer the question posed above.[11] They used a randomised experiment, designed to cast light on the consequences of social media use for people's enjoyment of their lives. They recruited a sample of 2,743 Facebook users and elicited their WTA to deactivate for a month (interestingly, they did not ask for WTP). The median WTA was $100, and 61% of subjects had a WTA under $102. Of those, half were randomly assigned to a treatment group which was paid to deactivate for four weeks, and half were randomly assigned to a control group that stayed on the platform during that time. A central question was the effect of deactivation on subjective wellbeing.


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Those who deactivated were happier, more satisfied with their lives, less anxious, and less depressed.

The answer to that question was plain. Along every measured dimension, deactivation produced increases in wellbeing. Those who deactivated were happier, more satisfied with their lives, less anxious, and less depressed. The magnitude of the improvement was small but significant. The authors report that it was 25–40% of the standard improvement from group or individual therapy. It would be plausible to conclude that any economic demand to remain off social media should be very low. Indeed, it should be $0. People should want to stay off without any payment at all.

With that point in mind, Allcott and his colleagues asked another question, on which we should place a spotlight. Did people learn from their experience? How much? On the one hand, subjects who deactivated for a month did report a reduction, several weeks later, in their use of the Facebook app. In addition, people in the treatment group were more likely to delete the app from their phones. But, here is the second puzzle: in response to the question inquiring how much money they would demand for another month without Facebook, the median WTA, among those who deactivated, was about $86. That is a relatively modest reduction from the $100 median that they demanded before their month off.

Figure 6.1: The wellbeing impact of deactivating Facebook
Allcott et al. (2020)

On the basis of these findings, Allcott et al. conclude that "traditional consumer surplus measures," based on WTA, "overstate the true welfare gains from social media." The reason is that the $100 figure, representing that surplus, is higher than the $86 figure after learning. Even so, Allcott et al. conclude that "Facebook generates enormous flows of consumer surplus." The reason is that if we multiply $86 by the total number of Facebook users in the US (about 250 million), we will find a very high monetary figure: $21.5 billion. Perhaps that figure is the monetised consumer surplus (I will raise doubts about that idea shortly).

But let us return to the puzzle, on which Allcott et al. do not linger. If deactivated Facebook users had an unusually good month, precisely because they deactivated, why should they demand $86 for another good month? Why would the median amount not be $10, or $5, or $0? Or why would they not be willing to pay something to install some kind of block?

As for the puzzle in the first study, we do not know, but we can speculate about two plausible answers. First, subjects may have anchored on the figure they previously suggested, with a median of $100, and adjusted downwards. If so, the $86 amount is a case study in the standard process of anchoring and adjustment;[12] it does

not tell us much about welfare effects. Second, the improvement to their wellbeing may have been so novel and unexpected (and so relatively small) that it was not stored in memory, or sufficiently linked to their social media deactivation. Third, improvements in wellbeing may have been offset by awareness of the pervasiveness of usage. Though people are happier without Facebook, they might now be a bit unusual in their community, and they might have chosen to suffer (slightly) more to do what relevant others do. In that sense, they might be willing to conform, even at the expense of happiness or subjective experience.

Fourth, and perhaps most interestingly, people may obtain goods from Facebook usage that matter to them, but are not adequately captured in measures of subjective wellbeing, which is hardly the only thing that people care about.[13] For example, Allcott et al. find that the control group had significantly more political knowledge than the treatment group. Indeed, that is the only measured dimension along which those who deactivated were worse off than those who did not. Political knowledge might increase anxiety and depression; ignorance, as they say, is bliss. Even so, people might be willing to trade a little anxiety and sadness in return for political knowledge. There is also the associated question of connections with friends and family members. People might value those connections, even if they adversely affect wellbeing. The $86 figure might reflect this judgment: "I know that I am a little more anxious, and a little sadder, but it is worth it, to be connected with people I care about."

Political knowledge might increase anxiety and depression; ignorance, as they say, is bliss. Even so, people might be willing to trade a little anxiety and sadness in return for political knowledge.

I emphasise that these explanations are speculative. We do not yet know why people would demand significant money to be deactivated from a social media platform after having experienced a month in which deactivation made their lives better along every measurement of subjective wellbeing. But we are about to get an important clue.

Bad goods

Both of the studies just described ask people about their valuation of social media platforms in their individual capacities. They did not test whether people's valuations would change if they were asked about their willingness to accept money, or to pay money, to shut down a social media platform in a relevant community. That question might greatly matter. For example, people might be willing to pay something for a good if everyone else has that good, but might wish that no one had the good. Luxury goods might well fall in that category. Perhaps people buy them, contingent on their existence, in order to give the right social signals (or not give the wrong social signals); but perhaps they wish that those goods did not exist.[14] If there are goods that people buy but wish did not exist – because those goods make them less happy or otherwise worse off – we have a general problem, and it cries out for a solution.

Leonardo Bursztyn and collaborators explored this question in the context of social media platforms.[15] Recruiting hundreds of US college students, they found that, on average, participants would demand $59 to deactivate TikTok for a month and $47 to deactivate Instagram for the same period.[16] Those findings are broadly consistent with the two studies discussed earlier. Here again, we might conclude that the two platforms make people much better off and generate a massive consumer surplus. But in sharp contrast, Bursztyn et al. find that participants would be willing to pay $28 to have all members of their community (the relevant academic institution), including themselves, deactivate from TikTok for a month, and $10 to do the same for Instagram.[17] Almost two-thirds

of the active TikTok users appear to lose welfare from the existence of the platform. The same is true for almost half of the active Instagram users. They wish that everyone in their community were off the platforms.

The central finding is that many people would demand significant money to stop using a product that they wish did not exist. Notably, there is heterogeneity on this count; some people believe that they gain from the existence of both platforms. But a very large number believe that they lose. On the basis of those findings, and with reference to qualitative evidence in which participants explained their choices, Bursztyn et al. urge that people sometimes find themselves in "product traps," in which they buy goods for whose abolition they would also be willing to pay. In some cases, we have reason to think that people simultaneously benefit from having access to a good, contingent on its existence, and would benefit from eliminating that good, if only they could. Bursztyn et al. find strong evidence on behalf of this conclusion. In this light, the third puzzle is both the most paradoxical and the easiest to resolve: some people spend their time and resources on activities or goods that they do not like and might even deplore.

Bursztyn et al. urge that people sometimes find themselves in "product traps," in which they buy goods for whose abolition they would also be willing to pay.

To see the structure of the problem, its underlying mechanisms, and its generality, consider a simple example. There is a party next Saturday night, and many of your friends will be there. You have two options: (1) attend the party, or (2) skip the party. Contingent on there being a party, you might choose (1). In fact, your preference might be both clear and strong. You might be willing to pay a great deal to attend the party. At the same time, you might prefer another option: (3) the party does not take place. You might wish, on reflection, that the party had not been arranged in the first place. Or you might hope that the party will be cancelled. Your preference ordering is: (3), (1), and (2).

Why is that an imaginable preference ordering? A general answer is "fear of missing out," but that phrase can mean several things. It is often understood to mean that if you miss something, there is some probability that you will lose something of importance, which suggests you should prefer (1) to either (2) or (3). The question remains: why would you prefer (3) to (1), but (1) to (2)? One possibility is that if you do not attend the party, you will give a signal that you would prefer not to give. The signal might be that you do not like parties, that you do not like your friends, or that you do not like the host. The cost of giving any of those signals might seem very high. You might jeopardise or lose friendships, or compromise relationships. But if the party is cancelled, you can avoid an event that you prefer to avoid without giving the undesired signal.

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Note that a crucial feature of your thinking is the social meaning of failing to attend the party. You might not intend the received meaning (you do like your friends; you do like your host), but you have little or no control over it. This, then, is a possible reason for the preference of (3) to (1), and (1) to (2): the unwanted signal that is given by refusing to go to the party.

There is another possibility. You might think that if the party happens, there will be opportunities for relationship-building. You might not care much about those opportunities; if you did, you would not want the party to be cancelled. Still, you might think that if other people take advantage of the opportunities and if you do not, you will be at a comparative disadvantage (this is one conception of "fear of missing out"). If the party is cancelled, you do not have to go, which is good (very good!), and you also will not be at a disadvantage, which is good (very good!) as well. You go to the party to avoid that disadvantage, but without the party, you would be better off.

In the context of social media use, the structure of the problem appears to be similar. Bursztyn et al. show that product traps exist whenever the value of relevant products stems in whole, or in large part, from the fact that people would lose out from non-use or non-consumption, on the assumption that other people are using or consuming those products. Significantly, product traps may exist even if there is no issue of addiction. Nor are such traps at all unusual. Sometimes they are deliberately engineered by savvy marketers. Sometimes they are a result of norms whose existence cannot be attributed to particular designers, and that might have emerged from invisible hand mechanisms. The key point is that many social media users wish the platform they use did not exist and would even be willing to pay to put it out of existence. This is strong evidence that they are losing welfare as a result of their free choices.

Conclusion

People appear to be willing to pay very little for social media use. For a substantial number of users, the WTP is $0. Many people may well consider social media platforms to be 'Wasting Time Goods', which helps explain why they would pay little or nothing to use them.

If users could coordinate and agree to stop using Instagram or TikTok, and if they could make the agreement binding, many of them would be better off.

Those who deactivate from Facebook for a month have a better month than they otherwise would. They are happier, more satisfied with their lives, less depressed, and less anxious. What is less clear, and what is a genuine puzzle, is why those who have enjoyed that good month demand a substantial sum of money to be deactivated for another month. For some people who make that demand, it is reasonable to speculate that Facebook provides a set of benefits, including political knowledge and personal connections, that do not translate into increases in subjective wellbeing. But it is also reasonable to speculate that people suffer from some kind of addiction, or do not want to miss out on interactions that involve their friends and neighbours.

That speculation has a clear connection with the most significant finding of the three discussed in this chapter: many US college students who would demand a considerable sum to deactivate from Instagram or TikTok for a month would also be willing to pay to deactivate from those platforms for a month, if (and only if) everyone else in their community deactivated as well. In this respect, social media platforms appear to be a good that many active users wish did not exist.

A major reason appears to be fear of missing out: the perceived social losses that particular users would incur if such platforms existed, but if those users were excluded. This is a negative externality imposed on non-users, a kind of product trap. If users could coordinate and agree to stop using Instagram or TikTok, and if they could make the agreement binding, many of them would be better off. They would be happier. Their lives would be better. They are keenly aware of those facts.

Endnotes

1 Sunstein (2020).

2 Allcott et al. (2020).

3 Bursztyn et al. (2023).

4 Sunstein (2020).

5 Coase (1960).

6 Kahneman et al. (1990).

7 Ericson and Fuster (2014); Kahneman et al. (1990); Morewedge and Giblin (2015).

8 Ericson and Fuster (2014); Kahneman et al. (1990); Kogler et al. (2013); Morewedge and Giblin (2015).

9 Sunstein (2020).

10 Frederick et al. (2009).

11 Allcott et al. (2020).

12 Kahneman (1992).

13 Benjamin et al. (2012); Sharot and Sunstein (2024).

14 Frank (1999).

15 Bursztyn et al. (2023).

16 "We measure individual level WTA to deactivate one's social media account for a period of four weeks, taking others' social media consumption as given."

17 "We measure individual WTA conditional on all participating students being asked to deactivate their account in exchange for monetary compensation."

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Chapter 7

Problematic social media use and adolescent wellbeing: the role of family socioeconomic status across 43 countries

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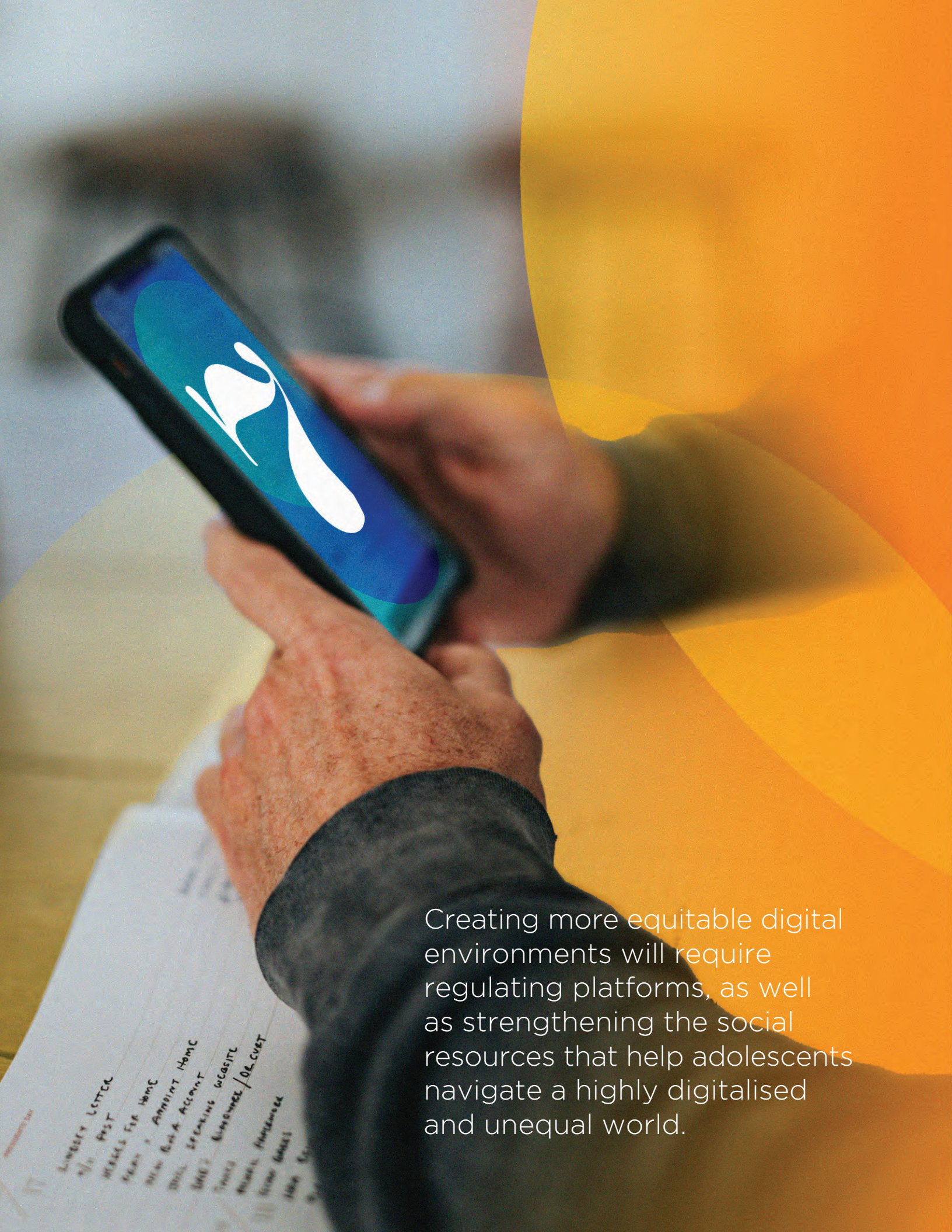

Creating more equitable digital environments will require regulating platforms, as well as strengthening the social resources that help adolescents navigate a highly digitalised and unequal world.

Key Insights

For adolescents, Problematic Social Media Use (PSMU) is associated with more psychological complaints and lower life evaluation in all 43 countries we examined. These associations are most pronounced in Anglo-Celtic countries and least problematic in the Caucasus-Black Sea region.

Globally, the relationship between PSMU and lower wellbeing is stronger among adolescents from lower socioeconomic backgrounds than among their higher-status peers.

Socioeconomic differences in the relationship between PSMU and adolescent wellbeing are stronger for life evaluation than for psychological complaints.

Socioeconomic gradients for life evaluation are consistent across Anglo-Celtic, Caucasus-Black Sea, Central-Eastern, Nordic, and Western European countries, but are weak in Mediterranean countries. For psychological complaints, only the Anglo-Celtic region shows socioeconomic gradients.

Between 2018 and 2022, the negative association between PSMU and adolescent wellbeing intensified. This increase occurred across all socioeconomic groups and in most of the regions examined.

Introduction

In recent decades, social media has become a fundamental aspect of adolescent life around the world. While social media use can support adolescents with identity development, friendships, and learning processes, it can also expose them to risks, such as cyberbullying, unrealistic beauty standards, and compulsive online behaviour. Previous studies have found that Problematic Social Media Use (PSMU) – a validated scale that captures addictive and compulsive social media behaviours – is associated with higher psychological distress, somatic symptoms, eating disorders, and negative mood in adolescents.[1]

Despite increasing research on this topic, the impact of social media use on adolescent wellbeing across socioeconomic groups in different countries is not well understood. This chapter examines the relationship between PSMU and adolescent wellbeing across 43 countries and their association with family socioeconomic status (SES). Family SES refers to the material and social resources available to adolescents in their family environments. It captures differences in household living conditions – such as access to financial assets, housing space, and other everyday resources – that shape young people's opportunities and constraints. This approach enables us to examine how social inequalities intersect with digital behaviours in influencing adolescent wellbeing.

Previous research has found that adolescent wellbeing is shaped by socioeconomic background. Adolescents from high-SES backgrounds enjoy better mental health than adolescents from lower-SES homes.[2] In the digital age, these inequalities have been reshaped. Digital technologies may continue, and potentially increase, existing SES inequalities in adolescent wellbeing and opportunities.[3] Accordingly, more privileged families are better positioned to guide adolescent social media use in ways that are enriching and safe, while families with fewer socioeconomic resources face greater challenges in protecting their kids from harmful digital experiences.[4] On the other hand, adolescents also grow up in broader societal contexts that differ in their welfare and cultural settings,[5] as well as digital contexts.[6]

Our chapter investigates how the relationship between PSMU and adolescent wellbeing differs by family SES across 43 countries representing six regions we have defined according to broad geographical, cultural, and welfare regime characteristics: Anglo-Celtic, Caucasus-Black Sea, Central-Eastern Europe, Mediterranean, Nordic, and Western Europe. A recent report has shown variations in how PSMU links to adolescent mental health across countries.[7] However, it is still an open question whether socioeconomic inequalities interplay with digital divides in how PSMU links to adolescent wellbeing across different national contexts. Our chapter tackles two key questions:

1. How does PSMU relate to adolescent wellbeing across different SES groups?
2. Does the role of family SES in the relationship between PSMU and adolescent wellbeing differ across national and regional contexts?

Regional differences in welfare regimes, educational systems, cultural norms, and digital environments may condition how PSMU relates to adolescent wellbeing across SES groups. For example, in regions with stronger welfare states, universal access to public services, and lower inequalities – such as the Nordic countries and some Western European countries – the relationship between PSMU and wellbeing could be relatively unaffected by SES as institutional support may partially compensate for family-level disadvantages. By contrast, in Anglo-Celtic contexts, with strong individualism, larger social inequalities, and weaker welfare states, PSMU may harm low-SES adolescents more. In Mediterranean countries, stronger family ties and informal support networks may partly buffer adolescents from the negative effects of problematic use, despite economic uncertainty. Eastern European societies have experienced major economic and public policy transformations in recent years, which may influence how PSMU links to adolescent wellbeing across society. Our chapter investigates these potential regional patterns with high-quality, cross-country data.

This chapter reveals several important socio-economic factors that drive the relationship between social media use and adolescent wellbeing. Given the cross-sectional nature of our analyses, this chapter should not be read in causal terms. However, our focus on heterogeneous patterns across SES groups highlights potential underlying inequalities in adolescent PSMU. In doing so, our chapter highlights the need for strategies that strengthen families, schools, and communities to support adolescent digital engagement, particularly among the most disadvantaged SES groups. It also serves as a guide for more equitable approaches in promoting adolescent wellbeing in the digital age by informing policymakers, educators, and practitioners worldwide.

The Health Behaviour in School-aged Children (HBSC) study

The data in this chapter came from the latest publicly available survey data waves from the Health Behaviour in School-aged Children (HBSC) study in 2018 and 2022. The HBSC study was collected using a cluster sampling approach in each country and region of study for adolescents in three age groups: 11–12, 13–14, and 15–16. All participating countries employed representative sampling for their respective school-aged adolescents and followed a standard protocol to ensure that the data collection takes place during the same school year through the same methodological guidelines. Our study includes 43 countries divided into six regions (see Table 7.1).

Table 7.1: Regional groupings of 43 countries

Region	Countries
Anglo-Celtic	Canada, England, Ireland, Scotland, Wales
Caucasus-Black Sea	Armenia, Azerbaijan, Georgia, Russian Federation, Türkiye
Central-Eastern Europe	Albania, Bulgaria, Croatia, Czechia, Estonia, Hungary, Kazakhstan, Latvia, Lithuania, North Macedonia, Poland, Republic of Moldova, Romania, Serbia, Slovenia, Ukraine
Mediterranean	Cyprus, Greece, Italy, Malta, Portugal, Spain
Nordic	Denmark, Finland, Iceland, Norway, Sweden
Western Europe	Austria, Belgium, France, Germany, Luxembourg, Netherlands

Note: Country classification is based on the United Nations Statistics Division's 'Standard Country or Area Codes for Statistical Use (M49)'. Not all countries appear in both HBSC waves used in this chapter. The following countries are included for 2018 but not for 2022: Azerbaijan, Belgium, England, France, Georgia, Kazakhstan, Netherlands, Russian Federation, Türkiye, and Ukraine. The following countries were included for 2022 but not for 2018: Bulgaria, Cyprus, and Finland.

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We focus on two measures of adolescent subjective wellbeing:

1. **Psychological complaints**, measured through four common symptoms: feeling low, irritability, nervousness, and sleeping difficulties. Adolescents reported how often they experienced each symptom over the past six months, ranging from "rarely or never" to "about every day". These responses were combined into a reliable index of psychological problems and represent a measure of affective wellbeing.
2. **Life evaluation**, which comes from the Cantril Scale; the same measure used in Chapter 2 to construct the ranking of the world's happiest countries. This evaluative measure asks young people to rate their life on a scale from 0 ("worst possible life") to 10 ("best possible life"), offering a clear picture of how adolescents feel about their overall wellbeing.

Problematic Social Media Use (PSMU) measures compulsive or addictive patterns of use, including the following items: (1) regularly failing to think of anything else but social media, (2) regularly feeling dissatisfied because wanting to spend more time on social media, (3) often feeling bad when not being able to use social media, (4) failing to spend less time on social media, (5) neglecting other activities like hobbies or sport, hiding time spent online, (6) regularly having arguments with others because of social media use, (7) regularly lying to parents or friends about the time spent on social media, (8) often using social media to escape from negative feelings, and (9) having serious conflict with parents or siblings because of social media use. Adolescents reported whether they had experienced each of the nine indicators, and these were summed into a reliable scale ranging from 0 to 9.

Finally, family SES was measured using the Family Affluence Scale (FAS), a harmonised validated measurement included in all HBSC-participating countries that assesses adolescents' socio-economic background with indicators of material resources such as cars, computers, holidays abroad, and number of bathrooms across a scale ranging from 0 to 13. We rely on the FAS measure to classify adolescents into low-SES, middle-SES, and high-SES groups within each country, each representing one-third of the scale (bottom, intermediate, and high) based on their position in the scale.

The relationship between problematic social media use and adolescent wellbeing

The summary of all study measures is included in Table 7A.1 in the online appendix. Psychological complaints has a mean of 1.48 and a standard deviation of 1.10, whereas life evaluation has a mean of 7.59 with a standard deviation of 1.90. Family SES is similarly distributed across the three groups of the study sample.

Figure 7.1 highlights clear regional differences in the strength of the association between PSMU and adolescent wellbeing. For psychological complaints, the association is strongest in Central-Eastern Europe, followed closely by the Anglo-Celtic region (with estimated coefficients of approximately 0.16 in both regions). Mediterranean and Western European countries show moderately strong effects, while the Nordic region displays a weaker association. The Caucasus-Black Sea region stands out for having the smallest association between PSMU and psychological complaints (around 0.13). For life evaluation, the regional differences are more pronounced than for psychological complaints (with a wider spread of coefficients across regions). The most negative associations are observed in the Anglo-Celtic and Nordic regions, indicating that PSMU is strongly linked to lower life evaluation in these contexts. Central-Eastern and Western Europe also show substantial negative associations, while Mediterranean countries exhibit somewhat weaker effects. Again, the Caucasus-Black Sea region displays the smallest association, indicating that PSMU is less strongly linked to life evaluations in this region (with an estimated coefficient of about -0.11 on a 0–10 scale).

Taken together, Figure 7.1 shows that, while PSMU is associated with lower wellbeing across all regions, the strength of this relationship varies

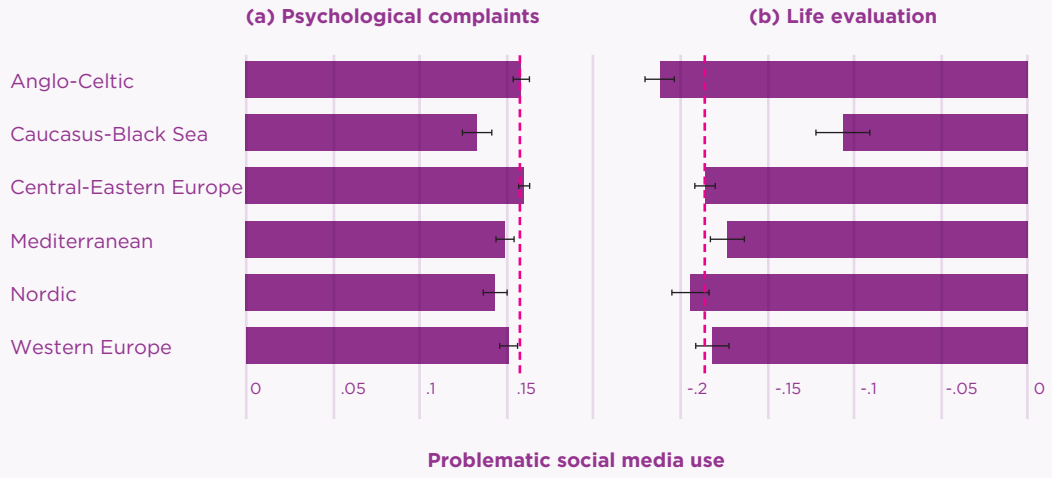
systematically by region and by wellbeing measure. Central-Eastern Europe emerges as particularly vulnerable with respect to psychological complaints, whereas Anglo-Celtic and Nordic countries show the strongest associations for life evaluation (corresponding to effect sizes of roughly one-tenth to one-fifth of a standard deviation). The Caucasus-Black Sea region consistently shows weaker associations for both outcomes.

Figure 7.2 presents the country-specific estimates of the association between PSMU and adolescent wellbeing. Two broad descriptive patterns stand out when comparing all countries.

First, the association between PSMU and adolescent wellbeing is remarkably consistent across countries. In all national contexts, higher PSMU is linked to more psychological complaints and lower life evaluation. Across countries, the estimated effects typically correspond to around 0.20 standard deviations for psychological complaints, and 0.15 standard deviations for life evaluation, capturing moderate and statistically significant associations at the population level.

