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Abstract

Using data across countries and over time we show that women are unhappier than men in unhappiness and negative affect equations, irrespective of the measure used – anxiety, depression, fearfulness, sadness, loneliness, anger – and they have more days with bad mental health and more restless sleep. Women are also less satisfied with many aspects of their lives such as democracy, the economy, the state of education and health services. They are also less happy in the moment in terms of peace and calm, cheerfulness, feeling active, vigorous, fresh and rested. However, prior evidence on gender differences in happiness and life satisfaction is less clear cut. Differences vary over time, location, and with model specification and the inclusion of controls especially marital status. We also show that there are significant variations by month in happiness data regarding whether males are happier than females but find little variation by month in unhappiness data. It matters which months are sampled when measuring positive affect but not with negative affect. These monthly data reveal that women’s happiness was more adversely affected by the COVID shock than men’s, but also that women’s happiness rebounded more quickly suggesting resilience. As a result, we now find strong evidence that males have *higher* levels of both happiness and life satisfaction in recent years even before the onset of pandemic. As in the past they continue to have lower levels of unhappiness. A detailed analysis of several data files, with various metrics, for the UK confirms that men now are happier than women.

Keywords: happiness; subjective wellbeing; life satisfaction; gender

JEL Codes: J16; I31

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1. Introduction

The female well-being paradox is that women are happier than men in happiness equations but also more unhappy than men in unhappiness equations. Unhappiness and happiness are often treated as the flip side of the same concept and, when one considers many of their correlates, this appears to be the case. For instance, correlates of happiness such as unemployment, income, age, being married, and having a degree are the mirror images of each other in a happiness and unhappiness equations and simply flip signs (Blanchflower, 2020, 2021). But this is not the case with regards to sex. There is also evidence that at least in relation to happiness in the United States, the gap closed over time in the years before the Great Recession as women became relatively less happy (Blanchflower and Oswald, 2004; Stevenson and Wolfers, 2009). It seems this trend has been exacerbated by the COVID pandemic which differentially impacted the wellbeing of women. However, women appear to be resilient to wellbeing shocks during the pandemic since their happiness recovers faster than men (Fancourt et al., 2020).

In this paper we show that gender differences in wellbeing – at a point in time and across time – are sensitive to the measures of wellbeing one uses, the timing of the data collection, the conditioning covariates, and the location of the individuals providing the information.

We find that one part of the female happiness paradox is very robust: when answering questions about negative affect, women are *always and everywhere* more unhappy than men. This is true across time, country, and across different metrics of negative affect. This is perhaps best illustrated by anxiety: women are consistently more anxious than men, both pre- and post-COVID, and across months of the year and across years. But it is also true with respect to other measures on negative affect such as being depressed, downhearted, tense, lonely, frustrated, stressed, sad, and having restless sleep and other measures.

Another set of results are also consistent. It is men (not women) who tend to have higher wellbeing when it is measured in terms of momentary positive affect (enjoyment, feeling fresh and rested, active and vigorous, cheerful and in good spirits), and in terms of domain-specific satisfaction with aspects of their life such as marriage financial status along with wider political and economic issues as captured by satisfaction with national government, democracy, the economy, the education system, health services and the standard of living.

Confusion arises, however, *only* when analysts focus on the two most popular ‘global’ metrics of wellbeing, namely life satisfaction and happiness. Here the evidence on gender differences is far less clear cut. It is true that women’s happiness has declined relative to men’s since the 1970s in the United States, but this trend is not apparent, for example, in the UK where, over the same period, women tend to be a little happier than men. Furthermore, whether women are happier or more satisfied with life than men, varies tremendously across countries and over time, and across states within the United States.

It is the case though that women’s life satisfaction and happiness has fallen relative to men’s during COVID. In part, this is due to the burden the pandemic has placed upon them as the person primarily responsible for caring for, children, many of whom have been at home during school closures. Women have also been more adversely affected in their role as workers because they are more likely to be front-line key workers facing considerable strain at work, and because they have been more likely to be furloughed or otherwise faced disruptions to their labour market participation (Hansen et al., 2022; Wielgoszewska et al., 2021). But it is not

clear whether this switch will persist. Furthermore, these trends started prior to COVID so are unlikely to relate exclusively to the pandemic.

There are two major methodological problems which have confounded analysts' estimates of gender differences in wellbeing. The first is that most studies do not collect data across all the months in a year. This is a problem for three reasons. First, there are seasonal patterns in wellbeing (particularly life satisfaction and happiness) which are gendered, so failure to account for those will confound estimates of gender differences over time. Second, if some studies are fielded in discrete parts of the year, this means one cannot extrapolate to gender differences in other parts of the year. Making inferences about trends over time is particularly problematic when a survey changes its field survey dates across years. Third, without monthly data, surveys miss big shifts in wellbeing that occur for short periods. This is a problem because, as we show, women's wellbeing is more variable over short periods of time than men's wellbeing.

We show for the first time that there are significant variations by month in happiness data regarding whether males are happier than females, but we find little variation by month in unhappiness data. For example, women are consistently more anxious than men, and whilst the gap in anxiety increased during COVID, it varied little month by month. In contrast, when examining movements in positive affect one requires high frequency data throughout the year to adequately track differences in men's' and women's wellbeing. These monthly data reveal that women's happiness was more adversely affected by the COVID shock than men's, but also that women's happiness rebounded more quickly suggesting resilience.