Second, there is substantial cross-national variation in magnitude. Some countries show associations that are stronger than the international average, while others cluster closer to the dashed line. For psychological complaints, countries such as Hungary, Latvia, Estonia, and Greece appear at the upper end of the distribution, indicating a particularly strong link between PSMU and psychological distress (for example, coefficients of around 0.18–0.21, equivalent to roughly one-fifth of a standard deviation). At the other end, countries such as Kazakhstan, Georgia, and Norway show weaker associations, though still generally positive and statistically significant. A similar dispersion is visible for life evaluation,

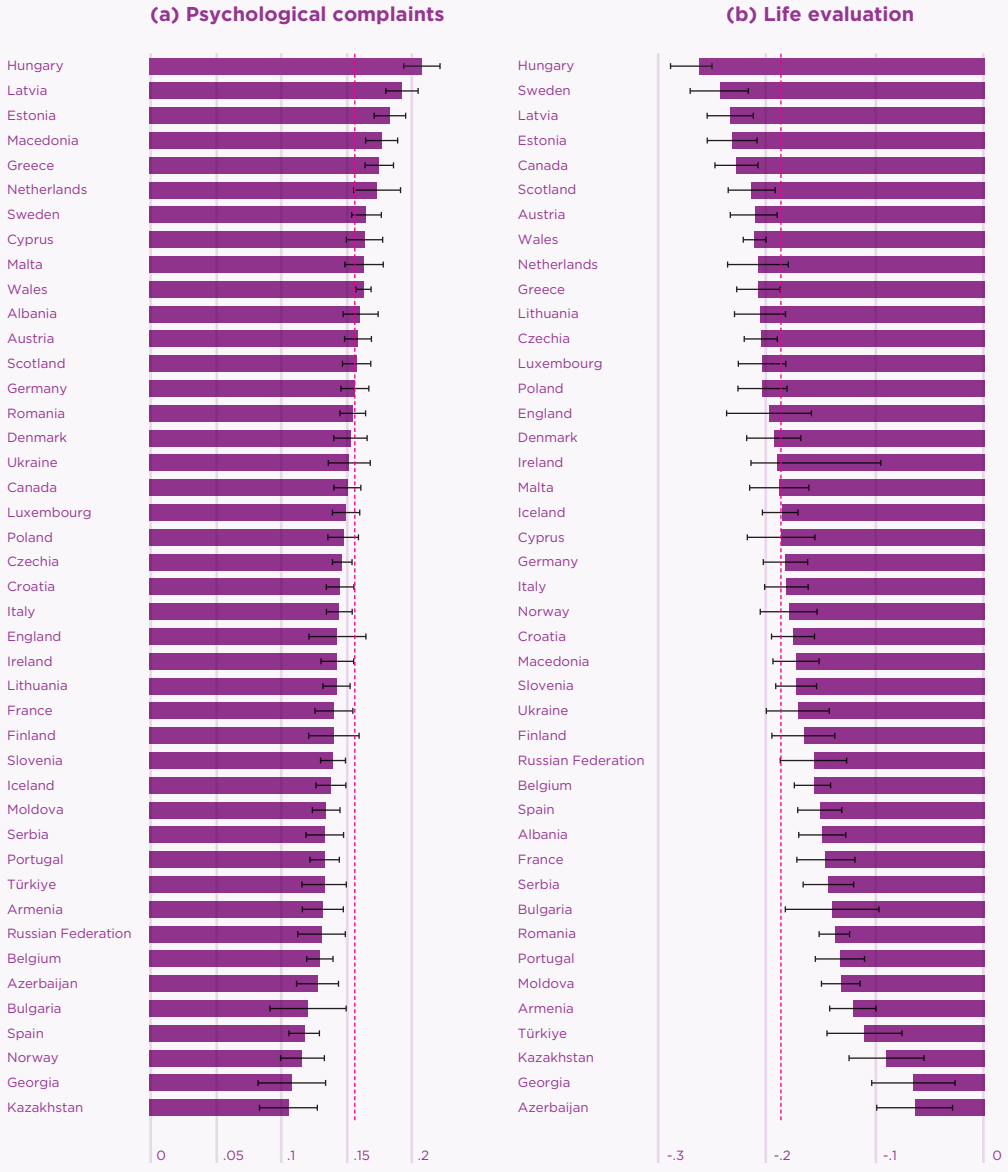
Figure 7.1: The association between PSMU and adolescent wellbeing in six regions
HBSC (2018 & 2022)



Note: Models were estimated using linear regressions with school fixed effects to control for time-invariant unobserved school characteristics and to avoid biased estimates, controlling for age, gender, and frequency of social media use. We ran the same models separately for each region. The average marginal effect is indicated by a dashed line. Sample size: n = 331,240. Estimates are weighted with survey sampling weights and 95% confidence intervals shown. Effects for all regions were statistically significant at the 99.9 level (p > 0.001).

Figure 7.2: The association between PSMU and adolescent wellbeing in 43 countries

HBSC (2018 & 2022)



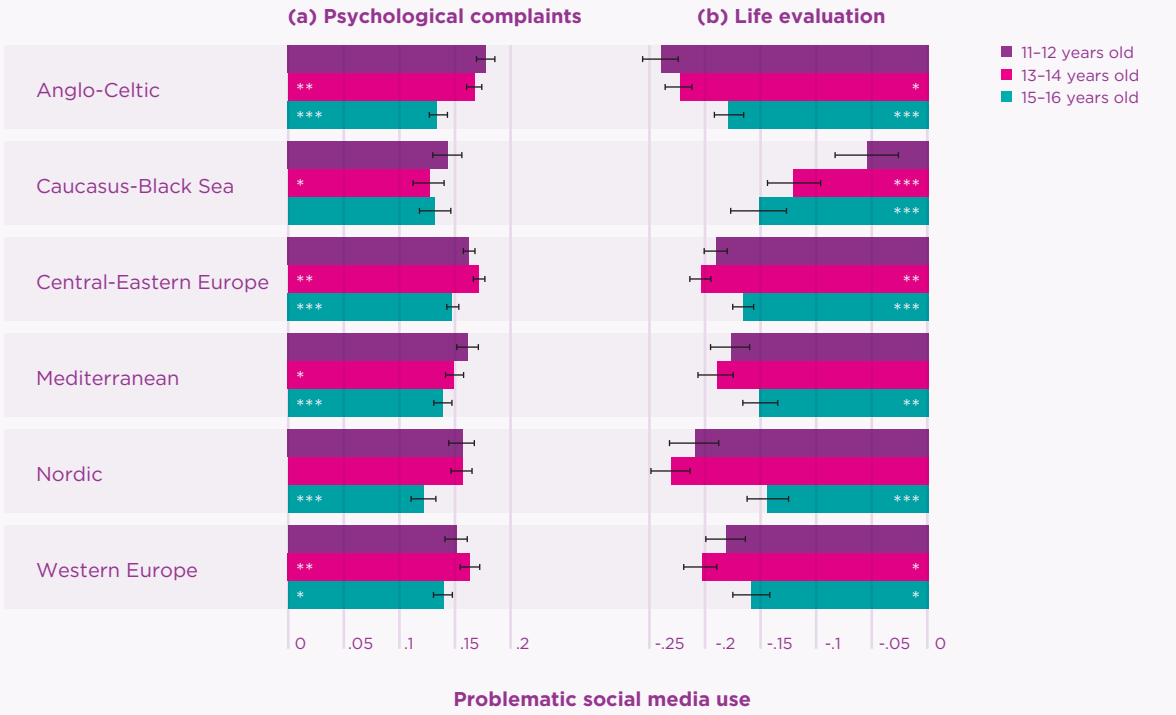
Note: Models were estimated using linear regressions with school fixed effects, controlling for age, gender, and frequency of social media use. We ran the same models separately for each country. The average marginal effect is indicated by a dashed line. Sample size: n = 331,240. Estimates are weighted with survey sampling weights and 95% confidence intervals shown. Effects for all countries were statistically significant at the 99.9 level ($p < 0.001$).

where the negative association with PSMU is strongest in countries like Hungary, Sweden, Latvia, and the Netherlands (with coefficients reaching approximately -0.25), and more muted in others, including Azerbaijan, Georgia, Kazakhstan, and Türkiye (where coefficients are closer to -0.06 to -0.11). These coefficients are about one-third the size of those observed in the countries where the association between PSMU and adolescence life evaluation is strongest.

In Figure 7.3, we show how the association between PSMU and adolescent wellbeing varies across age groups (11–12, 13–14, and 15–16), presenting differences across regions.

First, we observe that PSMU is consistently associated with more psychological complaints and lower life evaluation scores across age groups. Across regions, a one-unit increase in PSMU is associated with increases of around 0.12–0.15 points in psychological complaints and

Figure 7.3: The association between PSMU and adolescent wellbeing by age group
HBSC (2018 & 2022)



Note: Models were estimated using linear regressions with school fixed effects to control for time-invariant unobserved school characteristics and to avoid biased estimates, controlling for gender and frequency of social media use. Models were estimated separately for each world region. Estimates are weighted using survey sampling weights and 95% confidence intervals are shown. P-values are shown for interaction effects, where age 11–12 is the reference category. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Younger adolescents appear more vulnerable to the negative wellbeing consequences of problematic digital engagement.

decreases of about 0.14–0.18 points in life evaluation. However, this association is overall strongest among younger adolescents (11–12 years) compared to older adolescents (13–14 and 15–16 years).

Second, this age gradient is visible in all regions, but is particularly pronounced in Central-Eastern, Anglo-Celtic, Nordic, and Western European countries. In these regions, the association between problematic use and psychological complaints among 11–12-year-olds is approximately 20–35% stronger than among 15–16-year-olds, with interaction effects ranging between 0.02 and 0.04 points. Again, the Caucasus-Black Sea region stands out for showing comparatively smaller age differences overall. A similar pattern is observed for life evaluation. In every region, PSMU is most strongly linked to lower life evaluation among younger adolescents, with the association becoming less negative at older ages. For example, in the Anglo-Celtic and Nordic regions, younger adolescents experience additional reductions in life evaluation of around 0.06 points associated with PSMU, compared to older adolescents. In the Mediterranean and Caucasus-Black Sea regions, age differences are present but more muted, with interaction effects generally below 0.03 points and often statistically weaker.

Despite regional and country variations, a key takeaway is that younger adolescents appear more vulnerable to the negative wellbeing consequences of problematic digital engagement. Older adolescents seem relatively more resilient – possibly due to greater emotional regulation, digital experience, or coping strategies. These age-based patterns underscore the importance of considering early developmental stages when assessing disparities in wellbeing in social media settings.

The role of family SES in cross-national perspective

We start by analysing the global associations between PSMU and adolescent wellbeing outcomes. Table 7.2 encompasses the full HBSC sample and shows a clear pattern: adolescents who report higher PSMU are likely to report more psychological complaints and lower life evaluation. This association is strong and highly consistent across all models. Specifically, a one-unit increase in PSMU is associated with an increase of around 0.16 points in psychological complaints ($p < 0.001$) and a decrease of about 0.19 points in life evaluation ($p < 0.001$).

Critically, Table 7.2 indicates that PSMU has different consequences for wellbeing across SES groups. Adolescents from low-SES households are the most vulnerable to PSMU. Among their peers from middle-SES families, and particularly among those from high-SES households – especially when examining life evaluation for the latter – the relationship between PSMU and wellbeing appears somewhat less damaging. Compared to low-SES adolescents, the association between PSMU and psychological complaints is weaker among high-SES adolescents (interaction $\beta \approx -0.01$, $p < 0.001$), corresponding to a small but consistent attenuation of around 5–10% relative to the reference of adolescents from higher-SES backgrounds. Similarly, for life evaluation, the negative association of PSMU is partially attenuated among middle-SES and high-SES adolescents, with positive interaction terms of around 0.01–0.03 points ($p < 0.01$), which represents roughly a 10% reduction in the size of the negative association, compared to low-SES adolescents. These findings show moderate but consistent SES gradients in the association between PSMU and adolescent wellbeing.

Taken together, these results highlight two important messages. First, problematic social media use is consistently associated with lower wellbeing when applying pooled analyses with school fixed effects and multiple control variables. Second, adolescents from more disadvantaged SES backgrounds are more harmed by PSMU in terms of psychological complaints, and particularly in life evaluation, compared to adolescents from higher SES groups.

Table 7.2: The relationship between PSMU and adolescent wellbeing by socioeconomic status

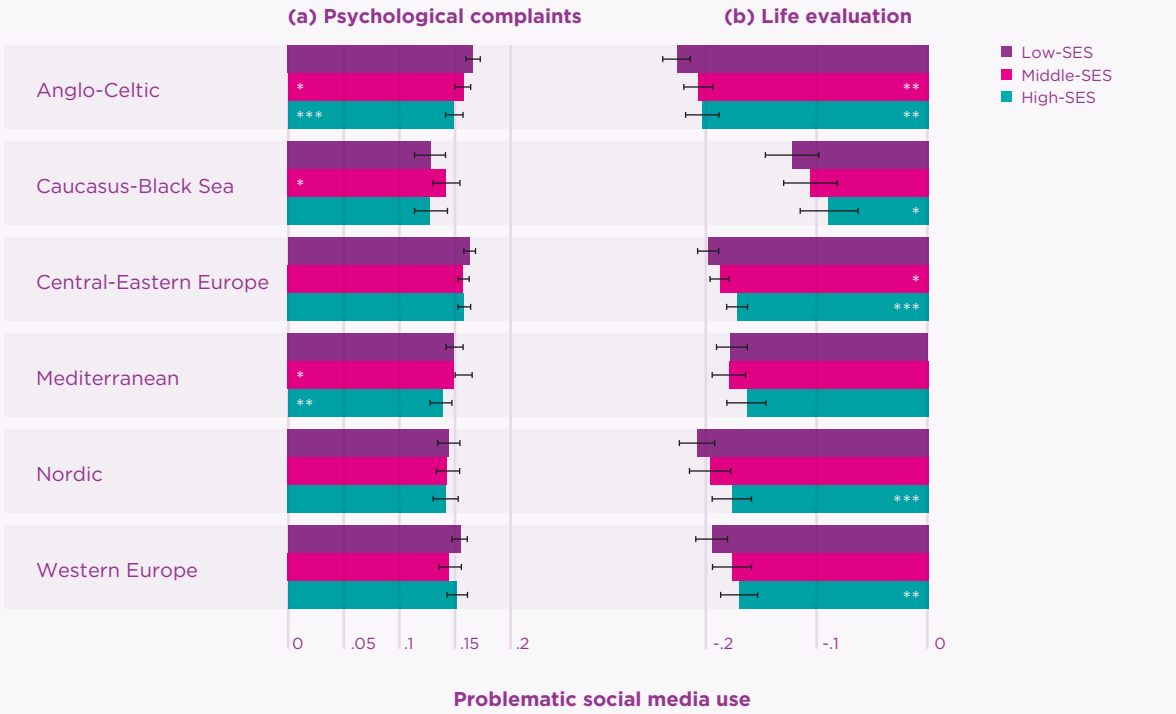
	Psychological complaints	Life satisfaction	Psychological complaints	Life satisfaction
PSMU	0.157*** (0.001)	-0.187*** (0.002)	0.161*** (0.002)	-0.198*** (0.003)
Low-SES # PSMU (Reference category)				
Mid-SES # PSMU			-0.003 (0.002)	0.014*** (0.004)
High-SES # PSMU			-0.008*** (0.002)	0.025*** (0.004)
N	331,240	331,240	331,240	331,240

Note: Results from linear regression models with school fixed effects to control for time-invariant unobserved school characteristics and to avoid biased estimates. SES is measured with the Family Affluence Scale and interacts with PSMU. All models control for age, gender, and frequency of social media use. Survey sampling weights are applied to ensure representativeness. Standard errors are added in parentheses. Data come from HBSC 2017/18 and 2022. ***$p < 0.001$. n = 331,240.

Figure 7.4 presents the association between PSMU and adolescent wellbeing by SES group. For psychological complaints, we observe modest socioeconomic gaps in most regions. In Central-Eastern, Western European, Mediterranean, and Nordic countries, differences between low-SES and high-SES adolescents are relatively small and statistically non-significant. An exception here is the Anglo-Celtic region, which displays the largest socioeconomic gap, with low-SES adolescents experiencing a stronger increase in psychological complaints as problematic use rises (interaction coefficient ≈ -0.017, $p < 0.01$). Interestingly, the Mediterranean and Caucasus-Black Sea regions show an interesting curvilinear pattern: the association between PSMU and psychological complaints is larger among adolescents from middle-SES groups, compared to both their lower- and higher-SES peers.

When turning to life evaluation, we observe larger and more consistent SES disparities. SES gradients are observed in the Anglo-Celtic, Central-Eastern, Western European, and Nordic regions, with low-SES adolescents displaying more negative associations than their high-SES peers, with statistically significant interaction coefficients ranging from approximately 0.02–0.03 ($p < 0.05$ or lower). For the Caucasian region, despite weaker effects in terms of statistical strength, we observe that low-SES adolescents show more pronounced negative associations than their counterparts from higher SES groups (interaction coefficient ≈ 0.033, $p < 0.10$). Finally, the Mediterranean region shows smaller and statistically non-significant socioeconomic differences for life evaluation, indicating weaker SES stratification in this region.

Figure 7.4: The association between PSMU and adolescent wellbeing by SES group and region
HBSC (2018 & 2022)



Note: Models estimated using linear regressions with school fixed effects to control for time-invariant unobserved school characteristics and avoid biased estimates, controlling for age, gender, and frequency of social media use. We ran the same models separately for each region. Sample size: n = 331,240. Estimates are weighted using survey sampling weights and 95% confidence intervals are shown. P-values are shown for interaction effects, where low-SES is the reference category. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Overall, Figure 7.4 indicates that the relationship between PSMU and wellbeing is stratified by SES. Yet, this relationship differs depending on the outcome and region that we examine. For psychological complaints, SES gaps are small across regions, except for the Anglo-Celtic region, where low-SES adolescents experience a stronger increase in psychological complaints as problematic use rises. For life evaluation, we observe more consistent SES differences across most regions, with lower-SES adolescents showing stronger declines in life evaluation as problematic use increases, except in Mediterranean countries, where we observe small and not statistically significant differences across SES groups.

In Figure 7.5, we address the relationship between PSMU and adolescent wellbeing by SES groups across all 43 countries in our study. SES differences in the association between PSMU and adolescent wellbeing vary substantially by outcome and country. For psychological complaints, statistically significant differences between low-SES and

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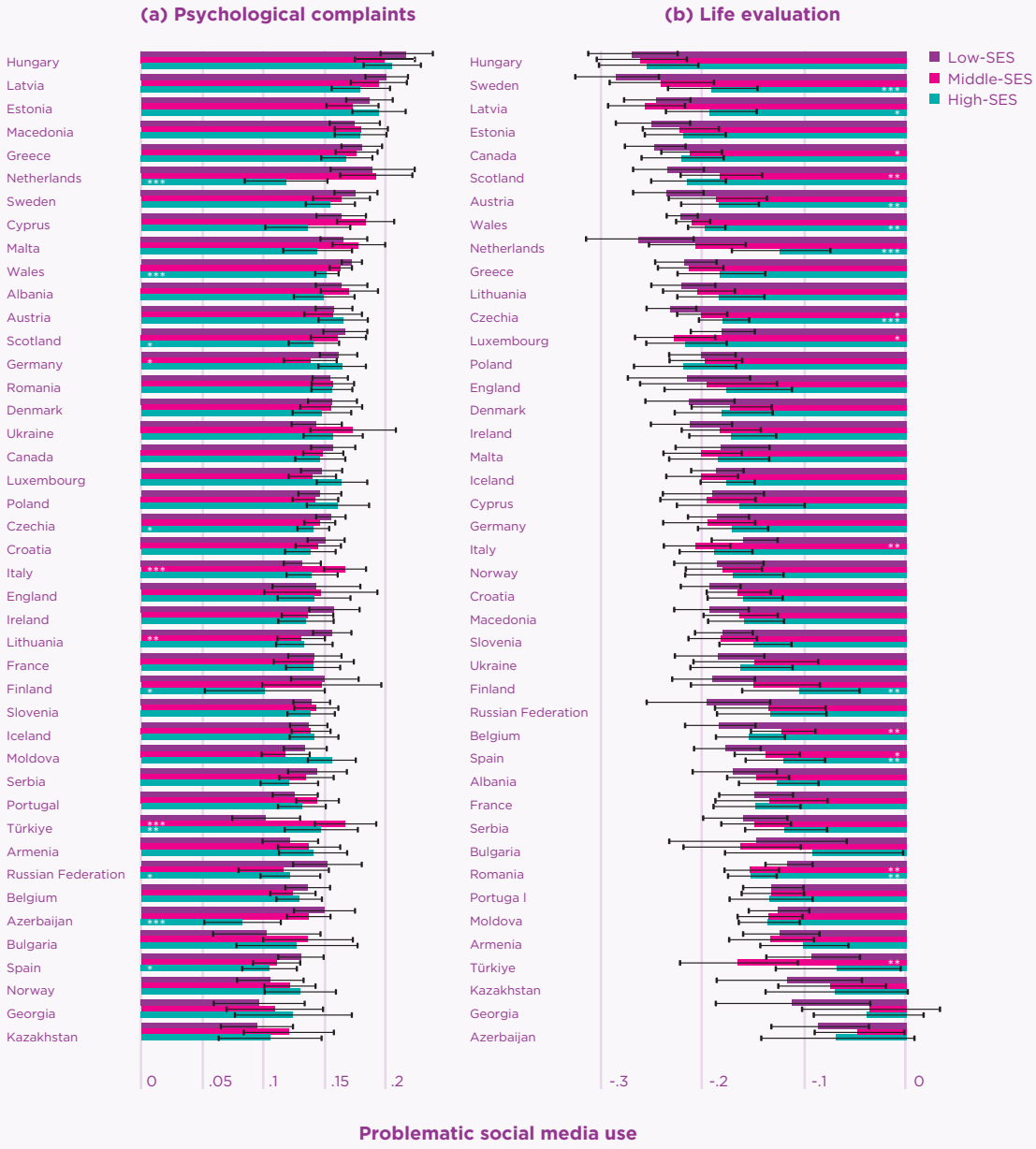
high-SES adolescents appear in seven countries, most notably the Netherlands, Azerbaijan, Finland, Spain, Wales, and Russian Federation. Consistent with the regional analyses, our country-specific analyses indicate that PSMU is associated with psychological complaints in broadly similar ways across SES groups in most national contexts.

For life evaluation, results differ markedly, where SES gradients are larger and more consistent across countries. Statistically significant differences between low-SES and high-SES adolescents appear in 14 countries (around one third of the sample). We find particularly strong and statistically significant differences by family SES in the Netherlands, Sweden, Austria, Czechia, Finland, Spain, Scotland, Belgium, and Canada. Other countries, notably Norway, Bulgaria, and Kazakhstan, show weak or non-significant SES moderation for life evaluation.

Overall, consistent with the regional analyses, SES is a weak moderator for the link between PSMU and psychological complaints in most countries, but it shows larger and more consistent variations for life evaluation. The fact that the country-specific differences by SES do not apply consistently across countries from the same region justifies the consideration of the country level as a dimension of study.

Figure 7.5: The association between PSMU and adolescent wellbeing by SES group and country

HBSC (2018 & 2022)



Note: Models were estimated using linear regressions with school fixed effects to control for time-invariant unobserved school characteristics and avoid biased estimates, controlling for age, gender, and frequency of social media use. We ran the same models separately for each country. Sample size: n = 331,240. Estimates are weighted using survey sampling weights and 95% confidence intervals are shown. P-values are shown for interaction effects, where low-SES is the reference category. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Differences between 2018 and 2022

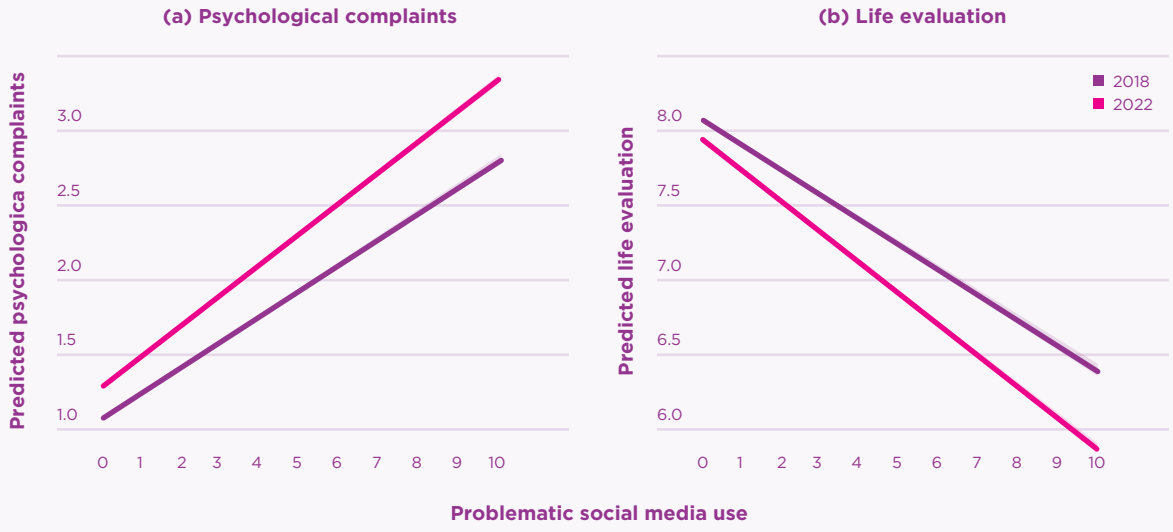
The previous analyses documented associations between PSMU and adolescent wellbeing across countries and socioeconomic groups. We now turn to a key follow-up question: has this relationship changed over recent years? To address this, we compare results from the 2018 and 2022 waves of the HBSC study, focusing on countries that participated in both surveys.

Figure 7.6 shows clear changes. For both psychological complaints and life evaluation, the association with PSMU is more negative in 2022 than in 2018. Adolescents with higher problematic use report steeper increases in psychological complaints and sharper declines in life evaluation in 2022 compared to four years earlier. The baseline association between PSMU and psychological complaints rises significantly from 0.144 in 2018 to 0.166 in 2022 ($p < 0.001$), while the negative association with life evaluation strengthens from –0.177 to –0.217 ($p < 0.001$). These changes indicate a substantively meaningful increase in the overall strength of the PSMU–

Adolescents with higher problematic use report steeper increases in psychological complaints and sharper declines in life evaluation in 2022 compared to four years earlier.

Figure 7.6: Changes in the association between PSMU and adolescent wellbeing, 2018 vs 2022

HBSC (2018 & 2022)



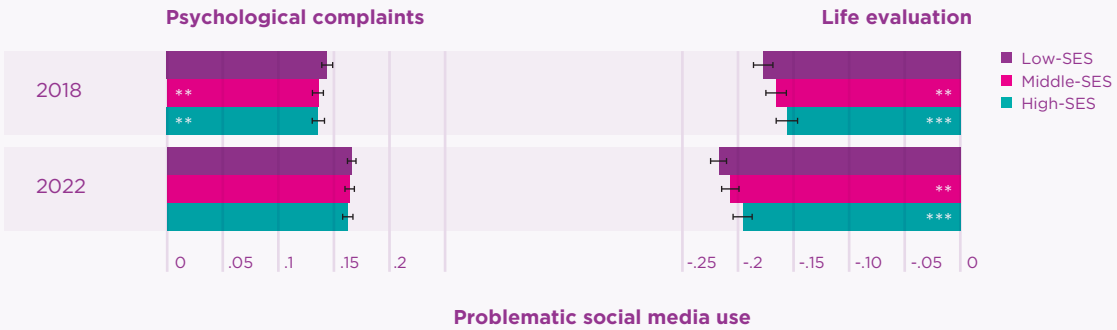
Note: All models include school fixed effects and control for age, gender, frequency of social media use, and parental education. Analyses include only countries present in both waves and apply HBSC sampling weights. Baseline associations strengthen from 2018 to 2022 (psychological complaints: 0.144 ➡ 0.166, $p < 0.001$; life evaluation: -0.177 ➡ -0.217, $p < 0.001$).

wellbeing relationship over time. Additional analyses presented in Table 7A.2 in the online appendix indicate that these changes were confined to all regional groups, except for the Nordic countries for life evaluation, and for the Caucasus-Black Sea countries for both psychological complaints and life evaluation.

Figure 7.7 shows the estimated coefficients of the association between PSMU and adolescent wellbeing across SES groups in 2018 and 2022. Across both outcomes, the association strengthened for all SES groups between 2018 and 2022, indicating that SES gaps did not widen through this period. For psychological complaints, coefficients increased from approximately 0.14–0.15 in 2018 to around 0.16–0.17 in 2022, with quite similar increases for all SES groups. For life evaluation, the negative association with PSMU becomes more pronounced for all SES groups over time. We observe shifts from -0.18 in 2018 to -0.22 in 2022 among low-SES adolescents and from -0.16 to -0.20 for middle-SES adolescents, with a change from -0.15 to -0.19 among high-SES adolescents. Additionally, Table 7A.2 in the online appendix confirms that this stability across SES groups is constant across regions, except for the Caucasus-Black Sea region, where we find larger SES gaps for life evaluation in 2022 than in 2018.

Overall, the deterioration in adolescent wellbeing associated with problematic social media use between 2018 and 2022 appears to reflect a general shift affecting all socioeconomic groups, rather than a reconfiguration of inequality. One plausible explanation is that the COVID-19 pandemic, which dramatically increased adolescents' reliance on digital technologies through remote schooling, reduced face-to-face interaction, and expanded online leisure time. These changes may have amplified the psychological and emotional costs of PSMU for adolescents overall, without substantially altering the underlying socio-economic structure of vulnerability with regards to adolescent social media use.

Figure 7.7: Changes in the association between PSMU and adolescent wellbeing across SES groups
HBSC (2018 & 2022)



Note: Models control for frequency social media use, age, gender, and school fixed effects, with standard errors clustered at the school level and sampling weights applied. Error bars represent 95% confidence intervals. Stars in the pink bar indicate statistically significant differences between middle-SES and low-SES within each year. Stars within the teal bar indicate statistcially significant differences between high-SES and low-SES within each year: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Conclusion

This chapter has investigated how the relationship between Problematic Social Media Use (PSMU) and adolescent wellbeing differs by family socioeconomic status (SES) across 43 countries clustered in six regions that capture different geographical, political, and cultural factors: Anglo-Celtic, Caucasus-Black Sea, Central-Eastern Europe, Mediterranean, Nordic Europe, and Western Europe.

Our results reveal a clear and consistent pattern across all 43 countries: higher PSMU is associated with lower adolescent wellbeing, including more psychological complaints and lower life evaluation. These associations are strongest in Central-Eastern Europe and the Anglo-Celtic region, and weakest in the Nordic countries, and especially the Caucasus-Black Sea region. For life evaluation, the most negative associations appear in Anglo-Celtic and Nordic countries, while the Caucasus-Black Sea region shows the weakest links. Although the intensity of the relationship between PSMU and adolescent wellbeing varies by regions and the measure of wellbeing, our initial analyses confirm that PSMU is a widespread and cross-nationally consistent correlate of lower adolescent wellbeing. We also identify an age gradient across most regions: the relationship between PSMU and adolescent wellbeing is strongest among younger adolescents (ages 11–12) and weaker at older ages (ages 13–14 and 15–16) across most regions. This indicates that early adolescence is a particularly sensitive developmental period for adolescent social media use.

Critically, our results indicate socioeconomic differences in the relationship between PSMU and adolescent wellbeing. While PSMU is a widespread risk factor for adolescent wellbeing across countries, this relationship is unequally distributed across socioeconomic groups. The relationship between PSMU and lower adolescent wellbeing is stronger for adolescents from lower SES families compared to their peers from higher SES backgrounds. Low-SES adolescents bear the greatest costs of compulsive or addictive digital behaviours, while their more advantaged peers are relatively more protected from these harms. This gradient underlines how SES inequalities operate in the digital age, where online environments represent a new arena to understand social inequalities in adolescent wellbeing. This suggests that high-SES families are better able to mobilise resources – such as family support, digital parenting strategies, and digital skills – to partly buffer the negative correlates of PSMU, compared to lower-SES adolescents.

Low-SES adolescents bear the greatest costs of compulsive or addictive digital behaviours, while their more advantaged peers are relatively more protected from these harms.

Interestingly, the results of this chapter indicate that SES gradients in the association between PSMU and adolescent wellbeing are stronger for life evaluation than for psychological complaints. This difference likely reflects that evaluative wellbeing is more sensitive to social comparisons, perceived opportunities, and material resources, while psychological complaints capture more immediate emotional symptoms that are less directly shaped by socioeconomic conditions. These results underscore the importance of distinguishing between different measures of adolescent wellbeing in digital contexts. Ultimately, this is an important finding for the happiness and wellbeing literature that highlights the need for future stratification and digital divides research addressing how socioeconomic processes operate differently across emotional and evaluative outcomes.

Cross-nationally, differences in the association between PSMU and adolescent wellbeing across SES groups vary across regions. For psychological complaints, SES gaps are generally modest across most regions. The main exception is the Anglo-Celtic region, where low-SES adolescents experience a more pronounced increase in psychological complaints as PSMU intensifies. SES differences are residual within the Central-Eastern, Western Europe, and Nordic regions, indicating that emotional symptoms

linked to PSMU are only weakly socially patterned in most regional contexts. Interestingly, we find a curvilinear pattern for the Mediterranean and Caucasus-Black Sea regions, where the association between PSMU and psychological complaints is larger among adolescents from middle-SES groups, compared to both their lower- and higher-SES peers. By contrast, for life evaluation, SES gradients are more substantial and consistent across regions. Clear SES gradients emerge in the Anglo-Celtic, Central-Eastern, Western Europe, and Nordic regions, followed by the Caucasus-Black Sea region, with low-SES adolescents displaying more negative associations between PSMU and life evaluation, compared to their peers from more advantaged SES groups. The Mediterranean region shows smaller SES differences in the association between PSMU and life evaluation.

The large SES gaps found in Anglo-Celtic countries may reflect their free-market-oriented

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welfare regimes,[8] where weaker redistribution may foster greater social divides, leading to structural inequalities associated with online processes shaping adolescents' daily lives. However, the institutional argument does not match with our findings for other regions. For example, the Caucasus-Black Sea region, with more limited universal youth support and socioeconomic development, emerges as having less clear SES gradients in the association between PSMU and adolescent wellbeing. Similarly, the Nordic region does not emerge as the one where the association between PSMU and adolescent wellbeing is less stratified by family SES, despite their well-known universalistic welfare systems and low-income inequality,[9] suggesting that digital divides may persist through mechanisms not easily offset by welfare protections. Conversely, Mediterranean countries appear relatively equal, potentially reflecting the buffering role of family ties, community networks, or culturally embedded forms of social support, which could mitigate the social differentiation of digital harms, particularly for life evaluations. Although institutional arrangements and welfare systems may shape adolescents' exposure to digital risks to some degree, they do not fully account for the observed patterns. How different societal contexts can provide safe internet experiences to all adolescents and families across different backgrounds is an important area for further study.

Finally, our comparison of the 2018 and 2022 waves of the HBSC study shows that the association between PSMU and adolescent wellbeing has strengthened over time. Across most regions, adolescents with high levels of problematic use report higher psychological complaints and lower life evaluation in 2022 than in 2018. This intensification coincides with the COVID-19 pandemic and the broader acceleration of digital engagement in young people's daily lives. Crucially, this deterioration is visible across all socioeconomic groups. While SES remains a powerful source of inequality, recent trends suggest that the emotional and psychological costs of PSMU have increased for adolescents more generally, rather than reflecting important changes in existing socioeconomic divides.

Taken together, these findings underline the need for policies that address both the risks of PSMU and the unequal burden faced by disadvantaged adolescents in digital settings. Interventions should combine family-level support, school-based digital literacy, and accessible mental health services, while remaining sensitive to cultural and contextual differences in how young people experience and evaluate their lives online. Creating more equitable digital environments will require regulating platforms, as well as strengthening the social resources that help adolescents navigate a highly digitalised and unequal world.

This chapter is not without limitations. Our study cannot account for bidirectionality, namely that the direction of causality between PSMU and wellbeing cannot be disentangled, which is an issue that has been widely discussed in the academic literature on social media and adolescent wellbeing.[10] To this end, a combination of longitudinal data and causal designs, as well as lab and field experimental data are needed. To date, no longitudinal surveys have applied a large, harmonised, multi-national, cross-national design on the causal relationship between PSMU and adolescent wellbeing across regions. Our study must be read as a first approximation to understand mechanisms of social inequalities in this area by adopting a micro-macro approach. Future studies should further analyse the role of specific macro-level explanatory factors in shaping the relationship between PSMU and adolescent wellbeing.

To conclude, the results of this chapter highlight the need for policies that not only address the risks of PSMU but also target the unequal burden faced by disadvantaged adolescents. This includes investing in family support, school-based digital literacy programs, and accessible mental health services that are sensitive to socioeconomic disparities. By combining efforts at the family, school, and policy level, societies can work toward a more equitable digital environment where all young people – regardless of background – are able to engage with social media in ways that support, rather than undermine, their wellbeing.

Endnotes

1 Shannon et al. (2022); Van den Eijnden et al. (2018); Van Rooij et al. (2010).

2 Breen and Müller (2020); Corak (2013); Reiss (2013).

3 Büchi and Hargittai (2022); Van Deursen and Helsper (2015).

4 Bohnert and Gracia (2023).

5 Bronfenbrenner and Morris (2007).

6 Livingstone et al. (2018).

7 Boniel-Nissim et al. (2024).

8 Esping-Andersen (2015).

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10 Orben and Przybylski (2019).

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Chapter 8

Internet use, social media, and wellbeing: the role of trust, social connections, and emotional bonds

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Specifically, we ask: do internet and social media use affect subjective wellbeing not only directly, but also indirectly by altering levels of societal trust and social connection?

Key Insights

Previous studies from the *World Happiness Report* highlight the importance of trust and social connections for wellbeing. This chapter explores how the rise of internet and social media use has affected wellbeing directly, and also indirectly by altering trust, social connections, and emotional bonds.

We use four rounds of the European Social Survey (ESS), covering 30 countries over the years 2016 to 2024, to investigate the impact of internet use upon wellbeing. In order to measure the total impact of internet use, we instrument it by M-Lab data on local internet speed. The instrumental variable results reveal a significant negative coefficient on internet use that is not visible in standard OLS estimations.

The estimated relationship between internet use and wellbeing varies sharply across generations, genders, and regions. It is strongly negative for Gen Z, moderately negative for Millennials, near zero for Gen X, and slightly positive for Baby Boomers. The generational gradient reflects both greater increases in internet use among younger cohorts (exposure) and more negative estimated coefficients for those same cohorts (susceptibility).

The social and emotional foundations of wellbeing have deteriorated most for younger Europeans, especially in Western Europe. Declines in interpersonal trust, institutional trust, perceived social activity, and social meeting frequency are largest for Gen Z and Millennial women. In contrast, older cohorts show more resilience, supported by rising attachment to country and, in many Central and Eastern European countries, improved feelings of safety.

Perceived social activity ("compared to others your age") has fallen everywhere and is among the strongest predictors of wellbeing losses.

Internet use is associated with several drivers of wellbeing, including trust, perceived social activity, and social connection. Interaction terms reveal that internet use can be positive for individuals with high interpersonal trust or strong attachments to their countries. However, those who report being highly socially active experience more negative effects, consistent with substitution or displacement of offline connections.

The digital environment matters: the effect of internet use on wellbeing depends on how common social media use is within an individual's demographic peer group. Internet use is beneficial when peer-group exposure is low, but becomes increasingly harmful as social media use becomes more widespread among one's peers.

Generational differences in wellbeing are widening over time. Older adults benefit from stable trust, rising attachment, improved safety, and moderate digital use, while younger adults face the erosion of these foundations in highly saturated digital ecosystems.

Introduction

Over the past 25 years, numerous studies have investigated the relationship between social media use and subjective wellbeing using cross-sectional, experimental, or longitudinal data. One group of studies finds social media use to be negatively associated with wellbeing, largely due to factors such as social comparison, fear of missing out, social isolation, excessive screen time, smartphone addiction, and being a potential source of misinformation.[1] Conversely, other research finds social media use to be positively associated with wellbeing through increased opportunities for social interaction and connections, creation of social capital, self-expression, and social support.[2]

One consistent finding across studies in this field is the variation across age groups. Recent evidence suggests that younger individuals – especially in North America, Western Europe, Australia, and New Zealand – are experiencing declining levels of wellbeing and mental health. Potentially, this is a result of increased social media use among young people, with the effect often found to be more pronounced among girls.[3]

A possible reason for this decline is that increased social media use can reduce social circle size, alienate individuals from communities, and decrease the quality of interactions, altering the nature and frequency of face-to-face communications.[4] This, in turn, can lead to increases in depression and loneliness.[5] It is well-established that social connections have important implications for health and wellbeing through their ability to reduce stress, depression, and loneliness.[6] In 2023, US Surgeon General Vivek Murthy released an advisory on social media and youth mental health, identifying that reduced social connections can have significant ramifications on academic achievement, workplace performance, and health. This includes increased risk of disease and premature death, not only for individuals, but for communities-at-large.[7] There is growing concern that the emergence of social media has hastened a shift from quality of connections to quantity of connections, deteriorating relationships across populations, and increasing levels of social isolation, primarily in industrialised societies.[8]

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There is growing concern that the emergence of social media has hastened a shift from quality of connections to quantity of connections.

Stronger social connections are also associated with higher levels of trust among individuals, stronger faith in institutions, and higher levels of prosocial giving and volunteering, as well as increased political engagement and higher levels of attachment to communities.[9] Various studies have shown that social trust, institutional trust, and trust in the police and legal system are all significant factors that positively influence wellbeing.[10] In this regard, social media use has been found to have a negative influence on wellbeing through its deterioration of trust.[11] Results from Europe demonstrate that higher social media use is associated with lower trust in neighbours, strangers, the police, and the EU, with these effects being more pronounced in regions with wider internet coverage and faster internet connections.[12] Conversely, social media can also allow individuals to share information more rapidly and efficiently, offering opportunities to create social ties that were previously unavailable from face-to-face interactions.[13] With many competing influences on trust and social connections, there remains considerable divide on the net effect of social media use, making it difficult to draw decisive, generalisable conclusions, particularly across countries.[14]

In this chapter, we analyse the effect of internet and social media use on subjective wellbeing through two distinct channels: 1) individuals' self-reported levels of trust, and 2) individuals' perceived levels of social connections and emotional bonds. Specifically, we ask: do internet and social media use affect subjective wellbeing not only directly, but also indirectly by altering levels of societal trust and social connection?

To answer this question, we use individual-level data from the European Social Survey (ESS), which include multiple measures of subjective wellbeing, as well as self-reported levels of generalised trust and perceived social connectedness, in addition to measures of health, socio-economic and demographic factors like employment status and levels of income. This dataset is particularly useful, as it includes survey responses from 30 European nations, between 2016 and 2024, allowing a consistent resource to investigate national-, regional-, and time-varying effects of internet use on individuals' wellbeing.[15]

One persistent challenge in studies of this nature is the issue of potential endogeneity. Specifically, does increased internet and social media use lead to changes in individuals' subjective wellbeing, or rather, do individuals change their online engagement in response to their happiness or life satisfaction? To address this issue, we compiled a novel dataset that exploits variation in internet access speeds at the regional level over time to use as an instrumental variable for internet use.[16] Our hypothesis is that higher internet access speeds will result in increased internet use for individuals in those regions, which, in turn, may affect wellbeing through changes in trust and social connections.[17] We use this instrumental variable approach to achieve two important goals: 1) to isolate the effect of internet use on individuals' level of subjective wellbeing while controlling for possible reverse causality, and 2) to quantify how internet and social media use affects wellbeing through channels of social trust and social connections.

Our findings highlight three broad patterns:

1. Internet use has a negative effect on wellbeing, especially for younger cohorts.
2. Declines in trust, social connections, and perceived social activity account for a substantial portion of wellbeing losses.
3. The digital environment matters: what peers do online strongly shapes individual outcomes.

The remainder of this chapter proceeds as follows. First, we introduce our data and describe the evolution of internet and social media use in Europe, as well as describing the patterns of trust and social connections over the span of our

A central contribution of this chapter is showing that the wellbeing impact of internet use depends heavily on the level of social media saturation within an individual's demographic peer group.

dataset. We construct a simple regression model to investigate the direct effects of internet use on self-reported wellbeing. We then address the issue of potential reverse causality between internet use and wellbeing by incorporating our instrumental variable approach, using exogenous regional internet speeds to instrument for internet use.

To investigate the links between trust, social connections, and wellbeing, we augment our regression analysis with a series of interaction terms to determine the differential effects of internet use on happiness for varying levels of trust and social connections across individuals. We then decompose our results across time (pre-2020 and post-2020) and geographic areas (Western vs. Central and Eastern Europe), as well as by generational cohorts (from Baby Boomers to Gen Z). To capture individuals' digital environment, we supplement the ESS sample with Eurostat data on social media use by age, gender, and country. A central contribution of this chapter is showing that the wellbeing impact of internet use depends heavily on the level of social media saturation within an individual's demographic peer group.

Overall, this chapter shows that the interaction between rising internet use, social media saturation, and declining social foundations has produced a distinctly generational pattern of wellbeing changes across Europe. We conclude with a discussion of our findings, their policy implications, and future research opportunities.

Internet use and subjective wellbeing

The evolution of internet and communication technologies has played a tremendous role in the rise of social media. With an increasing number of countries introducing high-speed internet, studies have shown positive effects of internet use on life satisfaction across countries.[18] However, these results are often nonlinear – there are diminishing returns to wellbeing that differ across income and age brackets, both within and across countries.[19]

To investigate this relationship between internet use and subjective wellbeing, we use data from the European Social Survey (ESS), which amasses responses from individuals across a large selection of European countries since 2001.[20] The ESS is particularly advantageous as it comprises over 1,500 respondents from each country, conducted every two years, with questions covering a wide range of social, economic, and political perspectives.[21] We compile responses from nearly 200,000 individual respondents from 30 countries between 2016 and 2024, including information on demographics, interpersonal and institutional trust, and social connections, along with their internet use habits.

For our measures of subjective wellbeing, we use two questions from the ESS:

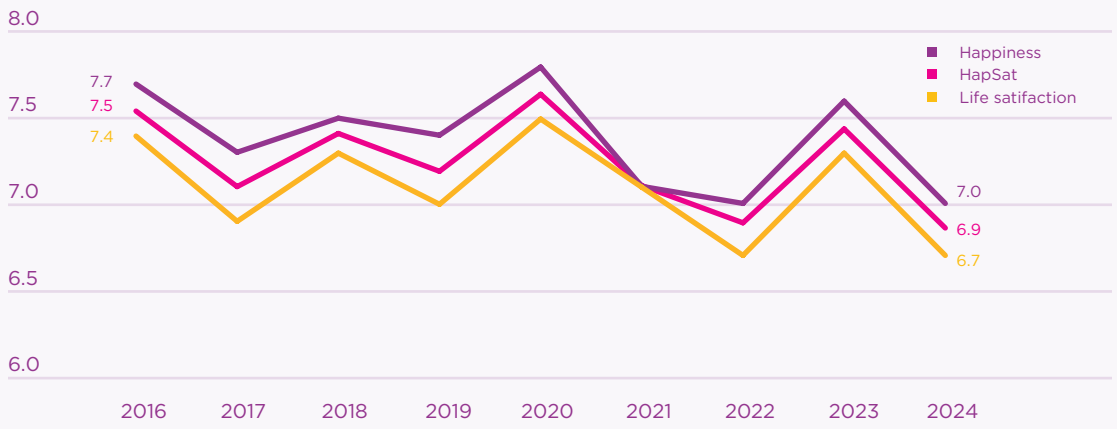
1) **Happiness:** Taking all things together, how happy would you say you are? From 0 (extremely unhappy) to 10 (extremely happy)

2) **Life Satisfaction:** All things considered, how satisfied are you with your life as a whole nowadays? From 0 (extremely dissatisfied) to 10 (extremely satisfied)

While these questions might seem similar at first glance, the correlation among respondents is less than 0.70. Therefore, we create a third variable, *HapSat* – a composite measure which calculates the arithmetic mean of *Happiness* and *Life Satisfaction*.

Figure 8.1 shows the similar trends across these three indicators over time.[22] *Happiness* is typically highest, with the dips and rises across indicators consistent throughout. We see a decrease in wellbeing across countries following the 2020

Figure 8.1: Happiness and life satisfaction over time
European Social Survey (2016–24)



COVID-19 pandemic, with wellbeing rebounding in 2022, followed by a decline after 2023.

The ESS asks respondents about their daily use of the internet in minutes.[23] Furthermore, we add data from Eurostat on average internet use across the 30 countries covered by our ESS data, to compare individuals' level of internet use relative to others in their respective regions. Figure 8.2 depicts the prevalence of internet use among residents of each NUTS2 region across Europe, in percentage terms, comparing the average level of coverage from 2012–16 to 2020–24.[24] This visual representation conveys the sizeable and ubiquitous growth in internet use over the time span, with initial levels for many regions reflecting less than 70% adoption in the early 2010s, contrasted with the preponderance of regions attaining levels above 70% by the early part of the following decade, with the majority of regions obtaining at least 80% internet use among their residents.

One notable feature in our data, established in previous studies, is the relationship between internet use and age. In Figure 8.3, we plot responses to the ESS question, "On a typical day, about how much time do you spend using the internet?". The figure shows the distribution of ages among two subsets of individual respondents: those who report using the internet less than one hour per day and those who report total use of more than six hours per day. Overall, we find that heavy users (6+ hours) are much younger on average – with the majority representing users in their late teens through thirties and tapering quickly after 50 years of age. Conversely, light users (<1 hour) skew older, predominantly among those in their late sixties and seventies, with relatively little mass below those in their forties.[25]

To link the relationship between age and internet use to subjective wellbeing, we plot the correlation coefficients between internet use (in minutes per day) and *HapSat*, across age groups. Figure 8.4 suggests a quadratic, or possibly cubic, relationship, with a generally positive correlation between

Figure 8.2: Average internet use in 2012–16 and 2020–24
Eurostat

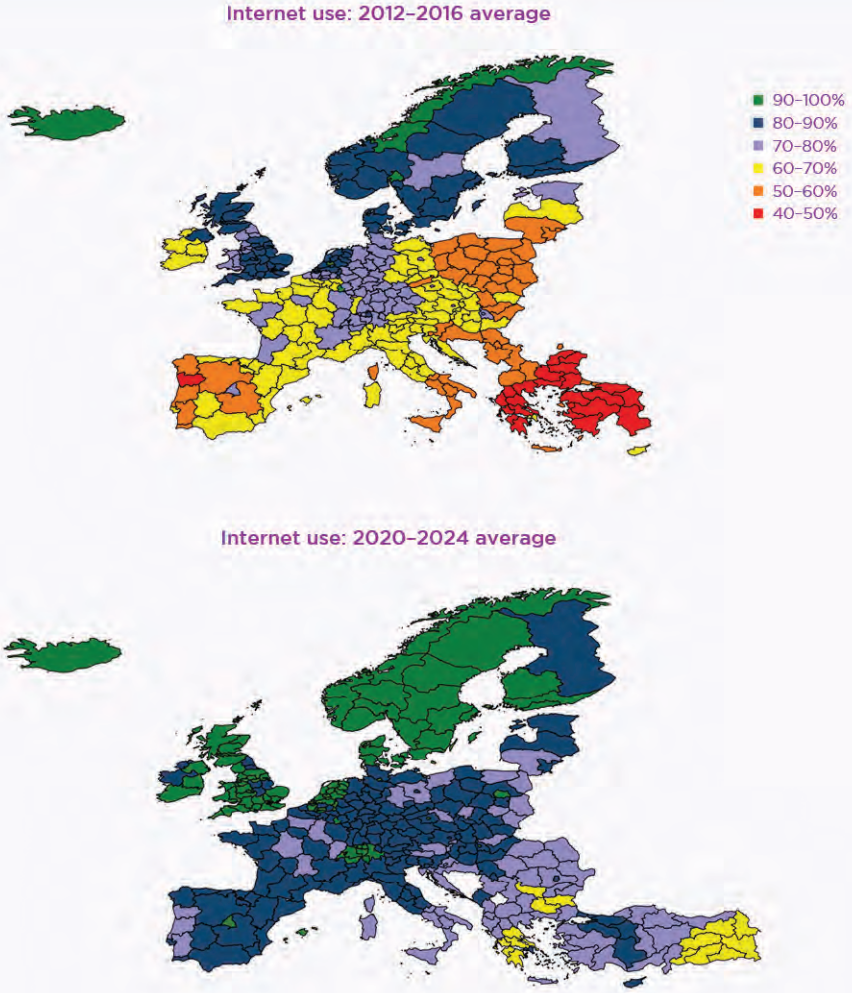
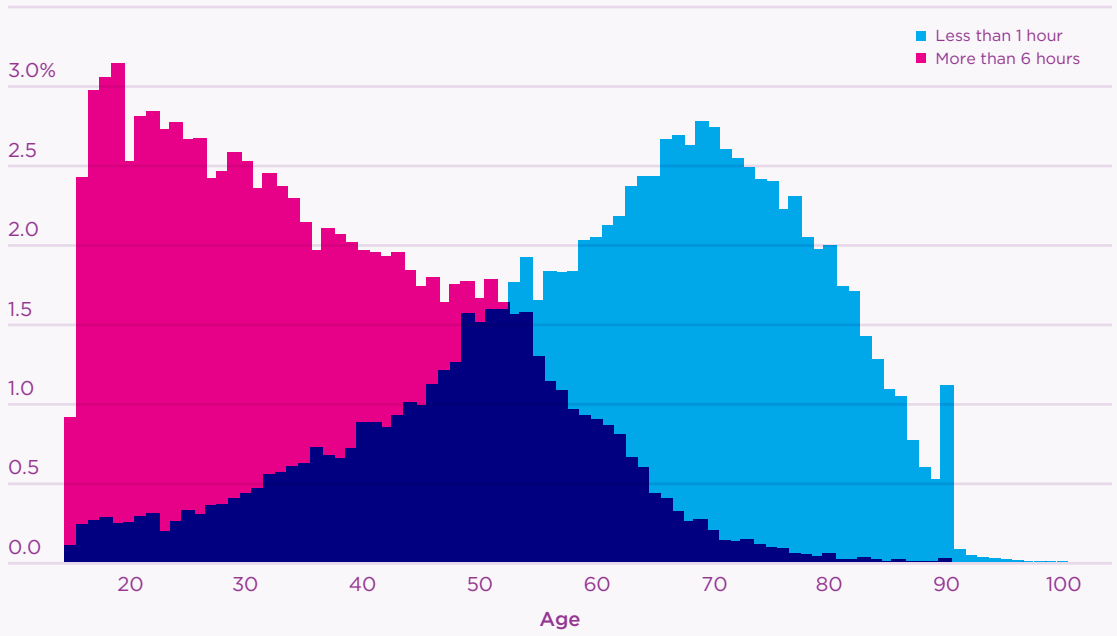


Figure 8.3: Age distributions for low and high daily internet use
European Social Survey (2016–24)



internet use and wellbeing for those between 35 and 60, and a generally negative relationship for those below 35 and over 60.[26]

To understand the relationship between internet use and wellbeing, we use pooled linear regressions.[27] Our regressions include our main variables of interest: trust, social connections, and emotional attachments. For measuring trust, we consider two variables that focus on trust in people (generalised trust) and feeling safe after dark. To account for individuals' trust in institutions, we generate a variable that is the average of three ESS questions on trust in the parliament, legal system, and politicians of the respondent's country. For social connections, we use variables that ask individuals about their frequency of meeting friends, relatives, and colleagues, as well as the frequency they take part in social activities, compared to others of the same age. This latter variable provides information on the social comparison perspective, offering an interesting aspect of individuals' social connections. Lastly, we include measures for individuals' attachment to their countries and to Europe.

Table 8.1 describes our various measures of trust, social connections, and attachment. Additionally, we control for gender, age, political leaning, education, physical health, income, employment and marital status, living in urban areas, and being born in the country. We add an indicator specifically for Gen Z (individuals born after 1997). The ESS also includes a question on whether respondents have posted or shared anything about politics in the last 12 months. We use this variable to account for posting or sharing political views online. We also include country fixed effects.[28]

Figure 8.4: Correlation between internet use and wellbeing by age
European Social Survey (2016–24)

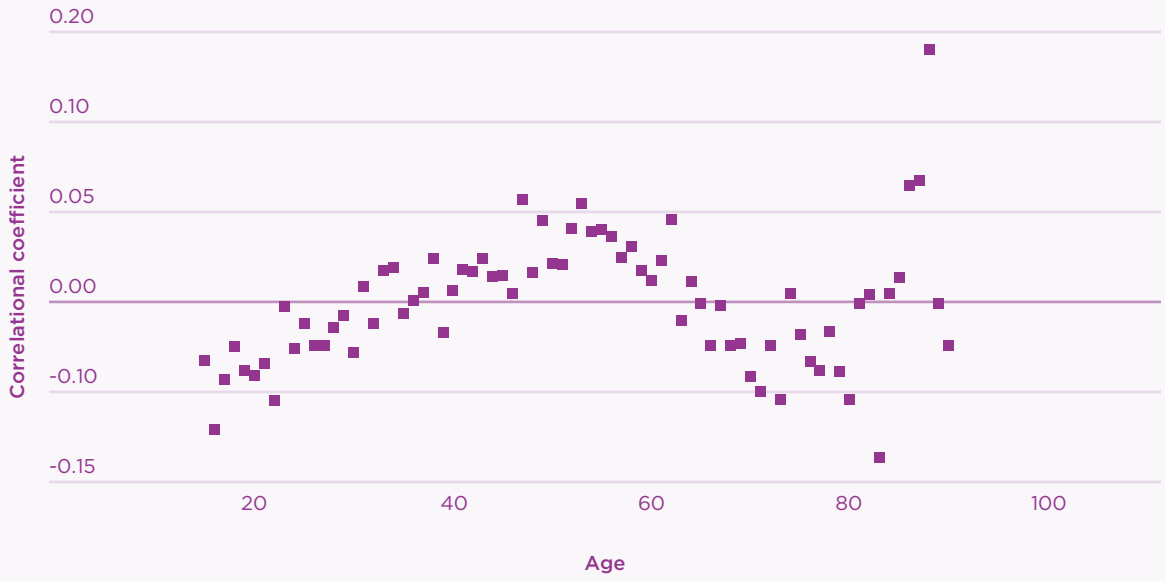


Table 8.2 presents results using our three different measures of wellbeing as dependent variables. Internet use is not a statistically significant predictor of any of the three wellbeing measures. We find that individuals who report posting or sharing political views online have lower levels of happiness and wellbeing regardless of the dependent variable used. Our main variables of interest (three measures of trust, two social connections variables, and two attachment variables) all display strong, positive, and robust relationships with our wellbeing measures. Trust in the system and trust in people, as well as social interactions with friends and the frequency of these interactions matter greatly for happiness. Individuals' perceived levels of safety within their communities are positively related to their levels of happiness. Similarly, those who report stronger attachment to one's country, as well as to Europe, show increased levels of happiness.

We also find that political views are associated with wellbeing. Individuals that align more with right-wing views report higher levels of happiness and wellbeing. Females and married individuals also report significantly higher happiness and wellbeing. Consistent with previous literature, we find that age has a U-shaped effect, with happiness declining initially and picking up after mid-age. Individuals living in rural areas report higher levels of happiness. Income, employment status, and physical health all have positive associations with happiness and wellbeing.

Taken together, our results suggest the significance of the direct positive effects of trust, social connections, and emotional bonds on happiness and wellbeing.[29] However, our pooled regression results do not resolve the problem of endogeneity and reverse causality between internet use and wellbeing. We turn to this issue next.

Table 8.1: Variables for trust, social connections, and emotional attachments
European Social Survey (2016–24)

Variable	ESS question(s)	Notes
Trust in system	On a scale of 0 (no trust) to 10 (complete trust), how much do you trust: 1) [country]'s parliament? 2) the legal system? 3) [country]'s politicians?	Generated as mean of three ESS questions listed
Trust in people	Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?	Where 0 means you can't be too careful and 10 means that most people can be trusted
Safety after dark	How safe do you — or would you — feel walking alone in [area] after dark?	0) Very unsafe 1) Unsafe 2) Safe 3) Very safe
Social activity comparison	Compared to other people of your age, how often would you say you take part in social activities?	1) Much less than most 2) Less than most 3) About the same 4) More than most 5) Much more than most
Social meeting frequency	How often do you meet socially with friends, relatives or work colleagues?	1) Never 2) Less than once a month 3) Once a month 4) Several times a month 5) Once a week 6) Several times a week 7) Every day
Attachment to country	How emotionally attached do you feel to [country]?	Where 0 means not at all attached and 10 means very attached
Attachment to Europe	And how emotionally attached do you feel to Europe?	Where 0 means not at all attached and 10 means very attached

Table 8.2: Regression results for three measures of wellbeing

	Dependent variables		
Variables	Happiness	Life satisfaction	HapSat
Internet use (in hours)	0.00189	0.00178	0.00178
Posting about politics	−0.0827***	−0.123***	−0.103***
Trust in system	0.0531***	0.103***	0.0779***
Trust in people	0.0438***	0.0578***	0.0508***
Safety after dark	0.140***	0.155***	0.147***
Social activity comparison	0.134***	0.124***	0.128***
Social meeting frequency	0.112***	0.110***	0.111***
Attachment to country	0.103***	0.0904***	0.0964***
Attachment to Europe	0.0308***	0.0264***	0.0286***
Age	−0.0408***	−0.0545***	−0.0477***
Age squared/100	0.0422***	0.0609***	0.0516***
Gen Z	−0.158***	−0.0645*	−0.111***
Female	0.179***	0.139***	0.159***
University	−0.0340***	−0.00763	−0.0209*
Urban	−0.0774***	−0.0856***	−0.0814***
Married	0.425***	0.313***	0.369***
Left wing	−0.0562***	−0.148***	−0.102***
Right wing	0.0430***	0.176***	0.110***
Born in country	−0.0393*	0.0484**	0.00464
Health	0.443***	0.468***	0.455***
Household net income (decile)	0.0511***	0.0770***	0.0641***
Paid work (last 7 days)	0.0486***	0.106***	0.0773***
Constant	3.983***	3.715***	3.852***
Country fixed effects	YES	YES	YES
Observations	84,290	84,284	84,350
R-squared	0.234	0.255	0.286

Note: The pooled OLS regression results reported above use happiness, life satisfaction and *HapSat* (the mean of happiness and life satisfaction) as dependent variables. Each regression is run using robust standard errors which are not reported here for brevity. The regressions also include country fixed effects. The asterisks display statistical significances as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Regressions use individual-level post-stratification survey weights.

The problem of reverse causality

The relationship between internet use and wellbeing raises an important issue of causality: do people who use the internet more frequently report higher life satisfaction and happiness, or are people who are happy more likely to use the internet? Some studies that have accounted for the reverse causality between social media use and happiness have found that social media use does affect wellbeing.[30] But differences in results within the literature, particularly across disciplines, can often be attributed to a lack of longitudinal data or difficulties in identifying and controlling for causality and finding reliable indicators to address this concern.[31]

In our analysis, we account for reverse causality by using an instrumental variable approach, employing data on the evolution of internet download speeds as an instrument for internet use. We construct a panel of regional internet

Do people who use the internet more frequently report higher life satisfaction and happiness, or are people who are happy more likely to use the internet?

speeds using Measurement Lab (M-Lab) data hosted in Google BigQuery. M-Lab is a nonprofit open platform that runs standardised internet speed tests worldwide and publishes the anonymised measurements (including times-tamps, download throughput, and approximate latitude/longitude) for public use. BigQuery is Google's cloud data warehouse that allows efficient SQL queries over very large datasets without local storage or specialised infrastructure. Using M-Lab's public tables in BigQuery, we extract tests from 2015–24 and transform each

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test's coordinates into a point that we map to a Eurostat NUTS2 region.

Within each region, we compute the quarterly mean download speed (Mbps) and the number of contributing tests. Since speed distributions could be skewed, we also report the median as a robustness measure. The procedure yields a consistent quarterly time series for every NUTS2 region. We then merge this internet speed data to the ESS data at the individual level, with each respondent matched to the quarterly average download speed in their corresponding NUTS2 region in the quarter that their survey interview took place. This approach offers transparent, replicable indicators of regional internet performance suitable for descriptive analysis and as instruments or controls in econometric applications.

Figure 8.5 shows changes in average download speeds across NUTS2 regions from 2015 to 2024. We see that while internet speeds rose everywhere, there is significant variation in the levels and rates of growth across countries. For example, countries like Iceland, Norway, and Sweden, as well as regions in France and Germany, experienced the most drastic improvements, while regions of

Figure 8.5: Change in average internet download speed
Google BigQuery M-Lab (2015–24)

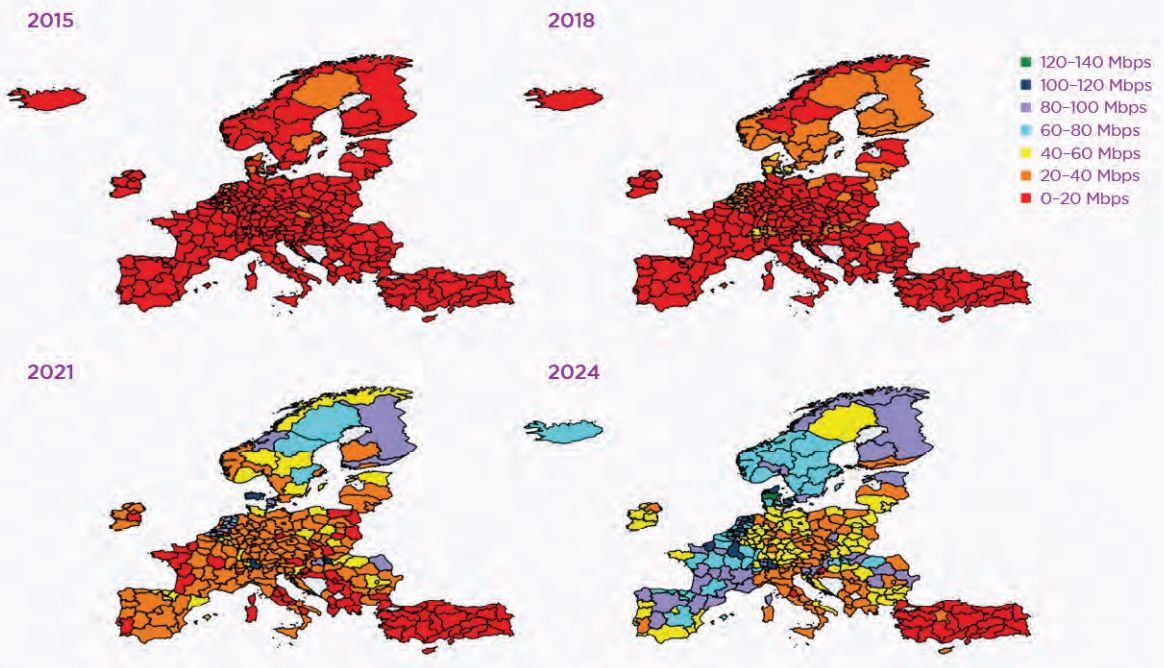

Table 8.3: Comparison of OLS and IV regression results

	Dependent variable: HapSat	
Variables	**OLS**	**IV**
Internet use (in hours)	0.00178	-0.0915***
Posting about politics	-0.103***	-0.0589***
Trust in system	0.0779***	0.0750***
Trust in people	0.0508***	0.0525***
Safety after dark	0.147***	0.147***
Social activity comparison	0.128***	0.122***
Social meeting frequency	0.111***	0.114***
Attachment to country	0.0964***	0.0929***
Attachment to Europe	0.0286***	0.0303***
Age	-0.0477***	-0.0525***
Age squared/100	0.0516***	0.0523***
Gen Z	-0.111***	-0.0839***
Female	0.159***	0.148***
University	-0.0209*	0.0507**
Urban	-0.0814***	-0.0407**
Married	0.369***	0.328***
Left wing	-0.102***	-0.0974***
Right wing	0.110***	0.117***
Born in country	0.00464	-0.000206
Health	0.455***	0.445***
Household net income (decile)	0.0641***	0.0719***
Paid work (last 7 days)	0.0773***	0.121***
Constant	3.852***	4.251***
Country fixed effects	YES	YES
Observations	84,350	77,058
R-squared	0.286	0.266

Note: The regression results reported above use *HapSat* (the mean of happiness and life satisfaction) as the dependent variable. Each regression is run using robust standard errors which are not reported here for brevity. The asterisks display statistical significances as follows: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Regressions use individual-level post-stratification survey weights. The regression in the second column is an instrumental variable 2SLS type with median internet download speed reported quarterly used as the instrument for internet use.

Southern and Eastern Europe tend to lag further behind. We exploit this variation across regions and time to instrument for internet use, under the assumption that internet infrastructure development is not a function of self-reported wellbeing of residents in that area.

Next, we reconsider our linear regressions to address the issue of potential endogeneity between internet use and wellbeing. Our goal is to isolate the effect of internet use on happiness and wellbeing while controlling for reverse causality, and then to quantify how the effect of internet use moves through the channels of trust and social connections.

Using an instrumental variable (IV) approach changes our estimates considerably. Table 8.3 compares our original OLS results with our IV results. While the coefficient estimates for our other controls remain mostly consistent, the effect of internet use on wellbeing, after correcting for reverse causality, is now negative and significant.[32]

The implementation of the IV strategy does reduce our effective sample size slightly, due to missing or incomplete location data for some survey respondents. However, there does not appear to be any systematic effect on our variables of interest as a result. Summary statistics for both estimation samples are provided in Table 8B.3 in the online appendix. With the endogeneity concerns addressed through our IV strategy, the next step is to unpack the mechanisms behind the estimated effects by analysing how trust, social connections, and emotional bonds contribute to changes in wellbeing.

Trust, social connections, and emotional bonds

In this section, we examine how a set of social, emotional, and institutional channels contribute to changes in subjective wellbeing across demographic groups and over time. While our instrumental variable (IV) estimates established a generalised effect of internet use on wellbeing,

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Table 8.4: Regional groupings of European countries

Central and Eastern Europe	Bulgaria, Croatia, Cyprus, Czechia, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Montenegro, Poland, Serbia, Slovakia, Slovenia
Western Europe	Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom

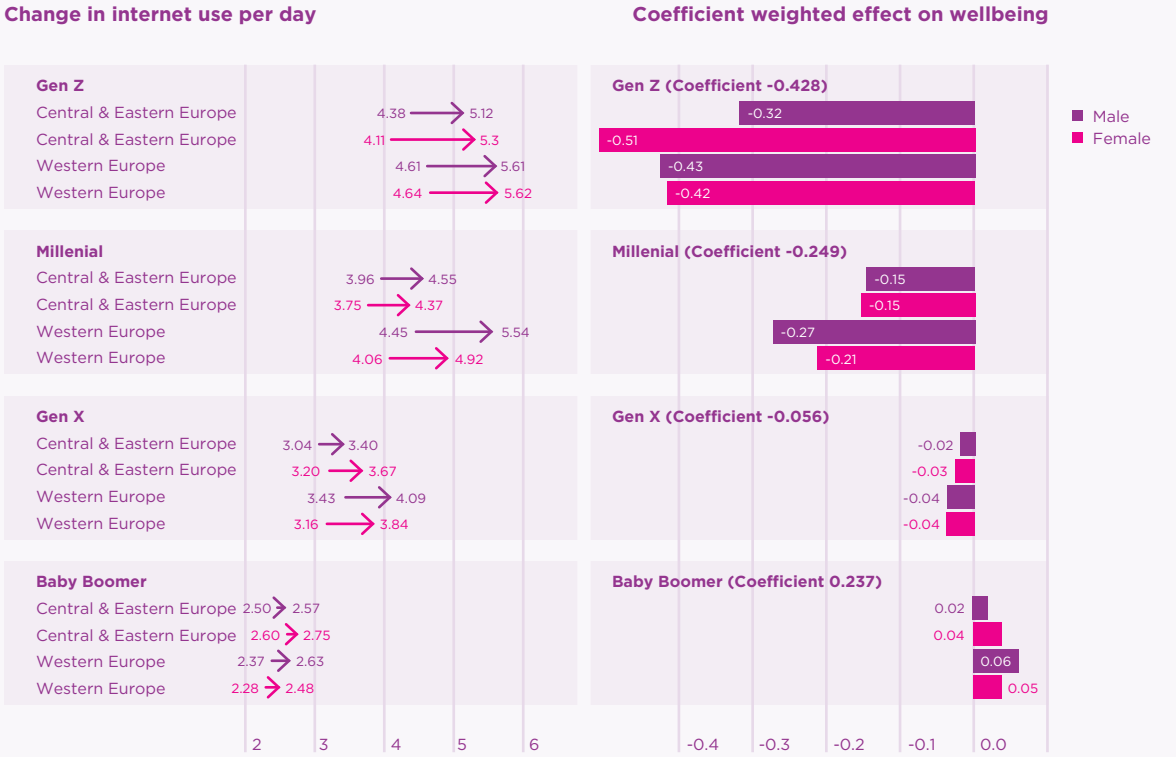
individuals experience the broader social environment through multiple pathways that interact with or reinforce this relationship. Therefore, we focus on several key determinants highlighted in the wellbeing literature: social interactions, trust in people and institutions, attachments, and feelings of safety. We assess how changes in these variables, combined with their coefficients from our IV model, shape the wellbeing landscape from earlier rounds of the ESS (Rounds 8 and 9, 2016–19) to later rounds (Rounds 10 and 11, 2020–24). By decomposing changes in each channel across generations, genders, and regions, we provide a detailed account of how internet use, social connections, and emotional bonds have shifted during this period and the extent to which these shifts contribute to overall trends in wellbeing.

Before analysing how social and emotional channels contribute to changes in wellbeing, we divide our sample into meaningful demographic and regional groups. Generational cohorts are defined using standard birth-year cutoffs: Gen Z (born 1997 or later), Millennials (1981–1996), Gen X (1965–1980), and Baby Boomers (born 1964 or earlier). We also distinguish between Central and Eastern Europe and Western Europe to reflect the persistent social, institutional, and economic differences across these regions. Table 8.4 summarises the countries assigned to each region. These groupings are used throughout the section to examine heterogeneity in mean changes, causal coefficients, and implied wellbeing effects.

Across all demographic groups, average daily internet use increased substantially between 2016–19 and 2020–24. Figure 8.6 (left panel) shows that the growth gradient is steeply age-dependent. The largest increases occurred among younger cohorts, especially Gen Z, with the most pronounced growth observed among Gen Z females in Central and Eastern Europe. Even among Millennials, average use rose by roughly one hour per day over this period. In contrast, older cohorts (Gen X and Baby Boomers) display much smaller increases, remaining below three hours per day on average. These patterns illustrate a widening generational gap in digital engagement. Not only do younger individuals spend more time online, but their usage appears to be accelerating more rapidly than that of older groups. The divergence is especially marked in regions of Central and Eastern Europe.

The right panel of Figure 8.6 translates these behavioural changes into implied wellbeing effects by multiplying the observed changes in mean internet use by the generation-specific IV coefficients from our preferred causal model. Because we estimate the model separately for each generation, each cohort has its own causal coefficient, allowing us to quantify how rising internet use affects wellbeing within each generation while holding other factors constant. The results reveal substantial heterogeneity. For Gen Z, who exhibit the largest predicted negative effect of internet use on wellbeing, the sharp increase in daily online time translates into the

Figure 8.6: Changes in internet use and the effects on wellbeing
European Social Survey and M-Lab (2016–19 to 2020–24)



Note: The left panel shows the change in mean daily hours of internet use by generation, gender, and European region. The right panel multiplies these changes by the generation-specific coefficients from our IV model (instrumenting internet use with quarterly median regional download speed). Bars represent the estimated contribution of rising internet use to changes in *HapSat,* holding other factors constant. Negative values indicate declines in predicted wellbeing.

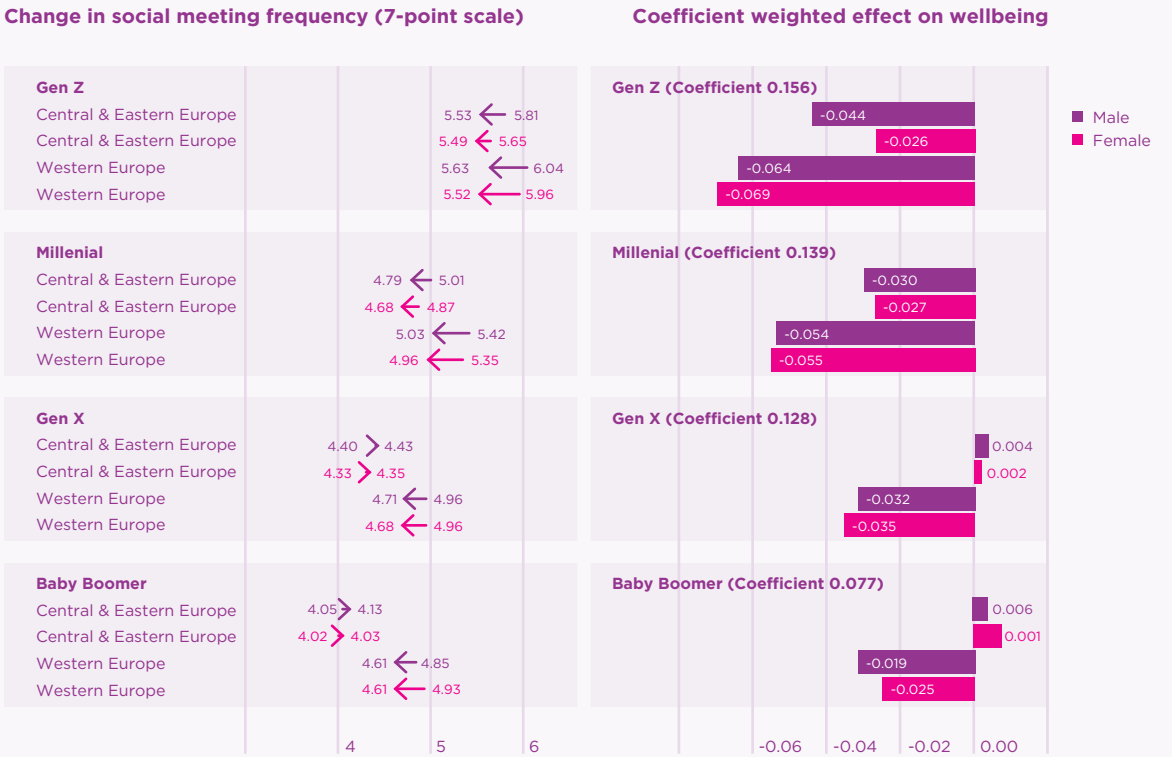
largest predicted decline in wellbeing, representing a 0.3–0.5 point decline on the 10-point wellbeing scale. Millennials experience a more moderate implied decrease, due to their smaller predicted negative coefficients and smaller mean internet use increase. For Gen X, where the causal effect is near zero, increases in usage have very little predicted impact on wellbeing. Finally, among Baby Boomers, the causal coefficient is positive, so rising internet use yields a small predicted improvement in wellbeing. This pattern underscores that wellbeing consequences depend not only on how much individuals increase their internet use, but also on how sensitive each cohort is to that exposure.

Taken together, these results highlight a key insight: rising internet use has very different wellbeing implications across generations.

For younger cohorts, the combination of rapid growth in online engagement and a strongly negative causal effect suggests that the digital environment may fundamentally be a different experience than it is for older generations. Millennials exhibit similar but less pronounced dynamics. For older adults, however, moderate increases in internet use appear to complement rather than displace social connections – perhaps by reducing isolation, improving access to information, or facilitating communication with family. The net effect is a nuanced generational divide: the same expansion in digital engagement that harms the wellbeing of younger groups may modestly benefit older ones. These findings highlight the importance of considering both exposure and susceptibility when evaluating the broader social consequences of digital technologies.

Figure 8.7 shows clear changes in social meeting frequency from 2016–19 to 2020–24. Western Europe consistently reports higher levels of social

Figure 8.7: Changes in social meeting frequency and the effects on wellbeing
European Social Survey (2016–19 to 2020–24)

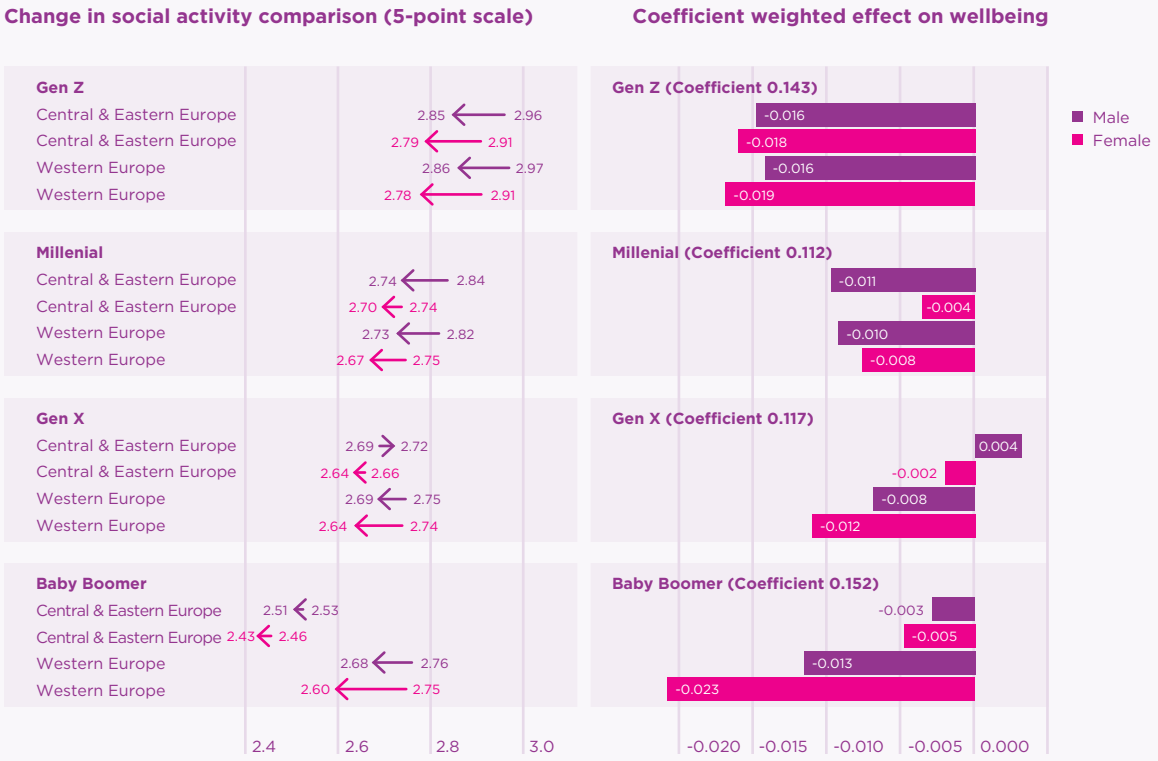


Note: The left panel shows the change in mean self-reported social meeting frequency by generation, gender, and European region. Values range from 1 (never) to 7 (every day). The right panel multiplies these changes by the generation-specific coefficients from our IV model. Negative values indicate declines in predicted wellbeing.

meetings, but it also experienced the largest declines, particularly among Gen Z and Millennials. In Central and Eastern Europe, changes were more muted, and older cohorts even show slight increases. As a result, the East-West gap in social interactions narrowed over time, not because Central and Eastern Europe increased markedly, but because Western Europe's social activity fell sharply. Overall, the data suggest a continent-wide contraction of in-person social engagement, with the most pronounced reductions occurring among younger generations in Western Europe.

These behavioural shifts have important wellbeing implications. The effect of social meeting frequency on wellbeing is strongest among younger cohorts, and these are the same groups that experienced the largest declines in social interactions. Gen Z

Figure 8.8: Changes in social activity comparison and the effects on wellbeing
European Social Survey (2016–19 to 2020–24)



Note: The left panel shows the change in mean self-reported social activity comparison by generation, gender, and European region. Individuals are asked: "Compared to other people your age, how often would you say you take part in social activities?" Values range from 1 (much less than most) to 5 (much more than most). The right panel multiplies these changes by the generation-specific coefficients from our IV model. Negative values indicate declines in predicted wellbeing.

and Millennials show the largest predicted declines in wellbeing, especially in Western Europe. In contrast, Gen X and Baby Boomers exhibit much smaller changes in social meetings and weaker causal coefficients, resulting in near-zero or slightly positive implied effects. Taken together, the findings suggest that reduced social interactions have disproportionately affected younger Europeans, amplifying the wellbeing consequences of the post-2020 social environment.

Figure 8.8 presents changes in how frequently individuals report socialising relative to others their age, making this a measure of perceived social engagement rather than objective social behaviour. Across nearly all regions, genders, and generations, perceived social activity declined between 2016–19 and 2020–24. A consistent gender pattern emerges: women generally rate themselves as less socially active than their peers, a gap that persists across all cohorts. Older generations also tend to perceive themselves as less socially active than others their age, and this pattern continued through the post-2020 period. Although declines are visible in almost every group, they are most pronounced in Western Europe, producing a nearly universal downward shift in perceptions of relative social engagement.

Because the coefficients linking perceived social activity to wellbeing are similar across generations, declines in this perception affect both young and old in broadly comparable ways. However, the largest combined effects arise among younger cohorts and older women in Western Europe, who experienced the greatest falls in perceived social activity. Importantly, this variable reflects how individuals evaluate their own social lives, which may increasingly be shaped by digital environments. The fact that these groups show the largest coefficient-weighted wellbeing losses lends support to a social-comparison interpretation: even modest behavioural declines can translate into meaningful drops in subjective wellbeing when perceptions shift more sharply than actions. Together, the evidence suggests that digital comparison pressures may be reshaping how individuals see themselves in relation to their peers, with measurable consequences for wellbeing.

Figure 8.9: Changes in trust in system and the effects on wellbeing
European Social Survey (2016–19 to 2020–24)

Note: The left panel shows the change in 'trust in system' by generation, gender, and European region. This variable is constructed as the mean value of reported trust in the legal system, politicians, and parliament (each on a 10-point scale). The right panel multiplies these changes by the generation-specific coefficients from our IV model. Negative values indicate declines in predicted wellbeing.

Figure 8.9 presents changes in 'trust in system', measured as the average of trust in the legal system, politicians, and parliament. Across all generations, genders, and regions, there is a clear downward shift in system trust from 2016–19 to 2020–24. The longstanding East-West divide remains large: individuals in Eastern and Central Europe consistently report substantially lower system trust than their counterparts in Western Europe, regardless of gender or age. Yet, the most striking feature of the figure is the steep decline among Gen Z, whose trust in political and legal institutions fell more sharply than that of any other cohort. Millennials and Gen X also show declines, though more modest, while Baby Boomers experience the smallest shifts. Overall, the data portray a widespread erosion of institutional trust, most pronounced among younger Europeans.

Although system trust has a weaker causal association with wellbeing for younger cohorts – reflected in their smaller IV coefficients – their large declines in trust levels produce the largest negative predicted effects on wellbeing. In other words, even though system trust "matters" less for Gen Z in marginal terms, the sheer size of this drop in trust yields the most substantial wellbeing losses. Millennials and Gen X experience smaller combined effects, reflecting both moderate declines in trust and moderately sized coefficients. Baby Boomers show only minimal predicted impacts. Taken together, these results imply that the erosion of institutional trust has had its greatest wellbeing consequences for the youngest generation, reinforcing the broader picture that post-2020 changes in the social and political environment have disproportionately affected younger Europeans.

Figure 8.10: Changes in trust in people and the effects on wellbeing
European Social Survey (2016–19 to 2020–24)

Note: The left panel shows the change in trust in people by generation, gender, and region. Respondents are asked, "Generally speaking, would you say that most people can be trusted (10), or that you can't be too careful (0) in dealing with people". The right panel multiplies these changes by generation-specific coefficients from our IV model. Negative values indicate declines in predicted wellbeing.

Figure 8.10 shows substantial declines in trust in people across all age groups, genders, and regions from 2016–19 to 2020–24. The drop is universal, with no demographic subgroup showing an increase in interpersonal trust. As with system trust, there remains a pronounced East-West divide: respondents in Central and Eastern Europe consistently report significantly lower interpersonal trust than those in Western Europe, and this holds across generations and genders. The steepest declines occur among Gen Z, especially Gen Z females, who show some of the largest downward shifts in interpersonal trust across the entire sample. Although trust in other people is already relatively low in Central and Eastern Europe, Western Europe also experienced meaningful declines, contributing to a broad European-wide erosion of interpersonal trust.

Although declines in interpersonal trust reduce wellbeing across all generations, the underlying mechanism appears to differ between younger and older cohorts. Among Gen Z, the coefficient linking trust to wellbeing is relatively small, but the drop in trust levels is so pronounced that the implied wellbeing losses are substantial. For Baby Boomers, the pattern is reversed: their trust levels fell only slightly, yet interpersonal trust carries a much larger causal weight in their wellbeing equation, so even modest declines generate meaningful (though still smaller) predicted effects. This contrast highlights that the wellbeing consequences of trust erosion operate through different channels across age groups: the magnitude of the decline for the young, and the importance of trust in people for the old.


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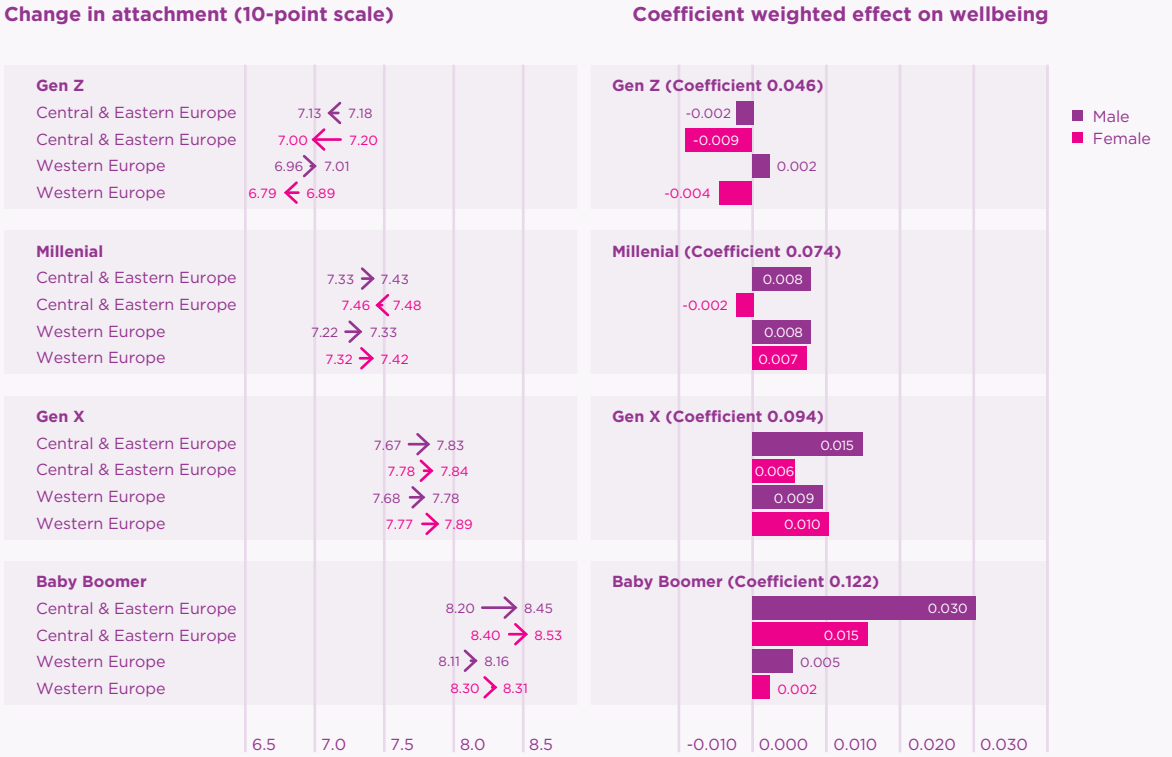
Figure 8.11 shows how individuals' emotional attachment to their country has changed from 2016–19 to 2020–24. A clear generational divide emerges: older cohorts consistently report stronger attachment to their country, with Baby Boomers scoring highest across regions and genders. Younger generations (particularly Gen Z) show the lowest levels of attachment, and among younger females there is even a slight decline over time, especially in Western Europe. In contrast, attachment appears to increase modestly among older groups, with Baby Boomers in both regions reporting higher attachment in the later period. The overall picture is one in which emotional connection to one's country is highest (and increasing) among older adults, while younger Europeans show weaker and, in some cases, declining attachment.

The coefficient-weighted results indicate that attachment to country has a positive association with wellbeing, with the effect strengthening with age. Baby Boomers exhibit the largest coefficients, meaning attachment carries substantial wellbeing significance for this generation. Combined with their rising attachment levels, this produces the largest positive predicted wellbeing effects, especially among male Baby Boomers in Central and Eastern Europe. Millennials and Gen X show smaller gains, reflecting moderate increases in attachment paired with moderate coefficients. For Gen Z, whose coefficients are smaller and whose means change little (or even decline slightly for some subgroups), the implied wellbeing effects are minimal or near zero. Overall, these results suggest that emotional bonds to one's country have become an increasingly important wellbeing resource for older Europeans, while playing a more limited role for younger cohorts.

Figure 8.11: Changes in emotional attachment to country and the effects on wellbeing
European Social Survey (2016–19 to 2020–24)

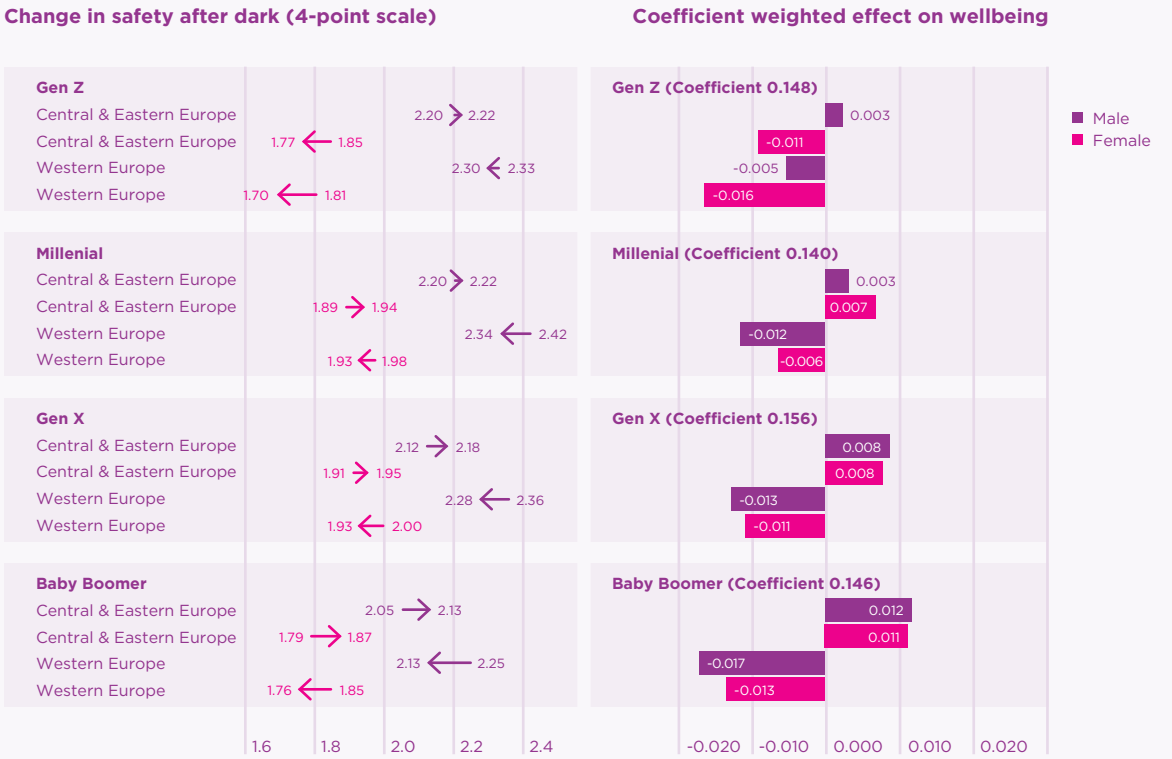


Note: The left panel shows the change in attachment to country by generation, gender, and region. Respondents are asked, "How emotionally attached do you feel to [country]?" Values range from 0 (not emotionally attached at all) to 10 (very emotionally attached). The right panel multiplies these changes by generation-specific coefficients from our IV model. Negative values indicate declines in predicted wellbeing.

Figure 8.12 shows changes in perceived safety when walking alone after dark between 2016–19 and 2020–24. Across every region and generation, there is a clear and persistent gender divide: women consistently feel less safe than men, and this pattern holds even within narrowly defined demographic groups. The geographic split is also notable. In Western Europe, feelings of safety declined universally, with both men and women reporting lower perceived safety across all generations. In contrast, Central and Eastern Europe show the opposite pattern: most groups report improved feelings of safety over time, with the main exception being Gen Z females, whose safety perceptions remain low and are decreasing.

The coefficient-weighted effects indicate that feelings of safety have a consistently positive association with subjective wellbeing, with coefficients similar across generations. Because

Figure 8.12: Changes in safety after dark and the effects on wellbeing
European Social Survey (2016–19 to 2020–24)



Note: The left panel shows the change in safety after dark by generation, gender, and region. Respondents are asked, "How safe do you — or would you — feel walking alone in this area after dark?" Values range from 0 (very unsafe) to 3 (very safe). The right panel multiplies these changes by generation-specific coefficients from our IV model. Negative values indicate declines in predicted wellbeing.

these coefficients do not vary much by age group, the implied wellbeing effects are driven almost entirely by changes in the means, rather than by differences in sensitivity. As a result, the largest negative effects appear among groups in Western Europe, where declines in perceived safety were largest. Conversely, groups in Central and Eastern Europe, who experienced modest but widespread improvements in safety perceptions, show small positive predicted impacts on wellbeing. The gender divide remains visible: women generally experience larger negative implied effects in Western Europe, reflecting both lower baseline safety perceptions and steeper declines. Overall, the findings suggest that trends in perceived public safety contribute meaningfully, albeit unevenly, to the broader pattern of wellbeing change, reinforcing how local environments and personal security shape subjective wellbeing across Europe.

Indirect effects of internet use on wellbeing

Next, we examine whether the effect of internet use carries through our channels of trust, social connections, and attachments across individuals. The question we ask is whether increased use of the internet changes individuals' wellbeing levels above and beyond what we have seen through our estimations in the previous section.

In order to assess whether internet use has indirect effects on wellbeing, we first construct categorical versions of high versus low levels of trust, social connections, and emotional attachments to allow for the differences among individuals.[33] The "high" group are those that report higher levels of system trust, trust in people, and safety after dark, respectively.[34] This group also encompasses those individuals who report higher social meeting frequency and being more socially active in comparison to their peers. Additionally, this group has greater ties to their country as well as to Europe. Individuals who fall in the "low" group for system and people trust, on average, have wellbeing levels that are 1.35 to 1.29 points lower respectively, on the 0 to 10 scale, compared to those who report high levels of trust. For social connections, those in the "low" group have about a point lower wellbeing levels than those who report "high" levels of social connections. For emotional attachments, being in the "low" category amounts to 0.88 to 1.02 points of a decrease in wellbeing in comparison to those in the "high" category.

To analyse the pass-through effect of internet use on these channels, we include interaction terms in our instrumental variable regression model. In constructing the interaction terms, we

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Figure 8.13: Estimates for interaction terms

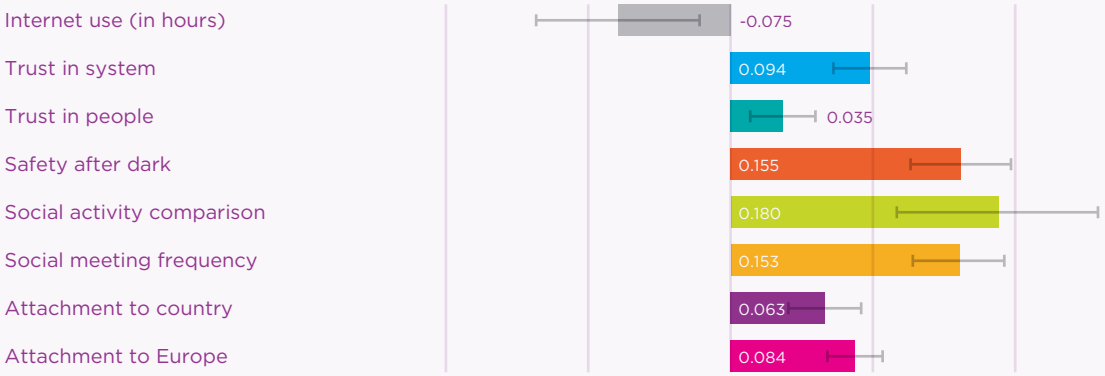
Note: Effects of interaction terms with internet use and trust, social connections, and attachments variables on *HapSat*. 95% lower and upper confidence intervals are shown.

multiply the internet use variable with all newly created categorical versions (high/low) of our trust, social connections, and emotional attachment variables. The regression also includes all of our channel variables (in their original scales), control variables from our earlier regressions, as well as country fixed effects. We use the median quarterly download speed as our instrument for internet use.[35] Figure 8.13 shows the estimates for our interaction terms for individuals falling under "high" or "low" categories of trust, social connections, and emotional attachments.

Figure 8.14 demonstrates the large direct effects (from the same regression) on wellbeing from the corresponding main variables of trust, social connections, and emotional attachments. The interaction effects are statistically significant for those with high interpersonal trust, high social activity comparison with peers, high social meeting frequency, high attachments to country, and for those in both low and high categories of attachment to Europe. Internet use has a positive effect for those reporting higher people trust and higher attachment to country. However, when examining social connections, our interaction terms show that individuals who report being more socially active suffer more in terms of their wellbeing from higher use of the internet. These negative interactions indicate that the wellbeing costs of internet use are larger for individuals who are more socially active, which is consistent with a displacement story: people with rich offline social lives have more to lose when time shifts from in-person to online interaction. While this does not prove displacement, the pattern from Figure 8.13 aligns with the idea that additional internet use may crowd out high-value offline social connections.

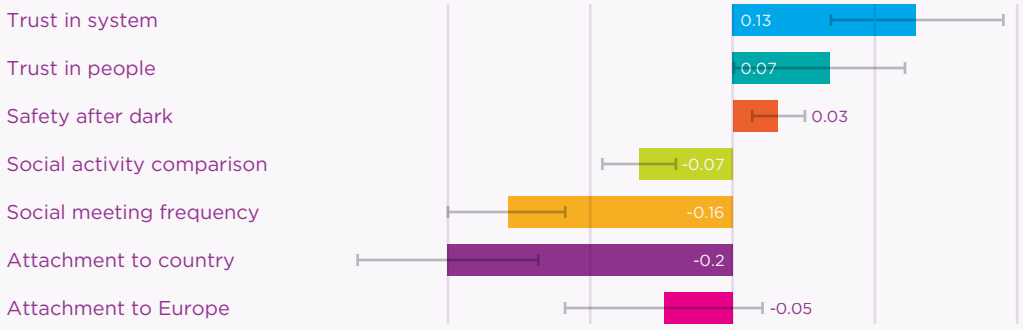
Given the negative interaction coefficients, we consider whether internet use has a direct effect on our channel variables that passes through to wellbeing. To examine whether internet use affects our channel variables directly, we run a series of instrumental variable regressions, with each of our trust, social connections, and emotional attachment variables as the dependent variable (in their original scales), with internet use as our primary variable of interest.[36] The results, reported in Figure 8.15, show that internet use has a significantly positive effect on trust in system and people, as well as safety after dark. However, it has a significantly negative effect for social connections (both social meeting frequency and social activity comparison) as well as attachment to country.

Figure 8.14: Direct effects of trust, social connections, and emotional attachments



Note: The direct effects of trust, social connections and emotional attachments using variables in their original scales on *HapSat*. The above regression includes the high/low interaction terms (reported in Figure 8.13), control variables, and country fixed effects. 95% lower and upper confidence intervals are shown.

Figure 8.15: The direct effect of internet use on trust, social connections, and attachments



Note: These regressions include results from when each of our trust, social connections, and emotional attachments variables are regressed on our instrumented internet use variable. Each IV regression includes trust, social connections, and emotional attachments variables (in their original scales) as dependent variables, internet use, control variables, and country fixed effects. 95% lower and upper confidence intervals are shown.

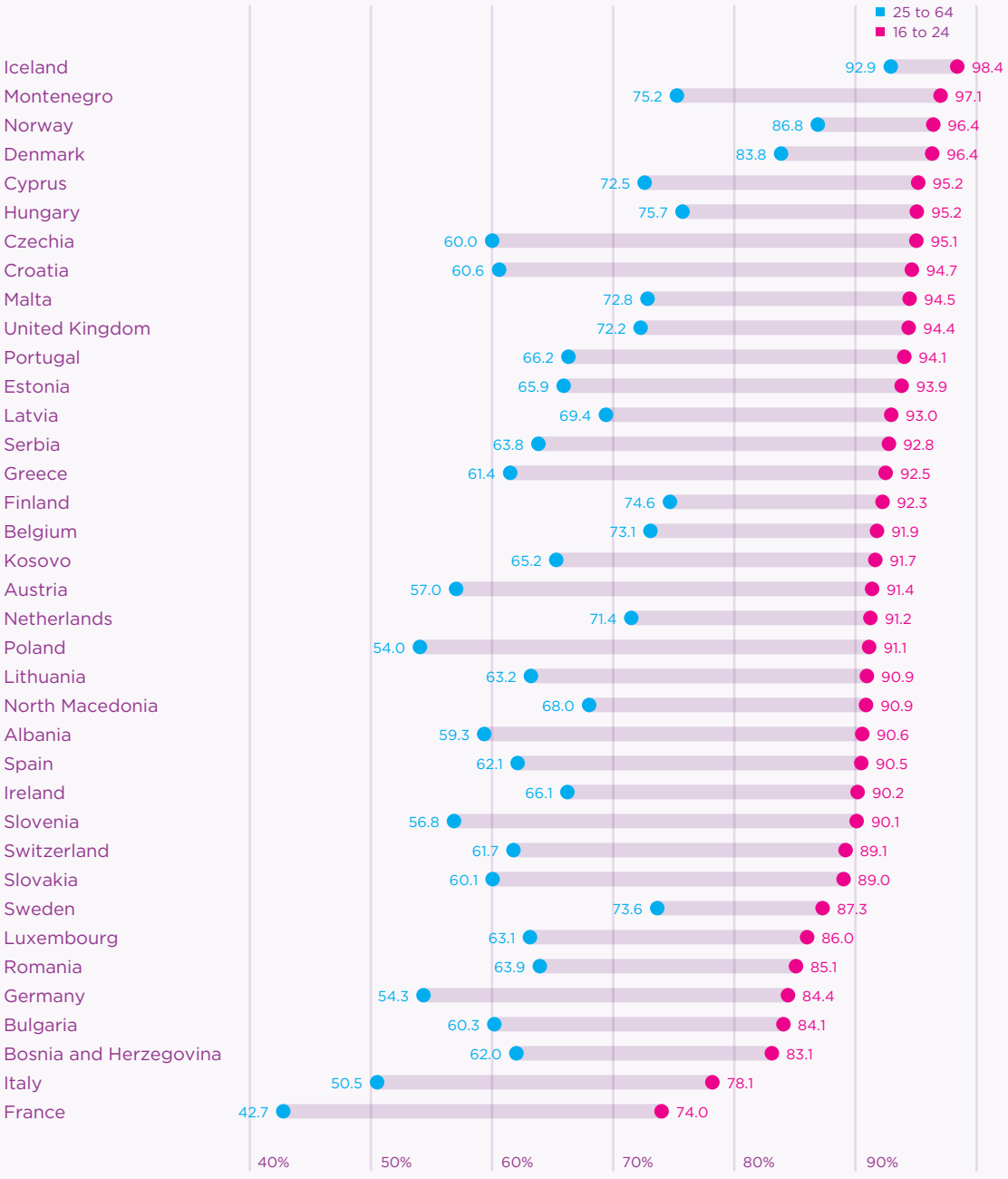
Wellbeing losses and gains across Europe are shaped not by a single factor but by a combination of shifting social and emotional conditions.

Taken together with our earlier findings, the evidence paints a consistent picture: wellbeing losses and gains across Europe are shaped not by a single factor but by a combination of shifting social and emotional conditions. Younger generations have faced large declines in interpersonal trust, perceived social activity, system trust, and feelings of safety, leading to sizable predicted declines in wellbeing. Older generations, by contrast, show greater resilience. Improvements in attachment to country and, in some regions, increases in feelings of safety help offset declines in trust, and the stronger causal weight these channels carry for older adults moderates the overall impact. The generational contrast is therefore not only one of exposure but also one of sensitivity – the young experience large changes in key social variables, while the old are more affected by how strongly those variables matter for their wellbeing. Internet use also affects our social connections more strongly. Generational differences are widely visible in terms of the happiness gains or losses achieved from heavier use of the internet.

Social media environment and the effects of internet use on wellbeing

One limitation of the ESS is that it does not directly measure social media use in its core modules. Respondents are asked how many minutes per day they use the internet, but no ESS variable captures whether that time is spent on

Figure 8.16: Percentage using social media in two age groups (16–24 and 25–64)
Eurostat (2016–2024)



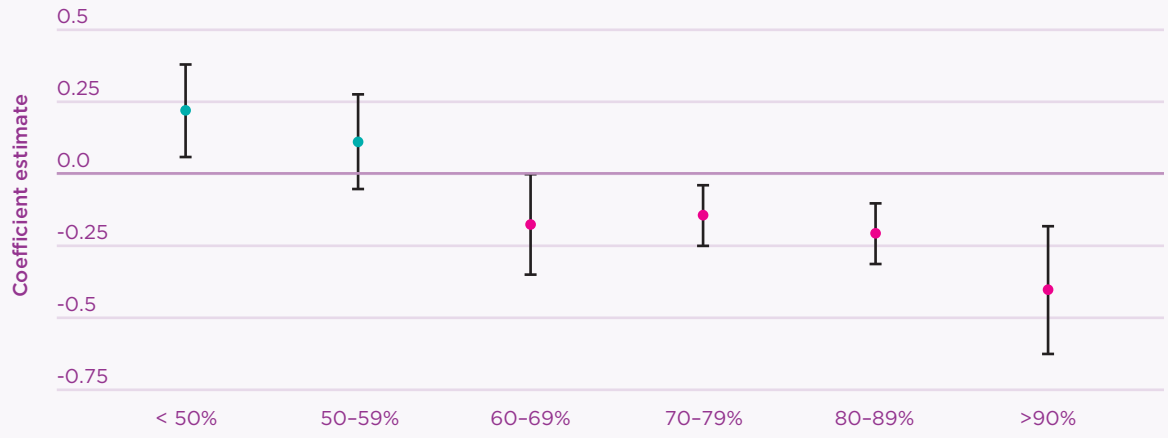
platforms such as Facebook, Instagram, or TikTok. To address this gap, we supplement the ESS with external data from Eurostat, which provides the percentage of individuals using social media in each country, disaggregated by age cohort, gender, and year. These data allow us to construct a measure that approximates not an individual's own social media use, but the digital environment they are embedded in.

To incorporate these data, we construct a 'peer group' for each ESS respondent, consisting of individuals in their country, age cohort, and gender each year. This process, for each interview year (2016–2024), over 30 countries and age-gender cohorts (from ages 16–24 up to 55–64), yields 2,700 unique 'peer groups'. We then merge data from Eurostat on the percentage of individuals in each peer group that use social media. For example, a 20-year-old female in Spain in 2018 is assigned the 89.7% social media usage rate for her demographic group, while a 45-year-old male in Poland in 2023 receives 55.4%. This peer-group construction reflects the fact that online environments are shaped far more by demographic proximity than by geographic proximity. While our instrument for internet use (average download speed) is necessarily constructed at the NUTS2 regional level, social media interactions may not be geographically localised in the same way.[37] Individuals interact disproportionately with people of similar age and gender within their own cultural and national context, not with others who merely live nearby. Thus, the peer-group measure more accurately captures the social media saturation of the environment that individuals experience online.

Figure 8.16 presents Eurostat social media adoption rates for two broad age groups: 16–24

Figure 8.17: The relationship between wellbeing and internet use by social media concentration

European Social Survey (2016–24), Eurostat (2016–24)



Note: Figure shows IV coefficient estimate of internet use in hours on *HapSat* with 95% confidence intervals, run separately for each range of social media use concentration. Each estimation controls for channels of trust, social connections, and emotional attachments, as well as all individual controls and country-level fixed effects.

and a combined average for all individuals 25 and older. Among youth, social media use is near-universal, with rates typically between 90% to 98% across Europe and very little cross-country variation. This implies that, for young people, meaningful differences in exposure do not come from their own adoption (which is almost uniform) but from the broader digital environment surrounding them. Adults aged 25–64, by contrast, display substantial heterogeneity, with usage rates ranging from the low 40s in countries such as France and Italy to the mid-80s in the Nordic countries. Thus, cross-country variation in overall social media exposure is driven largely by differences among older adults, where institutional and cultural differences appear to matter more.

Figure 8.17 shows our instrumental-variable estimates of the effect of internet use (in hours) on wellbeing, *HapSat* (the average of happiness and life satisfaction), stratified by peer-group social media concentration. The pattern that emerges is highly consistent: when an individual's demographic environment has low social media penetration (<50%), the estimated causal effect of additional internet use is positive. However, as exposure increases, the effect becomes progressively more negative. In the highest saturation category (>90%), the IV coefficient is strongly negative and statistically significant. This gradient implies that the wellbeing impact of internet use is conditional on the social media intensity of the surrounding environment.

Although we control for age and gender in these estimations, some of the observed gradient may still be shaped by generational dynamics, since younger cohorts tend to live in more saturated digital environments. Yet the monotonic decline in the IV coefficients, even after conditioning on demographic controls, shows that peer-group social media concentration may exert an independent, meaningful influence. Taken together, these findings suggest that internet use is not uniformly beneficial or harmful. Instead, its effect appears to depend, critically, on what the online world around an individual looks like. In low-exposure settings, internet use may enhance wellbeing through communication, access to information, and support networks. In highly saturated digital environments, where social media dominates online activity, the same additional hour of internet use is more likely to intensify social comparison, displacement of offline interactions, or other mechanisms associated with lower wellbeing.

Conclusions

This chapter has examined how changes in internet use, social media exposure, and key social and emotional factors have shaped the wellbeing landscape in Europe from 2016 to 2024. Using an instrumental-variable strategy based on regional internet speeds to correct for issues of reverse-causality, we established a clear relationship between internet use and subjective wellbeing. The IV estimates reveal that higher daily internet use reduces wellbeing on average, reversing the positive or near-zero correlations found in conventional OLS models. Importantly, the magnitude and even the direction of this effect differs substantially across generations: internet use is most harmful for Gen Z, moderately harmful for Millennials, close to zero for Gen X, and slightly beneficial for Baby Boomers. These findings provide evidence that the role of the internet in daily life is deeply shaped by age-specific social contexts and needs. Not all online engagement is inherently detrimental.

To understand the mechanisms behind these generational patterns, we analysed changes in several foundational social and emotional channels: interpersonal trust, institutional trust, social meeting frequency, perceived social activity relative to peers, attachments to country and Europe, and feelings of safety. Across nearly all indicators, we observe a substantial deterioration among younger Europeans, particularly among

Internet use is most harmful for Gen Z, moderately harmful for Millennials, close to zero for Gen X, and slightly beneficial for Baby Boomers.

Gen Z in Western Europe. Trust in people and in institutions declined sharply, social meeting frequency fell, and perceptions of one's own social activity declined even more dramatically, suggesting heightened pressures of online comparison. At the same time, attachments to country rose mainly among older cohorts, while feelings of safety diverged with improvements in many Central and Eastern European countries and declines in the West. These changes contribute meaningfully to wellbeing trends. When multiplied by generation-specific coefficients, the channel shifts imply large wellbeing losses for younger cohorts and small gains or muted declines for older adults.

Our auxiliary IV regressions, using these channels of trust and social connections as outcomes, reinforce this interpretation by demonstrating that increased internet use lowers interpersonal trust, institutional trust, and social activity comparison, while modestly reducing social interaction. These results are consistent with mechanisms involving social comparison, displacement of offline engagement, and erosion of social capital. Importantly, the largest estimated effects appear on variables tied to relationships and social connections rather than structural or civic indicators; a pattern that aligns closely with the rise of algorithmically curated digital environments.

Finally, our analysis of the peer-group social media environment shows that the wellbeing effect of internet use depends critically on the social media saturation of an individual's

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The digital environment is ecological: individuals are affected not only by their own online habits, but by the online habits of their peers.

demographic context. When individuals belong to age/gender/country groups with low social media adoption, additional internet use has a positive effect on wellbeing. As saturation rises, the effect becomes progressively more negative, reaching its strongest magnitude for peer groups where over 90% of individuals regularly use social media. This gradient reveals that wellbeing is shaped not only by how much time people spend online, but also by what others around them are doing online. The digital environment is ecological: individuals are affected not only by their own online habits, but by the online habits of their peers.

Taken together, the evidence points to a widening generational divergence across Europe in factors affecting wellbeing. Older adults increasingly benefit from stable trust levels, improved feelings of safety, stronger attachments to country, and perhaps more purposeful digital use. Younger adults, by contrast, face eroding social capital, shrinking offline social networks, and intensified comparison pressures within highly saturated digital environments. Internet use interacts with these shifts, amplifying vulnerabilities among younger cohorts while offering modest support to older ones.

Despite the richness of our multi-source dataset, several limitations point to opportunities for future research. The ESS provides detailed measures of trust and social connections, but it does not measure how individuals use their time on different social media platforms, how time online displaces other activities, or the quality and depth of their relationships – factors that may be more consequential for wellbeing than the sheer quantity of online engagement. We measure the frequency of meeting friends, relatives, and colleagues, but we cannot observe the balance between online versus offline ties. Upcoming ESS rounds are expected to include more detailed items on social media behaviour and on social disconnectedness, offering valuable data that can help disentangle these mechanisms more precisely. Future research should examine whether all social connections sustain wellbeing equally, whether those with fewer offline friends or weaker in-person networks are more vulnerable to heavy online engagement, and whether increases in online activity substitute for beneficial offline routines. More broadly, understanding not only how much time people spend online but what they do, who they interact with, and how these interactions shape feelings of belonging, comparison, and support will be essential for mapping the complex relationship between digital life and wellbeing.

From a policy perspective, these findings suggest that interventions aimed at improving wellbeing cannot focus solely on individual screen time. Rather, they must address the broader social ecosystem: the decline in trust, the weakening of community bonds, and the highly comparative nature of online environments, especially for young people. Strengthening civic institutions, fostering offline community engagement, and improving digital literacy may help reverse some of these trends. At the same time, thoughtful regulation of social media environments (particularly those that algorithmically amplify comparison and visibility) could play a role in mitigating harmful effects. As we discussed at the beginning of this chapter, evidence suggests that online interactions do not substitute for in-person social contact, that digital relationships may fail to form strong or durable ties, and that social media encourages a shift from quality to quantity in social connections.

Ultimately, this chapter shows that the digital age is reshaping the social and emotional foundations of wellbeing in Europe. The effects are neither uniform nor inevitable: they depend on who you are, the social world you inhabit, and the digital environment surrounding you. Understanding these interactions is essential for developing policies that support wellbeing in an increasingly online society.

Endnotes

1 For more information please see: Best et al. (2014); Booker et al. (2015; 2018); Braghieri et al. (2022); Burke et al. (2010; 2011); Dhir et al. (2018); Huang (2010); Kross et al. (2013); Marino et al. (2018); Mathers et al. (2009); McCrae et al. (2017); Roberts and David (2023); Twenge (2019); Twenge and Campbell (2018); Verduyn et al. (2017); Vogel et al. (2014); Wang et al. (2019).

2 For more information please see: Avom and Malah (2022); Bessiere et al. (2008); Best et al. (2014); Burke et al. (2010; 2011); Ellison et al. (2007); Hancock et al. (2022); Hatemleh et al. (2023); Manago et al. (2012); Oh et al. (2014); Ostic et al. (2021); Roberts and David (2023); Steinfield et al. (2008); Valkenburg and Peter (2007a; 2007b; 2009); Verduyn et al. (2017).

3 See Blanchflower et al. (2025), and Pugno (2025).

4 See Arampatzi et al. (2018) (longitudinal data from the Netherlands); Bessiere et al. (2008) (US panel of 740 individuals from 2000 to 2002); Cornwell and Lundgren (2001) (data from 36 male and 44 female chat room users); Cummings et al. (2002) (data from a sample of 204 internet listservs); Diener et al. (2018) (a review of studies); Diener and Seligman (2002) (sample of 222 undergraduate students); Helliwell and Huang (2013) (cross-sectional Canadian data and data from the European Social Survey); Helliwell and Putnam (2004) (data from the World Values Survey, European Values Survey, the US Social Capital Benchmark Survey, and a Canadian survey); Holt-Lunstad et al. (2010) (meta-analytic review of 148 studies); Moody (2001) (sample of 166 undergraduate students); Parks and Roberts (1998) (data from 235 users of Multi-User Dimensions, Object Oriented and 155 users completing a survey on offline relationships); Weiser (2001) (2 different study groups); and Wolak et al. (2003) (US sample of internet users aged 10 - 17). Cummings et al. (2002) argue that in understanding social connections and social network and internet use, we have to consider whether weak social relationships formed online complement or substitute connections generated offline and whether online social connections add to one's total stock of social relations. This highlights the importance of examining individuals' complete set of social interactions and the impact of social networks on social connections.

5 See Bruni and Stanca (2008); Castellacci and Tveito (2018); Kraut et al. (1998); Nie (2001); Sabatini and Sarracino (2017); US Department of Health and Human Services (2023a); Valkenburg and Peter (2009).

6 See Helliwell and Aknin (2018); Helliwell et al. (2017); Howick et al. (2019); Pei and Zaki (2025). Using data from the Global Flourishing Study, Pei and Zaki (2025) show that in countries where young adults report higher levels of social connection and social support, they also report higher levels of life satisfaction. The relationship between wellbeing and social connections is observed for both quantity and quality of social connections. The results also hold when data are observed at the individual level. In analysing the possible reverse causality between wellbeing and social connections, the authors refer to longitudinal studies from the literature and argue that the direction goes from social connections to wellbeing, with individuals who are more socially connected being more likely to thrive in the future. In their meta-analysis, Holt-Lunstad et al. (2015) show that individuals who lack social connections are at risk for premature mortality, with the risk associated with social isolation and loneliness being comparable to other factors such as obesity, substance abuse, injury and lack of access to healthcare.

7 For more information on the US Surgeon General's Advisory please see US Department of Health and Human Services (2023a) and (2023b).

8 See Holt-Lunstad et al. (2010).

9 See De Neve et al. (2025); Glanville et al. (2013); Sønderskov and Dinesen (2016).

10 See Helliwell et al. (2017); Helliwell et al. (2020); Helliwell et al. (2021).

11 Sabatini and Sarracino (2017) examine the relationship between social network use, two dimensions of social capital and subjective wellbeing using Italian household data. Their results show that the use of social network sites has a negative correlation with trust, which generates a significantly negative correlation with life satisfaction. Furthermore, the use of social network sites is found to be negatively correlated with individuals' wellbeing both directly and indirectly through its negative effects on social trust. In a later study, Sabatini and Sarracino (2019) find all forms of trust to be negatively associated with participation in social networking sites using cross-sectional data from Italy. Using instrumental variables to control for the endogeneity between trust and social network use, their results show participation in social networking sites to be negatively associated with three types of trust. Additionally, a review of the literature of recent works examining the causal effect of high-speed internet access on mental health outcomes in Germany, Italy, the United States and Spain shows that increased high-speed internet access has worsened mental health outcomes, particularly among young women and adolescents (McClean et al., 2025). In a systematic review of causal and correlational evidence of digital media and democracy, Lorenz-Spreen et al. (2023) argue that numerous studies in the literature depict detrimental associations between digital media and various dimensions of trust, with studies focusing on social trust as a component of social capital finding consistent detrimental effects of social media use, with no effect of broadband internet being found on social trust.

12 See Kiratli (2023); Sabatini and Sarracino (2014); Sabatini and Sarracino (2019).

13 See Antoci et al. (2014); Ellison et al. (2007); Sabatini and Sarracino (2014); and Sabatini and Sarracino (2019). Sabatini and Sarracino (2019) discuss the different ways in which online interactions could bring together individuals. Through online interactions, individuals are more likely to be in contact with others that they may not necessarily share views or opinions with. Social networking sites thereby could allow for exposure to diversity.

14 Most studies rely heavily on cross-sectional or experimental data, with findings coming from within-person designs, and longer-term panel surveys. Longitudinal studies are sparse, making comparisons across countries more difficult to

evaluate. Additionally, due to the differences across studies in choice of metrics for social media use, survey sizes, study settings, mechanisms or channels affecting the relationship between social media use and wellbeing, the predictions of the effects of social media use on wellbeing are not uniform or consistent across studies. See Kross et al. (2021); Orben (2020); Roberts and David (2023); Valkenburg et al. (2022a); and Valkenburg et al. (2022b).

15 In order to increase the number of countries included in this analysis, we use questions from the core module of the ESS. The core module includes questions on a range of topics that are repeated in each round. Our main internet use variable is only available in Rounds 8, 9, 10, and 11. In earlier rounds of the core modules (Rounds 1 to 5), the ESS asks about the frequency of internet use but does not include any questions about the time spent using the internet. This is why our study focuses on Rounds 8 to 11.

16 The internet access speed data from Measurement Lab (M-Lab), which we use as an instrument for internet use, is at the regional level (NUTS2) over time.

17 The empirical strategy includes a two-stage least squares (2SLS) regression framework using regional internet access speed data from M-Lab as an instrument for individual internet use. We are assuming that internet infrastructure development is not a function of the subjective wellbeing of residents in that area.

18 See Lohmann (2015).

19 See Castellacci and Schwabe (2018); Castellacci and Schwabe (2020); Ganju et al. (2016); Graham and Nikolova (2013); Lohmann (2015); and Penard et al. (2013). Using Eurobarometer annual surveys for the years 2010 to 2013, Castellacci and Schwabe (2018) employ a recursive bivariate ordered probit model with lagged fixed broadband take-up as an instrumental variable and find the relationship between internet use and subjective wellbeing to be heterogenous, varying significantly with age. Additionally, the results demonstrate that internet use moderates the U-shaped relationship between age and wellbeing. Penard et al. (2013) show that the positive impact of internet use on life satisfaction is stronger for younger individuals and that this effect decreases with age.

20 For a more detailed description of ESS methodologies and coverage, refer to ESS (2025).

21 Notably, the ESS polls new respondents in each round of the survey, providing cross-sectional data, but does not track the same respondents over time, and therefore it can be viewed as a synthetic panel dataset.

22 We use the interview years as the time variable for this graph as opposed to concentrating on the waves from the ESS which are produced biennially. The figure uses post-stratification weighted means for each of the three indicators across years. All of our wellbeing measures are on a 0–10 scale.

23 The ESS core modules do not survey respondents specifically on social media use. We take the information provided from daily internet use of respondents in minutes and convert this to hours of internet use.

24 We take the five-year average values over each five-year span to account for omissions in annual reporting at the NUTS2-level in the Eurostat database.

25 The ESS question does not distinguish between personal use of the internet and use for work purposes.

26 It is important to note that age groups above 80 have notably fewer observations than those below. This figure omits age groups with fewer than 100 respondents, for ease of exposition.

27 With longitudinal data, some studies in the literature use linear regression models, while others use ordinal regressions given the nature of survey data. Ferrer-i-Carbonell and Frijters (2004) argue that a fixed effect ordered logit model provides findings surprisingly similar to those from a simple OLS model which examines changes in general life satisfaction. Their results using a conditional estimator for the fixed effect ordered logit model show that assuming ordinality or cardinality of happiness scores with the use of ordered latent response models makes little difference, while accounting for fixed effects in happiness regressions changes results substantially.

28 Ferrer-i-Carbonell and Frijters (2004) show that it is important to account for fixed and time-invariant individual traits in happiness estimations.

29 Given the similarities in the results, we use the composite measure of happiness and life satisfaction, *HapSat*, in reporting our remaining results.

30 See Allen and Vella (2015); McDool et al. (2016); Schmiedeberg and Schroder (2017); and Shakya and Christakis (2017). McDool et al. (2016) examine the relationship between social media and children's wellbeing using a representative sample of 10–15-year-olds over the period 2010 to 2014 from the UK Household Longitudinal Study. To deal with the potential reverse causality and the endogeneity between social media use and wellbeing, the authors take an instrumental variable approach using information on broadband speeds and mobile phone signal strengths as factors influencing teenagers' social media use. Their results demonstrate that more time spent on social networks reduces life satisfaction. The effects are found to be more negatively pronounced for girls. Spending one hour a day chatting on social networks is shown to reduce the probability of being completely satisfied with life by 14 percentage points. In a later paper, the authors find internet use to be negatively associated with wellbeing for a large sample of over 6,300 children in England over the 2012–2017 period. Similarly, examining the impact of high-speed internet access on adolescent mental health in Spain, Arenas-Arroyo et al. (2025) show that access to higher-speed internet through fiber optic deployment has increased mental health diagnoses in hospitals and has contributed to increases in adolescent suicide rates, mainly among girls. Donati et al. (2025) find adverse effects of broadband internet access on mental disorders among younger cohorts in Italy between 2001 and 2013.

31 See Pugno (2025) for a full review of the economic research examining the link between social media use and wellbeing.

32 When controlling for reverse causality with the use of our instrumental variable, we find that the coefficient on the education variable (university) is now significantly positive, while the coefficient on 'born in country' is negative but not statistically significant. The coefficient for the urban variable is still significantly positive although the coefficient itself is much smaller.

33 The alternative approach would be to consider that each individual has trust, social connections, and attachment levels that equal the average values from our pooled sample. We choose the option where we reconstruct categorical variables from our trust variables which are on a 0–10 scale for trust in system and trust in people, a 0–3 scale for safety after dark, a 1–5 scale for social activity comparison, a 1–7 scale for social meeting frequency, and a 0–10 scale for both emotional attachment variables. The newly created categorical variables for each of these trust, social connections, and emotional attachment variables are on a 0–2 scale, allowing us to have a "high" vs. "low" dummy version (with the medium level dropped as the base category). This further helps us explain the difference in individuals' trust, social connections, and emotional bonds and their increased internet use on their overall wellbeing, above and beyond the direct effects from all of these variables. The online appendix includes further details on the construction of these categorical variables.

34 Safety after dark is the only dummy variable that we use. The original variable is on a 0–3 scale with results ranging from very unsafe, unsafe, safe and very safe. This variable therefore has a "low" version that is used as the base category which is dropped in our regressions.

35 All interaction terms are also instrumented using the median quarterly download speed.

36 These regressions include all our control variables and country fixed effects. The online appendix includes the results from these regressions.

37 The literature examining online social networks evidence homophilic behaviour – the tendency of individuals to bond or connect more with individuals similar to themselves (Pignolet et al. 2024). Across studies, individuals' personal networks exhibit homogeneity in socio-demographic, behavioural and interpersonal characteristics (McPherson et al., 2001). Findings have shown that age and gender strongly structure the relations individuals have, with the results suggesting that online communication is more likely to result in socio-demographic homophily, as opposed to physical or geographic proximity (Kang & Chung, 2017; Mazur & Richards, 2011; McPherson et al., 2001).

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Chapter 9

Social media use and wellbeing in the Middle East and North Africa

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Most studies on the relationship between social media use and wellbeing have been carried out in Western, high-income settings, including the United States, Canada, the United Kingdom, and Western Europe. Although valuable, these insights cannot be generalised.

Key Insights

Social media use in the Middle East and North Africa is among the highest in the world, although considerable differences appear among countries. Heavy use is more common than in other regions: between 20% and 40% of users reported more than five hours of use in 2023–2024.

Social media use is heavier among certain social groups. Gen Z, men, single individuals, less religious and more affluent respondents, as well as those with higher education, are much more likely to be heavy users.

On average, heavy social media use (more than five hours per day) is associated with lower wellbeing. Heavy users are significantly more likely to report higher stress and depressive symptoms, and believe they are worse off than their parents, compared with non- or moderate users.

The impact of heavy social media use on wellbeing depends on how it is used. Engaging with multiple platforms, relying on social media as a primary news source, and following influencers are associated with higher stress, increased depressive symptoms, and more negative comparisons with parents' quality of life.

Introduction

Although social media use in the Middle East and North Africa (MENA) is among the highest globally, especially among young people, research on the relationship between social media use and wellbeing in the region has received comparatively less attention.[1] As in other world regions, social media plays multiple roles in MENA, where it serves as a platform for entertainment, commerce, personal expression, facilitating social connections and identity formation, and providing access to information beyond traditional media channels. What distinguishes the MENA region from Western countries is not so much the platforms themselves as the cultural and political landscapes in which they operate. Here, social media use unfolds within societies that place strong emphasis on family ties, community norms, and collective identity, and within political environments that may involve varying degrees of surveillance, regulation, and restrictions on digital visibility. These features can influence why and how people engage with social media, as well as the psychological and social consequences that follow.

This underexplored context stands in contrast to the broader research landscape, where most studies on the relationship between social media use and wellbeing have been carried out in Western, high-income settings, including the United States, Canada, the United Kingdom, and Western Europe. Although valuable, these insights cannot be generalised. Cultural values, social norms, and patterns of technology adoption vary across societies, influencing both the use of social media and its consequences for wellbeing. In recent years, studies on East Asia have begun to broaden the evidence base, but other world regions have received comparatively less attention. In this chapter, we focus on social media use in the MENA region and examine its relationship with wellbeing in this part of the world.

We document that the relationship between social media use and wellbeing in the MENA region is not uniformly positive or negative, but rather depends on how platforms are used and the context in which digital life unfolds. The interplay between opportunities for connection and expression on the one hand, and risks associated with social pressures and exposure to harmful or restrictive content on the other, shapes the relationship between social media use and wellbeing in the region. The results suggest substantial similarities between the MENA region and Western societies.

We begin by examining how people in the MENA region utilise social media, the amount of time they spend online, and which platforms they prefer. We then turn to what this means for their wellbeing. We focus on three measures of wellbeing: stress, depressive symptoms, and perceived life quality compared to parents. Thereafter, we consider whether these associations vary by platform, distinguishing between social networking sites, media-sharing apps such as Instagram and TikTok, and messaging services. Lastly, we examine the role of influencers and how this element moderates the relationship between social media use and wellbeing.

Social media use in the MENA region

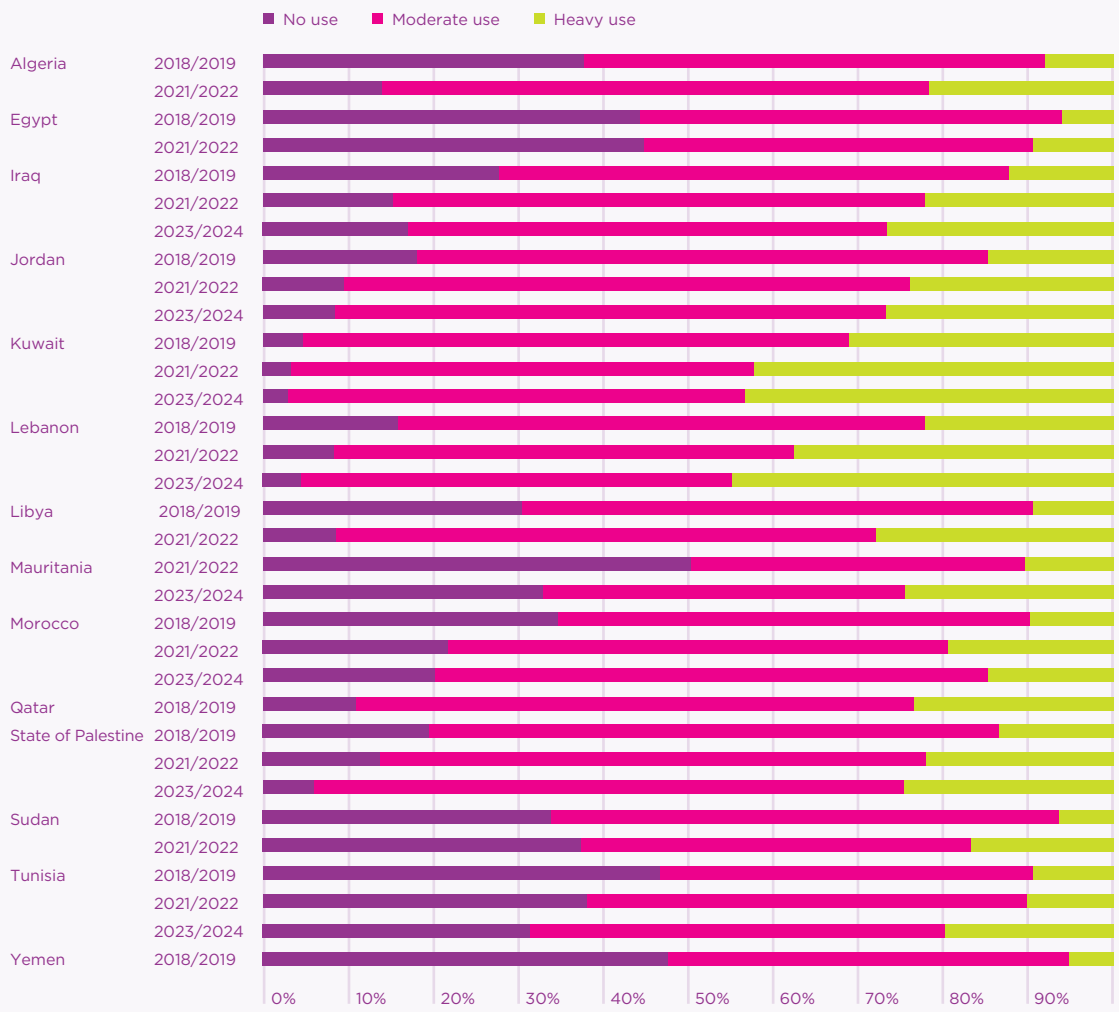
Social media use in MENA is among the highest in the world. GWI's 2024 report on global social media trends indicates that, on average, social media users in the MENA region spend approximately three hours per day on social media, which is above the global average.[2] Gallup World Poll data from 2022 show that social media use over the past three months averages 74% in MENA countries,[3] compared to 76% in Europe and North America, Australia, and New Zealand (NANZ), and 57% in the rest of the world.[4] At the same time, there are considerable differences between countries within the MENA region. In all surveyed Gulf Cooperation Council (GCC) countries, social media use exceeds 80%, whereas in several countries in North Africa (Egypt, Mauritania, and Yemen), it is well below 60%.

Social media use in MENA is among the highest in the world.

Photo Eduardo Barrios on Unsplash

In the remainder of this chapter, we primarily draw on data from the Arab Barometer, which includes the following question on self-reported social media use: "How many hours on a typical day do you spend on social media platforms?" Response categories were: (1) not at all, (2) up to 2 hours, (3) up to 5 hours, (4) up to 10 hours, and (5) 10 hours or more. Throughout the chapter, we distinguish between non-users, moderate users (those reporting up to 2 or up to 5 hours per day), and heavy users (those reporting up to 10 hours or 10 hours or more per day).[5] Consistent with evidence from the Gallup World Poll, the Arab Barometer data shown in Figure 9.1 indicate that social media use is widespread across MENA. In most countries, more than 80% of respondents reported using social media in 2023–2024, a share that has increased over recent years. Heavy use, defined as more than five hours per day, now typically ranges between 20% and 40% of the adult population, varying from around 15% in Morocco to approximately 45% in Lebanon. Overall, the proportion of individuals spending more than five hours per day on social media has risen over time. In countries for which three survey waves are available, we observe a gradual increase in the share of heavy users, with the notable exception of Morocco. Most notably, in Lebanon, the percentage of heavy users went from 22% in 2018–2019 to 45% in 2023–2024, while in Iraq, this figure increased from 12% in 2018–2019 to 27% in 2023–2024.

Figure 9.1: Social media use in a selection of MENA countries
Arab Barometer (2018–2024)



Patterns of social media use vary substantially across social groups within countries (see Figure 9.2). Non-use is particularly common among older generations, with nearly 60% reporting no social media use. Overall, social media use is more prevalent among men (80%) than women (73%), and less common among married individuals (73%) than among those who are single or have never been married (92%). Usage rates are also relatively low among more religious individuals, those with only an elementary education (40%), and people experiencing significant financial difficulties (66%). Heavy social media use (defined as more than five hours per day) is concentrated among younger cohorts. Most notably, 38% of Generation Z (born 1997–2012) report spending more than five hours per day on social media. Heavy use is also more common among non-Muslims (33%) and among individuals who are single or have never been married (34%).

These findings echo the results from the survey on social media use by Borges-Rey and colleagues,[6] based on over 7,300 telephone interviews in seven Arab nations (Egypt, Jordan, Lebanon, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates), as well as a recent survey of the literature on the MENA region by Abbouyi and colleagues.[7] At the same time, these scholars caution that the literature on heavy or problematic social media use in the MENA region is scarce, emphasising the need for more research in the region.

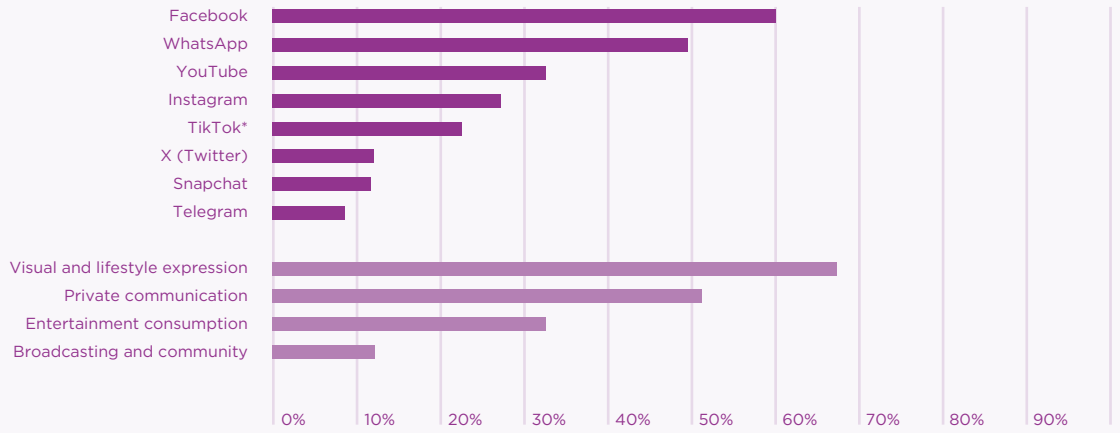
Figure 9.2: Social media use in MENA countries for different socio-demographic groups
Arab Barometer (2018–2024)

In the MENA context in particular, gendered norms surrounding online visibility, heightened fear of social disapproval, and lower perceived usefulness of social media may discourage women's participation.

The lower adoption of social media by women in the MENA region can be partly attributed to region-specific social constraints, alongside mechanisms that operate more broadly across countries.[8] In the MENA context in particular, gendered norms surrounding online visibility, heightened fear of social disapproval, and lower perceived usefulness of social media may discourage women's participation. Prior research shows that women in several MENA countries face disproportionate risks of online harassment and family surveillance, often embedded in wider systems of social control and reputational concerns.[9] These context-specific risks increase the perceived social costs of social media use and can therefore reduce adoption.

By contrast, the association between marital status and social media use reflects more general mechanisms observed across countries, such as differences in available free time, social networking motivations, and family obligations,[10] even though their relative importance may vary across cultural contexts. Although respondents who consider themselves religious are less likely to use social media, it is worth noting that social media is increasingly being used as a space for religious engagement through influencers.[11] Affluence and education are commonly associated with social media use, reflecting greater access to digital technologies, greater perceived usefulness of social media,[12] and systematic differences in usage patterns (e.g., greater emphasis on informational and educational uses).[13]

Figure 9.3: Social media use in MENA countries by platform and prevalent aim
Arab Barometer (2018–2024)



Note: Data on TikTok are only available for the 2021–2022 and 2023–2024 waves.

Individuals in MENA countries use a variety of social media platforms. Compared to Western nations, older networks remain relevant in a large part of the MENA region, although the use of Facebook has been declining recently.[14] The most widely used platforms in the period 2018–2024 are Facebook (60%) and WhatsApp (51%), followed by YouTube, Instagram, and TikTok (see Figure 9.3). However, there are some regional differences, with X (Twitter) and Snapchat being more widely used in the GCC countries.

Moreover, different platforms are used for different purposes. As shown in the 2021–2022 survey by Borges-Rey and colleagues, accessing photos and videos is the top activity on Instagram, Facebook, and Snapchat in the MENA region, while WhatsApp is predominantly used for one-to-one and group messaging.[15] X (Twitter) is particularly used for news consumption and sharing, while YouTube primarily serves as a hub for entertainment videos. Figures also show that most platforms are used for a variety of purposes, although one activity often dominates on a given platform. In the remainder of this chapter, we group platforms into the following four categories: (1) visual and lifestyle expression, (2) private communication, (3) public broadcasting and community participation, and (4) entertainment consumption (see Box 9.1). Generally, the use of platforms for visual and lifestyle expression (67%) and private communication (51%) is more widespread in the MENA region than the use of platforms for entertainment consumption (33%) and public broadcasting and community engagement (12%). Direct comparisons with other regions are difficult to make, but worldwide statistics show that Facebook, WhatsApp and Instagram are the most used platforms with around 3 billion users, followed by YouTube (2.5 billion), TikTok (2 billion), Telegram (1 billion), and X (Twitter) (0.6 billion).[16] In this regard, Instagram, TikTok, and YouTube seem relatively less used in the MENA region.

Box 9.1: Data and main variables in the Arab Barometer

Our analysis predominantly draws on survey data from the Arab Barometer. We use three waves: wave 5 (2018–2019), wave 7 (2021–2022), and wave 8 (2023–2024). Unfortunately, not all MENA countries and not all variables are consistently included in the three waves. Below, we discuss the main variables used in the analyses. An overview of the countries included in the analysis is provided in the online appendix.

Social media use: We distinguish three groups of social media users based on their daily usage time: (1) non-users, (2) moderate users, and (3) heavy users. Non-users either do not use the internet at all or report that they do not engage with social media platforms. Moderate users report spending up to five hours per day on social media. Heavy users report spending more than five hours per day on social media platforms. We provide empirical support for this taxonomy in endnote 3 and the analysis below.

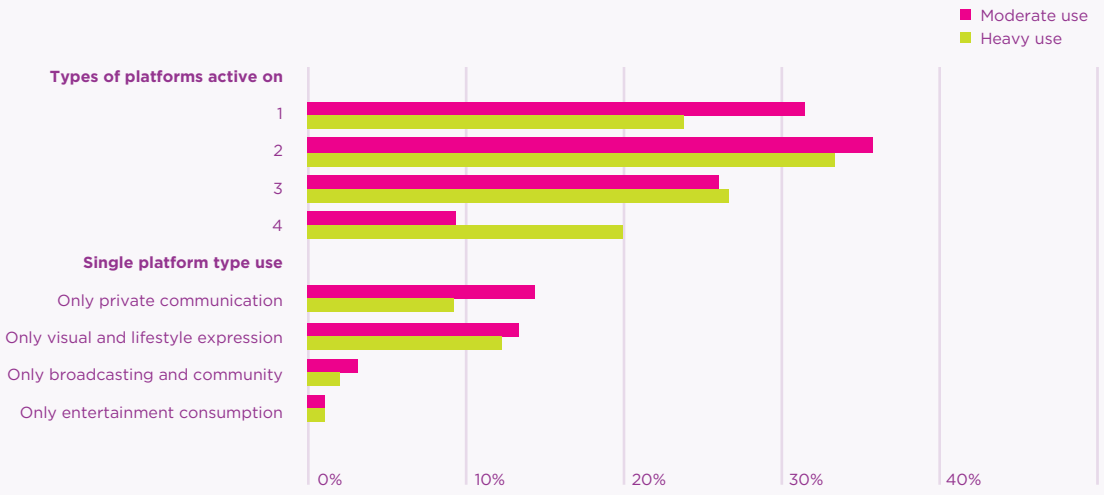
Type of social media platforms: We distinguish between various types of social media platforms based on their prevalent use in the MENA region. The classification is based on the survey run by Northwestern University in Qatar in 2021–2022, and distinguishes the following uses: (1) visual and lifestyle expression: Facebook, Instagram, BeReal, TikTok, Snapchat, (2) private communication platforms: WhatsApp, Telegram, Viber, and Signal, (3) public broadcasting and community participation: X (Twitter), Mastodon, Reddit, and Clubhouse, and (4) entertainment consumption: YouTube.

Depressive symptoms are measured based on the question: "Life is overwhelming at times. In the past six months, how often did you feel so depressed that nothing could cheer you up?" Answer categories were (1) never, (2) sometimes, (3) often, and (4) most of the time. This question is only available in the 2018–2019 wave of the Arab Barometer.

Stress is based on the question: "In the past six months, how often did you feel so stressed that everything seemed to be a hassle?" Answer categories were (1) never, (2) sometimes, (3) often, and (4) most of the time. The answers to this question are only available in the 2018–2019 wave of the Arab Barometer.

Life quality compared to one's own parents is measured by the question: "Do you believe that the quality of your life is better, the same as, or worse than the quality of your parents' lives?" Answer categories were (1) better, (2) the same, and (3) worse. This question was asked in the 2021–2022 and 2023–2024 waves of the Arab Barometer.

Figure 9.4: Social media use in MENA by platform type
Arab Barometer (2018–2024)

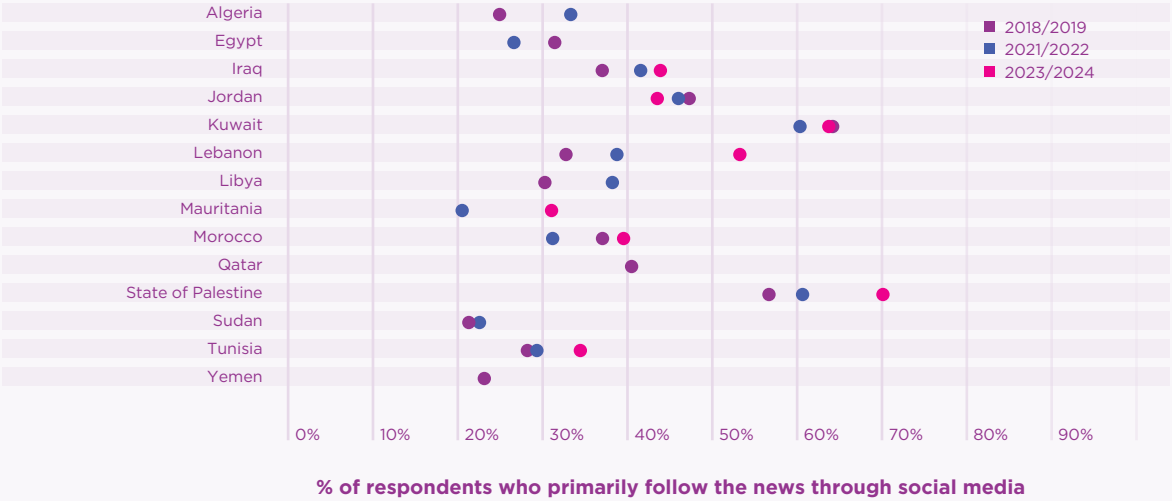


Overall, heavy social media users adopt all types of platforms to a great extent. Compared to moderate users, heavy users are 1.4 times more likely to use social media for private communication, 2.3 times more likely to use social media for visual and lifestyle expression, 1.9 times more likely to use social media for public broadcasting and community engagement, and 1.7 times more likely to use social media for entertainment consumption. Most social media users use multiple types of platforms (see Figure 9.4), but heavy users stand out. Among those who use only one platform, the prevalent aim is either private communication or visual and lifestyle expression.

The various uses of social media, combined with their heavy use, can shape how time spent on social media affects wellbeing in the region. Studies conducted in other world regions have shown that passive use of social media (particularly on visual and lifestyle expression apps) is negatively associated with wellbeing, while active participation benefits wellbeing.[17] Several studies have highlighted that social media can amplify the visibility of alternative lifestyles, giving the impression that others have more enjoyable lives.[18] These social comparisons can, in turn, reduce wellbeing. Online social media use may also enhance wellbeing by increasing access to information and strengthening perceived agency. For instance, by exposing individuals to practical knowledge, opportunities, and coping strategies, social media can reduce uncertainty and increase feelings of control over life circumstances, which are positively associated with wellbeing.

The data also indicate interesting differences between social groups. Most notably, women are 10% more likely to use social media apps for private communication compared to men, despite being less likely to use social media in general. Being religious (versus not or somewhat religious) is associated with the likelihood of using social media in general, except for public broadcasting or community engagement. Although we lack direct evidence, these findings suggest that different groups in MENA countries use social media for distinct purposes.

Figure 9.5: News consumption through social media in a selection of MENA countries
Arab Barometer (2018–2024)

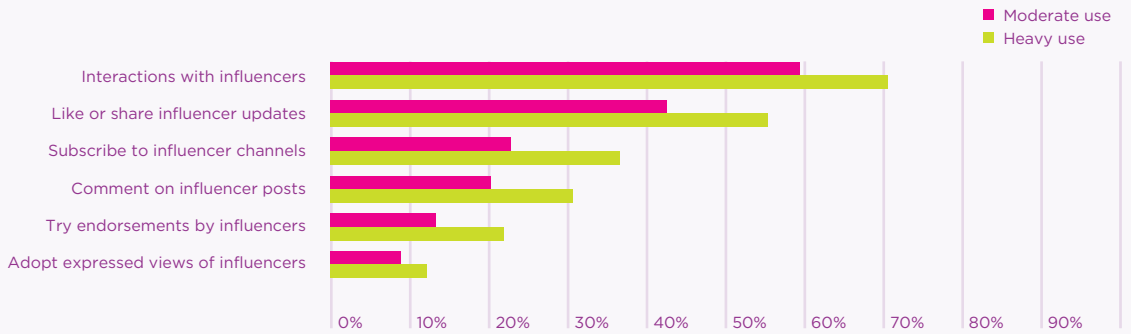


Finally, the Arab Barometer also sheds light on how social media is used and experienced in the MENA region. A large proportion of respondents follow the news through social media, ranging from 35% in Tunisia to 70% in the State of Palestine in the most recent wave (see Figure 9.5). In the region, social media is gradually overtaking TV as the primary news source, or has already done so.[19] In countries like Egypt and Jordan, the share of respondents who use social media as their primary news source is lower than the rest of the MENA region and is stagnating. In contrast, in Lebanon and the State of Palestine, its share is considerably higher and increasing. Perceived trustworthiness of news broadcasting on TV versus news on social media seems to be an important explanatory factor for differences in news consumption; we find that 62% of those who trust social media more than traditional media use it as their primary news source, compared with only 29% of those who do not share this view.

Social media influencers are highly popular in the MENA region. According to the 2023–2024 Arab Barometer, 63% of social media users report having interactions with influencers (see Figure 9.6),[20] where heavy users are more likely to follow influencers than moderate users. The most common topics include sports and recreation (17%), beauty and fashion (16%), arts and culture (14%), food and cooking (12%), and politics and reform (10%). While most users primarily watch or like influencer content, a substantial share engages more actively: of the heavy users, 31% comment or ask questions and 22% report trying products or services recommended by influencers.

In the region, social media is gradually overtaking TV as the primary news source, or has already done so.

Figure 9.6: Influencer following through social media in a selection of MENA countries
Arab Barometer (2023–2024)



Note: Included countries: Iraq, Jordan, Kuwait, Lebanon, Mauritania, Morocco, State of Palestine, and Tunisia.

Social media use and wellbeing in MENA

Previous studies on the relationship between social media use and wellbeing in the MENA region reached mixed conclusions.[21] Several studies documented a positive relationship between wellbeing and active, relational, and meaningful social media engagement.[22] Other findings from Saudi Arabia,[23] Lebanon,[24] Iran,[25] and Algeria[26] indicate, however, that intense use of platforms such as Instagram, Snapchat, TikTok, and YouTube is associated with lower wellbeing.

In Saudi Arabia, Alwuqaysi and colleagues surveyed 314 adult users (2021–2023), a sample composed predominantly of Saudi (93%), women (75%), and highly educated individuals.[27] They found that social media use is extremely frequent, with 36.6% using social media every couple of hours, 17.5% checking it every hour, and 15% checking it every couple of minutes. Nearly 26% of respondents spend five or more hours a day on social media. However, although the total time is high, sessions are short, with approximately 41.1% spending 15 minutes or less per login. The vast majority perceive their usage as unhealthy, although it is largely driven by the desire to maintain family and social connections. Communication platforms (e.g., WhatsApp, Telegram) are seen positively, while TikTok is viewed as the most harmful. A large share of users report anxiety (69%), addiction (65%), and depressive symptoms (35%) linked to social media use. Additionally, heavy use is consistently associated with poor family functioning in Saudi Arabia.

In Lebanon, Malaeb and colleagues[28] conducted a proportionate, nationally-distributed household survey (n = 466, mean age ≈ 27, 62% female), finding that adults reported an average of 6.2 hours per day on social media. Nearly a quarter (23.7%) met criteria for problematic social media use, defined as an addiction-like pattern of social media engagement characterised by loss of control and continued use despite negative consequences. Problematic use was significantly associated with higher depression, anxiety, and insomnia, while stress did not show a direct association with problematic use.

Moreover, Zeeni and colleagues investigated the relationship between body-image dissatisfaction and eating-disorder risk with social media use in a sample of Lebanese university students (n = 244, 16–21 years, 64% female).[29] Results indicate that

higher body image dissatisfaction, greater eating-disorder risk, and lower self-control are associated with greater social media use, pointing to reduced self-regulatory capacity as a potential vulnerability channel. In a parallel sample of Lebanese adults (*n* = 466), Barbar et al. found that anxiety and social phobia correlate with higher problematic social media use, while emotional intelligence partially mediates the association between alexithymia – a personality trait characterised by difficulty in identifying, describing, and distinguishing one's own emotions that leads individuals to focus on external events rather than internal feelings – and problematic use, again highlighting emotion-regulation as a protective/risk factor.[30]

Finally, in Iran, Akbari and colleagues showed across two large online cohorts (adolescents *n* = 562, adults *n* = 745) that exercise addiction, prevalent in a minority (2.7–4.4%), mediates the links between problematic social media use and psychological distress, insomnia, body-image concern, and compulsive eating.[31] This research suggests that visual comparison cultures (e.g., 'fitspiration') can channel digital pressures into compulsive offline behaviours.

These studies converge on two aspects. First, heavy and/or problematic social media use is consistently related to poor wellbeing and mental health (including depression, anxiety, and sleep disturbance) in both Gulf and Levant (Eastern Mediterranean) contexts. Second, the degree of harm depends on who is using social media and how they are using it. Demographic gradients (such as women and younger adults) and psycho-social capacities (including self-control and emotional intelligence) shape outcomes, while behavioural conduits like exercise addiction can translate online comparison into offline strain. This pattern helps reconcile the mixed findings of previous studies. When self-regulation is stronger and engagement is more relational (e.g., messaging that supports family cohesion), risks appear more muted. Where visual comparison and dysregulation dominate, harms are larger, particularly for young women in settings with strong body-norm pressures.

Heavy and/or problematic social media use is consistently related to poor wellbeing and mental health.

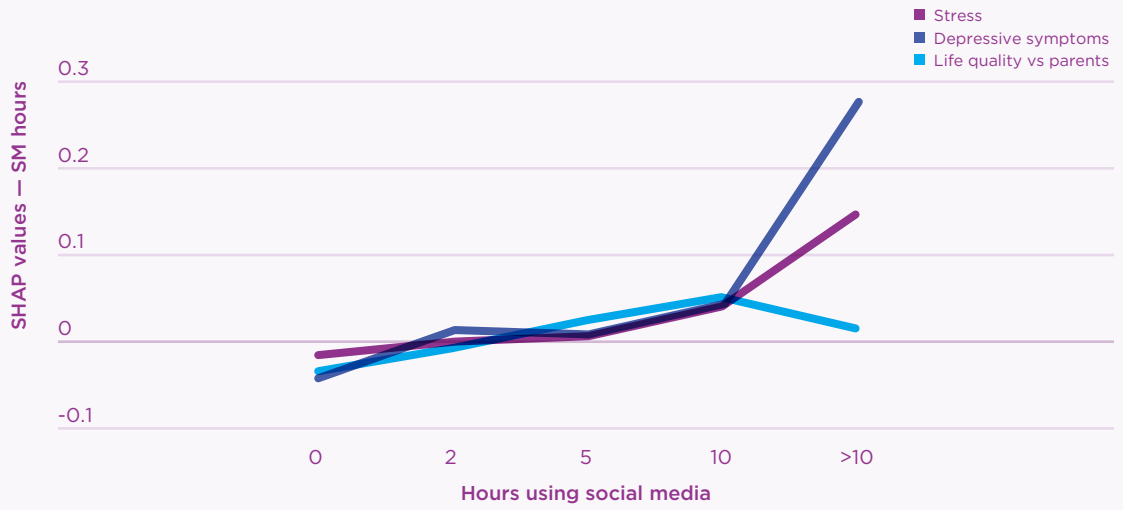
The evidence also reveals differences between platforms. WhatsApp is generally viewed positively and associated with maintaining family connections and intellectual engagement.[32] In contrast, visual and short-form platforms, such as TikTok, Instagram, Snapchat, and YouTube, are linked to negative outcomes, including body dissatisfaction, lower self-esteem, and family conflict.[33] Facebook showed mixed results: studies reported benefits for social capital and happiness in the case of active use[34] and increased depression, anxiety, and academic distraction in the case of passive or excessive use.[35] X (Twitter), while widely used among Saudi youth,[36] has less clear evidence of platform-specific outcomes, although some associations with increased depressive symptoms have been reported. This suggests that while the weight of evidence points to harms, the impacts are neither universal nor inevitable, depending on patterns of platform use and contextual factors.

However, it is worth cautioning that most studies on the MENA region use convenience samples, which are not necessarily representative of the overall population. In the following sections, we will examine the relationship between social media use and wellbeing in the MENA region, utilising representative data from the Arab Barometer.

Hours of social media use and wellbeing

We start by exploring how hours of social media use is related to wellbeing, where we distinguish between no use, moderate use, and heavy use (see Box 9.1). Figure 9.7 uses SHAP (SHapley Additive exPlanations) dependence plots to illustrate the relationship between the time spent using social media and the three measures of wellbeing.[37] SHAP values represent the marginal

Figure 9.7: Association between social media use and wellbeing
Arab Barometer (2018–2024)



Note: The plotted lines represent the mean SHAP contribution of social media across its values, indicating how it drives the model's prediction.

contribution of the hours spent using social media to predict each outcome. Positive SHAP values indicate that more time spent on social media correlates with higher predicted stress, more depressive symptoms, and lower life quality compared to parents.[38]

The plots indicate that the association varies across different levels of use. Across all three outcomes (stress, depressive symptoms, and relative life quality), the SHAP curves remain close to zero at lower use levels, indicating a negligible difference between non-users and moderate users. For life quality in particular, the curve already begins to trend upwards (thus lower quality of life compared to parents) after approximately three hours of daily use, while noticeable increases in predicted stress and depressive symptoms emerge among users who spend more than five hours on social media per day. In other words, wellbeing differences are modest at low and moderate exposure, but substantial declines in wellbeing emerge among heavy users. These results support our distinction between moderate and heavy users in the Arab Barometer data and align with the wider empirical literature.[39]

Social media use, stress, and depressive symptoms

In Table 9.1, Panel A shows that 28.1% of non- and moderate users report feeling depressed often or most of the time. However, this share is 34.5% (+6.4 percentage points) among heavy users who use social media for five or more hours daily. Once we account for the potential role of socio-demographic and economic variables, the estimated difference in probable depression is, on

average, 7.5 percentage points higher among heavy users compared to others. Although modest, this coefficient indicates a meaningful gap; it is more than twice the difference in depressive symptoms between employed and unemployed individuals. Results also indicate that women tend to report higher levels of depressive symptoms than men, whereas people outside the labour force (such as students, homemakers, or retirees) show slightly lower, but not statistically significant, levels of depressive symptoms compared to employed people. Richer, higher-educated, and religious individuals have a lower propensity to report depressive symptoms.

Panel B provides similar information for stress. The unconditional prevalence of stress among

Table 9.1: Social media use, stress, and depressive symptoms in a selection of MENA countries

Arab Barometer (2018–2024)

Panel A: Depressive symptoms		
Social media use	% of group reporting feelings of depression often or most of the time	Linear probability model
No/moderate	28.1%	Reference
Heavy	34.5%	0.075***
R-squared		0.066
Observations	11,776	11,776
Panel B: Stress		
Social media use	% of group reporting feelings of stress often or most of the time	Linear probability model
No/moderate	33.8%	Reference
Heavy	39.1%	0.066***
R-squared		0.072
Observations	11,799	11,799

Note: The second column reports unconditional descriptive statistics. The third column presents results from linear probability models on the association between heavy social media use and our two variables of interest. *Depressive symptoms* (2018–2019) is a binary indicator equal to 1 if the respondent felt depressed often or most of the time during the past six months, and 0 otherwise. Stress (2018–2019) is a binary indicator equal to 1 if the respondent felt stressed often or most of the time during the past six months, and 0 otherwise. All regressions control for generation, gender, education, marital status, employment status, income, religiosity, religious denomination (Muslim) and country fixed effects. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

non- and moderate users is 33.8%, increasing to 39.0% among heavy users. This difference increases by 6.6 percentage points once we account for the potential role of socio-demographic and economic variables. This coefficient is comparable in magnitude to that of unemployed respondents compared to employed respondents (+7.3 percentage points). Examining the other control variables, we find that stress is higher among Millennials and unemployed individuals compared to those who are employed. As with depressive symptoms, stress is negatively correlated with education, income, and religiosity. Women report higher stress than men, even after accounting for income, education and other characteristics. Hence, while heavy social media use is associated with high stress, other socio-economic factors, particularly income and employment status, remain strong correlates of stress in the MENA region.

Interestingly, we do not find any evidence indicating that the effects of social media use are systematically stronger (or weaker) for particular socio-demographic groups, both in the case of depressive symptoms and stress. The difference in stress and depressive symptoms between heavy and moderate social media users is roughly the same for men and women, for people with higher and lower education, across income groups, and members of various generations. Instead, we find sizable differences across countries, which are captured by country-specific effects. These effects absorb broad contextual factors (institutional, cultural, and economic) that may affect mental health in ways not fully captured by our list of control variables.

Social media use and life quality compared to parents

Do people believe that the quality of their life is better or worse than the quality of their parents' lives? Table 9.2 shows that heavy social media users have a higher probability (36.1%) of reporting they are worse off compared to their parents than non- and moderate users (31.6%). However, this difference becomes smaller when controlling for socio-demographic and economic factors in the linear probability model. Holding other variables constant, heavy users have a 2.2 percentage point higher probability of feeling worse off compared to their parents than non- and moderate users. The effect size is not particularly large in this case. In fact, it corresponds to nearly half the effect of being unemployed and about one-fifth of the effect of belonging to the second-poorest income group. The other variables attract coefficients that are consistent with the findings for stress and depressive symptoms. The probability of reporting being worse off decreases with higher levels of education and income; it is higher among the unemployed (+4 percentage points compared to the employed) and lower among respondents not in the labour force (-4.2 percentage points compared to the employed). Higher levels of religiosity also predict a lower probability of feeling worse off. Similar to our findings for stress and depressive symptoms, the effect of heavy social media use appears to remain relatively unchanged for individuals across different socio-demographic and economic conditions.

Overall, the findings suggest that intense engagement with social media is moderately associated with how individuals evaluate their own lives relative to those of their parents, in addition to its association with stress and depressive symptoms. One way to explain this pattern is that heavy social media use reshapes the benchmarks used for intergenerational comparison. Progress was traditionally assessed using age-related milestones such as marriage, stable employment, or home ownership,[40] but social media use directs attention toward more immediate and symbolic indicators of success, including luxury consumption, career mobility, and online visibility.[41] Social media content is selectively positive and highly visible, so it raises comparison standards and encourages upward comparisons that are weakly connected to long-term security or life-course progression.[42] As a result, heavy users may be more likely to perceive themselves as worse off than their parents in terms of stability and material security, while simultaneously feeling pressure to outperform them in lifestyle or social recognition. This dynamic can produce ambivalence in

Table 9.2: Social media use and life quality compared to one's parents in a selection of MENA countries
Arab Barometer (2018–2024)

Social media use	% of group reporting they are worse off than their parents	Linear probability model
No/moderate	31.6%	Reference
Heavy	36.1%	0.022**
R-squared		0.097
Observations	23,132	23,132

Note: The second column reports unconditional descriptive statistics. The third column presents results from linear probability models on the association between heavy social media use and our variable of interest. Life quality vs. parents (2021–2022 and 2023–2024) is a binary indicator equal to 1 if the respondent reports having a worse quality of life than their parents. All regressions control for generation, gender, education, marital status, employment status, income, religiosity, religious denomination (Muslim), country fixed effects, and wave fixed effects. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

intergenerational self-evaluations, whereby subjective assessments of one's quality of life fall below those of the parental generation.

This dynamic is likely to be particularly pronounced in contexts characterised by rapid social change and constrained mobility. In the Arab context, research on youth mobility shows that younger generations are much better educated and more digitally connected than their parents, but face limited job opportunities and weaker prospects for upward mobility in several MENA countries.[43] This pattern resonates with the 'tunnel effect' described by Hirschman and Rothschild,[44] which suggests that, in rapidly changing societies, early signs of progress among some groups can generate widespread optimism. However, when expectations of shared advancement remain unfulfilled, this optimism may give way to frustration or protest.[45] The digital sphere reproduces this dynamic at scale by exposing young people in the MENA region to selective success stories across the globe that raise hope and aspirations, but often result in disappointment when comparable progress proves out of reach. In this regard, feeling worse off than one's parents may reflect not only economic realities but also repeated exposure to idealised and often unreachable lifestyles.

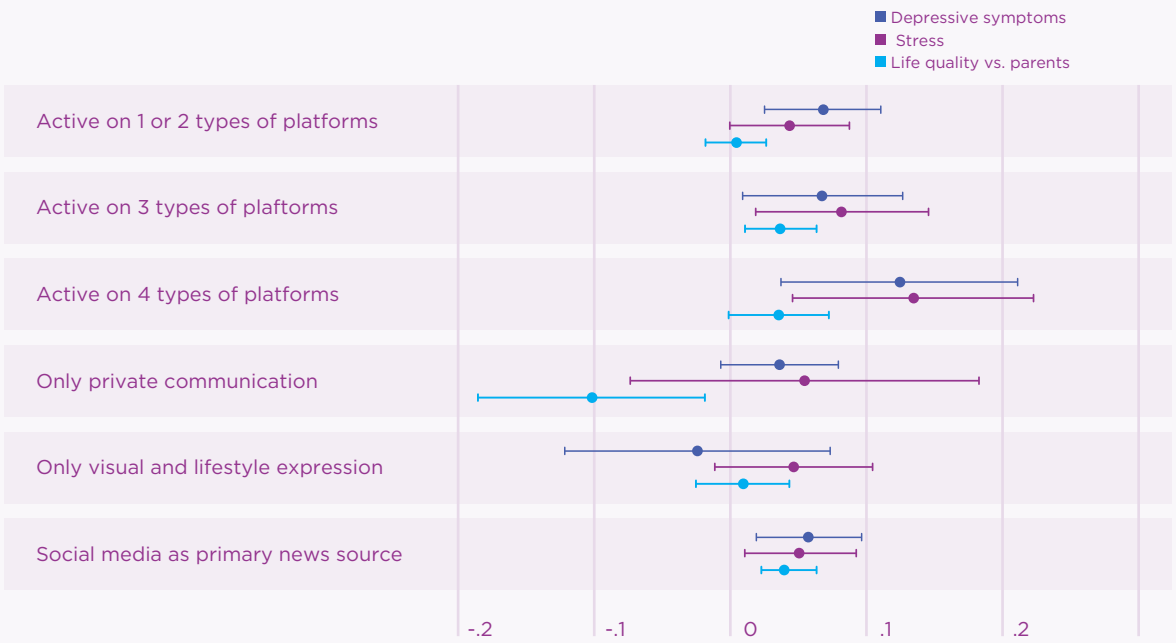
In rapidly changing societies, early signs of progress among some groups can generate widespread optimism. However, when expectations of shared advancement remain unfulfilled, this optimism may give way to frustration or protest.

How does the relationship change by social media type?

As well as providing information on how much time people spend on social media, the Arab Barometer allows us to distinguish between the kinds of social media used. We consider four broad types of social media platforms: (1) visual and lifestyle expression, (2) private communication, (3) public broadcasting and community participation, and (4) entertainment consumption. These are not mutually exclusive, so individuals can belong to several groups (see Box 9.1 for definitions).

This typology allows us to analyse the relationships between the amount of time spent on each type of social media with stress, depressive symptoms, and life quality compared to parents. Unfortunately, the Arab Barometer does not report the time spent on each platform separately from the others, although in reality, people often use social media for a variety of purposes. To address this issue, we used information from Figures 9.4 and 9.5 to study the effect of heavy use for: (1) respondents active on only one or two platforms, (2) respondents active on three platforms, (3) respondents active on four types of platforms, (4) respondents who exclusively use social media apps for private communication, (5) respondents who solely use visual and lifestyle expression apps, and (6) respondents who use social media as their primary news source. In Figure 9.8, we compare heavy users in a specific category to all moderate and non-users.

Figure 9.8: The effect of heavy social media use on wellbeing by type of usage



Note: The figure shows the effects of heavy social media use, relative to non- and moderate users, by the number of platform types used. Each estimated coefficient comes from a separate regression. The estimates for depressive symptoms and stress are derived from regressions with the same specification as the linear probability model in Panels A and B of Table 9.1, respectively. The estimates for life quality vs. parents are derived from regressions with the same specification as the linear probability model in Table 9.2. The lines surrounding the point estimates represent the 95% confidence intervals.


Photo: Nima Mobaghian Nejad on Unsplash

Two key insights emerge from these analyses. First, heavy users who are active on more types of platforms have a higher probability of reporting lower wellbeing. This suggests that part of the negative effect of heavy use may stem from information, communication, and social overload,[46] which could help explain the adverse link between intensive social media use and wellbeing. Second, there is no clear evidence that any single platform type drives the negative association between heavy use and wellbeing. However, heavy users who primarily use social media for private communication evaluate their own lives relative to their parents' lives considerably more favourably. Unfortunately, we are not able to discern how much time is spent on each type of platform. Reliance on social media as the main source of news is significantly associated with lower levels of wellbeing across all three outcome measures.

Social media exposure to influencers and the relation to quality of life compared to one's parents

Across studies in Lebanon and Saudi Arabia, engagement with influencers and appearance-focused, visually-oriented content, particularly on Instagram and TikTok, is consistently associated with poorer mental health and diminished wellbeing, including higher depression, emotional overeating, disordered eating symptoms, and greater psychological distress.[47] While body image concerns feature prominently, these findings point to a broader pattern in which platforms emphasising idealised self-presentation heighten young people's vulnerability to negative self-appraisal. Social comparison processes underpin these outcomes: repeated exposure to curated, filtered portrayals reinforces unfavourable evaluations of one's own abilities, appearance, and life situation, thereby reducing subjective wellbeing.[48]

The data on quality of life compared to one's own parents allows us to distinguish between respondents who follow influencers on social media and those who do not,[49] and to examine how this interacts with heavy social media use. The results reported in the second column of Table 9.3 show that following influencers is not significantly associated with feeling better or worse off than one's parents among moderate social media users. However, this changes when influencer content is combined with very intensive use. Heavy users are significantly more likely to say that they are worse off than their parents if they follow influencers. In a linear probability framework, the interaction between heavy use and following influencers is positive and statistically significant, indicating that the combination of high exposure and influencer content increases the probability of feeling worse off across generations (+6 percentage points), compared with similar heavy users who do not follow influencers. In other words, it is not influencers specifically, but heavy engagement with influencers' feeds that is associated with a more pessimistic view of life compared to one's own parents.

Interestingly, the Arab Barometer allows us to delve further into the relationship between influencers' feeds and social media use by highlighting various possible forms of interactions with influencers. Figure 9.9 illustrates the impact of heavy social media use on life quality compared to that of parents through five different forms of interaction with influencers: only liking or sharing updates; only subscribing to channels; commenting on posts; trying endorsements by influencers; and adopting influencers' views. We distinguish 'only liking or sharing' and 'only subscribing' because users who engage in more intensive interactions (commenting, trying endorsements, adopting views) often also perform these baseline actions, making the 'only' categories useful for isolating minimal engagement. Heavy social media users have an 8 percentage point higher probability of feeling worse off than their parents when they try endorsements. Other forms of interaction are not or weakly statistically significant. It is unsurprising that trying endorsements, which are instrumental and promotional interactions, show the strongest relation to a higher probability of feeling worse off, given that they comprise the predominant form of social comparison.

Table 9.3: The role of influencers on quality of life compared to one's parents

	Linear regression
No/moderate use	Reference
Heavy use	-0.013
Interactions with influencers	-0.012
Heavy use X Interactions with influencers	0.060**
R-squared	0.11
Observations	12,604

Note: *Life quality vs. parents* (2023–2024) is a binary indicator equal to 1 if the respondent reports having a worse quality of life than their parents. All regressions control for generation, gender, education, marital status, employment status, income, religiosity, religious denomination (Muslim), and country fixed effects. Significance: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure 9.9 The effect of heavy social media use on life quality compared to parents by type of interactions with influencers

Note: The figure shows the effects of specific types of heavy social media use, relative to non- and moderate users, on life quality compared to parents. Life quality vs. parents (2023–2024) is a binary indicator equal to 1 if the respondent reports having a worse quality of life than their parents. Each estimated coefficient comes from a separate regression. The estimates are derived from the regressions with the same specification as the linear probability model in Table 9.2. The lines surrounding the point estimates represent the 95% confidence intervals.

Conclusion

The analyses presented in this chapter provide a nuanced picture of social media use and wellbeing in the Middle East and North Africa, a world region that has received comparatively less attention so far. While the MENA region is often characterised by its high digital engagement and rapid adoption of new platforms, our findings show that the implications of social media use for wellbeing are neither uniform nor straightforward.

A first insight is that the relationship between social media use and wellbeing is nonlinear. For the majority of users, those who spend up to five hours per day online, the association between social media use and stress, depressive symptoms, and life quality compared to their parents is negligible. It is only beyond the threshold of five hours – which we define as heavy use – that we observe consistent wellbeing losses. Compared to others, heavy users report significantly higher levels of stress and depressive symptoms, as well as a greater likelihood of feeling worse off than their parents. These patterns hold across countries and demographic groups.

Besides heavy social media use, other strong correlates of wellbeing include traditional socio-economic factors such as religiosity, income, employment status, and education. The coefficients of heavy social media use on depressive symptoms and stress are comparable in magnitude to those associated with unemployment, low income and education levels. Although some socio-demographic groups use social media more than others, we did not find evidence indicating that heavy social media use affects particular groups systematically more than others. The wellbeing difference between

The coefficients of heavy social media use on depressive symptoms and stress are comparable in magnitude to those associated with unemployment, low income and education levels.

Photo Leilani Angel on Unsplash

heavy users and non- or moderate users is similar for men and women, richer and poorer, more and less educated, and across generations.

The type of heavy use also matters. Multiple-platform use, following influencers, and relying on social media as a primary news source show the strongest associations with negative wellbeing outcomes. These forms of use are more closely linked to stress, depressive symptoms, and low evaluations of quality of life relative to one's parents. A likely explanation is that such uses increase cognitive overload and intensify social comparison and public visibility. Unfortunately, the data do not allow us to distinguish directly between passive and active use. Nevertheless, it is plausible and shown in other studies that when social media is primarily[50] used to maintain existing offline social relationships, its effects are largely positive.[51]

Photo Hoi An and Da Nang Photographer on Unsplash

Social media neither uniformly harms nor benefits wellbeing. Rather, outcomes depend on the intensity and mode of use, as well as the social environments in which digital life unfolds.

In addition, our results show that influencer engagement does not have uniform effects. Simply following influencers is unrelated to feeling worse off than one's parents. The negative association arises only for heavy users who engage in instrumental or promotional interactions, especially when trying influencers' endorsements. Subscribing to channels or commenting does appear to harm wellbeing but to a lesser extent. Still, more work is needed to understand how following influencers relates to wellbeing.

Taken together, these findings portray a landscape in which social media neither uniformly harms nor benefits wellbeing. Rather, outcomes depend on the intensity and mode of use, as well as the social environments in which digital life unfolds. In this regard, it can be argued that *specific patterns* of intensive social media use are associated with wellbeing. Social media is, first and foremost, a technology with the potential both to enhance and to undermine wellbeing, depending on how it is used. Ultimately, this chapter underscores the need to move beyond universal or deterministic narratives about the impact of social media.

The Arab world has received relatively limited attention from social media and wellbeing researchers but this chapter demonstrates that many patterns identified in Western contexts also emerge in the MENA region. At the same time, it is important to recognise that some distinct dynamics are at play, including the roles of gender in shaping social media use,[52] as well as the influence of religion,[53] cultural norms,[54] and online government surveillance.[55] These region-specific patterns have only been addressed to a limited extent in this chapter and warrant closer and more systematic attention in future research.

Endnotes

1 See Ghai et al. (2022) and Ansari et al. (2024). A growing body of evidence indicates that wellbeing research is heavily concentrated on WEIRD (western, educated, industrialised, rich, and developed) populations, with comparatively little coverage of the MENA region (e.g., Burger and Arampatzi, 2025; Lambert et al., 2020).

2 https://www.gwi.com/reports/social

3 All reported averages here reflect the mean across countries belonging to the same region.

4 Social media use in the rest of the world ranges from 78% in East Asia to 41% in Sub-Saharan African countries.

5 Our definition of heavy use is constrained by the available response taxonomy. The literature does not specify a clear time threshold for classifying individuals as heavy social media users, and the wellbeing effects of social media use depend not only on the amount of time spent on these platforms but also on how that time is spent. Nevertheless, a systematic review on problematic social media use by Lopes et al. (2022) reports that most studies consider social media use exceeding four hours per day to constitute excessive use. On this basis, we classify the categories "up to 10 hours" and "10 hours or more" as heavy use.

6 Borges-Rey et al. (2022).

7 Abbouyi et al. (2024).

8 Al-Boinin et al. (2025).

9 Albeladi and Palmer (2020); Alwuqaysi (2024); Alzahuf et al. (2024); Bali et al. (2021).

10 Chegeni et al. (2022).

11 Zaid et al. (2022).

12 Alshammari et al. (2024).

13 Almulla (2020).

14 Radcliffe et al. (2023).

15 Borges-Rey et al. (2022).

16 Dixon (2025).

17 For example, see Verduyn et al. (2017).

18 For example, see Krasnova et al. (2013), Tandoc et al. (2015), and Arampatzi et al. (2018a).

19 Strategy& PwC Middle East & Google News Initiative (2023).

20 Interactions with influencers is defined as being involved in one of the following activities: (1) liking or sharing updates, (2) subscribing to channels, (3) commenting on influencer posts, (4) trying endorsements by influencers, and (5) adopting expressed view of influencer.

21 There is also a considerable literature that links social media use to the Arab Spring and protesting (e.g., Arampatzi et al., 2018b; Smidi and Shahin, 2017). However, a discussion of this literature is beyond the scope of this chapter.

22 For example, see Alateeq et al. (2016), Farhat (2016), and Hatamleh et al. (2023).

23 For example, see Alwuqaysi et al. (2024).

24 For example, see Malaeb et al. (2021).

25 Khodabakhsh and Ahmadi (2020).

26 Abiddine et al. (2022).

27 Alwuqaysi et al. (2024).

28 Malaeb et al. (2021).

29 Zeeni et al. (2018).

30 Barbar et al. (2021).

31 Akbari et al. (2022).

32 Al-Ansi et al. (2023); Alwuqaysi et al. (2024).

33 Albeladi and Palmer (2020); Alshaikhi et al. (2023); Alwuqaysi et al. (2024); Alzahrani et al. (2021).

34 Farhat (2016).

35 Nazzal et al. (2021).

36 AlHamad & Alamri (2021); Faqihi et al. (2024).

37 SHAP values are the results of XGBoost machine-learning models that are particularly suited to estimate nonlinear relationships, characterised by thresholds, plateaus, or changing slopes. XGBoost is more flexible than traditional regression analysis because it does not require specifying a functional form for the variables of interest. At the same time, XGBoost includes built-in regularisation and cross-validation tools that help prevent overfitting, thus improving flexibility in modelling nonlinearities while keeping the model's predictions robust and stable. For a thorough discussion, refer to Rossouw and Greyling (2025).

38 Coded as 1 = better to 3 = worse.

39 See Endnote 5.

40 Jensen Arnett (2017).

41 Vogel et al. (2014).

42 Appel et al. (2016).

43 Arampatzi et al. (2018b); Driouchi and Harkat (2017).

44 Hirschman and Rothschild (1973).

45 Arampatzi et al. (2018b).

46 Matthes et al. (2020).

47 Alzahuf et al. (2024); El Hayek et al. (2025); Elsayed et al. (2023); Karam et al. (2023).

48 Alshaikhi et al. (2023); Batool et al. (2025); Farhat (2016).

49 Information on influencer following is not available for Wave 5 and, hence, we cannot look at heavy social media use on depressive symptoms and stress by type of interactions with influencers.

50 See also Powell and Pring (2024).

51 See also Arampatzi et al. (2018a) and Verduyn et al. (2017).

52 For example, see Ghai et al. (2022).

53 For example, see Zaid et al. (2022).

54 Pripoae-Şerbănescu and Maţoi (2023) mention that social media can put traditional social practices and values under pressure in the GCC.

55 For example, see Farooq et al. (2024).

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