The second methodological problem, which has gone unremarked in the literature, is that results are somewhat sensitive to the conditioning variables used in efforts to make *ceteris paribus* comparisons across men and women. Some conditioning variables, notably marital status, are likely endogenous with respect to individuals' wellbeing. We show that estimates of the relative happiness of men and women can change markedly when conditioning on such variables.

We conduct a detailed analysis for the UK with several large data files – the Annual Population Survey, the Health Survey for England and four birth cohort data files - and on every metric, including happiness, life satisfaction and anxiety, find that there is no female happiness paradox. Women, we find, in these data are less happy than men and hence there is no longer a female happiness paradox.

2. Past Research on Women and well-being

2.1. Pre-pandemic wellbeing of men and women

The early literature on men's and women's wellbeing relied heavily on the longest-standing data series on wellbeing which is the *General Social Survey* (GSS). It allows analysts to track the wellbeing of men and women in the United States since 1972 with ordinal responses to a 3-point happiness scale. Pre-pandemic debate in the United States was dominated by the question as to whether there had been any convergence in the happiness of men and women. Using GSS data for the period 1972-1998, Blanchflower and Oswald (2004) reported that women were happier than men but that, over time, the gap was closing because women were becoming less happy. This conclusion was based on a downward trend in happiness for females in the GSS but no significant time trend for men. Stevenson and Wolfers (2009) confirmed these results using the same GSS data file extended through to 2006.

These findings prompted much speculation as to whether women could “have it all” – a career and a family – among cohorts of women who were better educated than men and yet faced persistent pressures to conform to social norms about women being primary carers in the household (Goldin, 2020; Bertrand, 2010; Bertrand, 2013; Bertrand et al., 2015).

However, several studies, including some of our own, continued to find women express greater happiness and life satisfaction than men. Blanchflower and Oswald (2011) found life satisfaction was higher for women than for men in the United States in 2009 using BRFSS, but so too was the number of bad mental health days – confirming the female happiness paradox. Blanchflower and Bryson (2022a) confirmed the finding that men were less happy than women in data for 2009-2020 using Cantril's life satisfaction variable in the US Gallup Daily Tracker Survey. Herbst (2011) questioned the faster rate of decline in life satisfaction among women in the United States. Instead, using the DDB Needham Lifestyle Surveys of 1985-2005 he found men and women experienced similar decreases over time in life satisfaction. In the pre-pandemic period, it seems life satisfaction was also higher for women than for men in Europe. Blanchflower and Clark (2021) find negative male coefficients in life satisfaction equations using the Eurobarometers from 2009 to 2019. All of these studies included marital status along with other variables as controls.

Evidence across the world pre-pandemic also suggested women's life satisfaction was greater than that of men's with full sets of controls. Using data for sixty developed and developing countries from the World Values Surveys 1981-2009 Matteucci and Lima (2016) found life satisfaction was higher for women compared to men.³ They included a "large set of individual socio-economic and demographic controls" although they do not identify which. Montgomery (2022) reports a negative male coefficient in Cantril life satisfaction equations using the Gallup World Poll (GWP) from 2011-2014.⁴ Fortin, Helliwell and Wang (2015) also using Cantril life satisfaction variable using GWP data from 2005-2014 using raw data, found that "*on a global average basis, females have higher life evaluations than do males.*" They also found that females smile and laugh and had more enjoyment than men. Yet women reported more depression, again providing support for the paradox in female happiness.

Zweig (2014) used the Cantril life satisfaction with the GWP data for 2005-2008 and found that the magnitude of the female–male happiness gap was *not* associated with economic development or women's rights and there were no systematic patterns by geography or religion. However, others find the gender differential in happiness does vary with country-level traits. Meisenberg and Woodley (2015) examine data from the World Values Survey, 1981-2008 (n=355,298) across 90 country*year cells finding a high level of female relative to male happiness and life satisfaction if the country includes a high proportion of Muslims, a low proportion of Catholics, and an absence of a Communist history. In a similar vein, Graham and Chattopadhyay (2013) examine GWP data for 160 countries from 2005-2011 (n=510,613)

³ Albania; Algeria; Armenia; Australia; Belgium; Bosnia and Herzegovina; Bulgaria; Canada; China; Croatia; Czech Republic; Denmark; Estonia; Ethiopia; Finland; France; Germany; Ghana; Guatemala; Iceland; India; Indonesia; Iran; Iraq; Ireland; Japan; Jordan; Kyrgyz; Latvia; Lithuania; Macedonia; Malaysia; Mali; Mexico; Moldova; Morocco; Netherlands; New Zealand; Nigeria; Norway; Pakistan; Peru; Philippines; Poland; Romania; Saudi Arabia; Slovakia; Slovenia; South Africa; Spain; Sweden; Switzerland; Tanzania; Turkey; United Kingdom; United States; Uruguay; Venezuela; Zambia and Zimbabwe.

⁴ In her table 2 Montgomery (2022) column 1 includes indicators for female, age, and age squared, while column 2 adds indicators for urban, marital status, employment status, education level, and whether they have health problems, as well as a continuous measure, log of equalized income and in both cases the female coefficient is positive.

and included a variety of controls including marital status and income and reported higher levels of life satisfaction for women than men, using the Cantril measure but at the same time women reported more daily stress. And while this finding of *higher* life satisfaction among women holds across countries on average, they found it did not hold in countries where gender rights are compromised, as in much of the Middle East and sub-Saharan Africa. They also found women were much happier than men in wealthier contexts, among more educated and older cohorts, and in urban areas.

This paradox of women being at both ends of the well-being spectrum is apparent as far back as 1996 in the study by Weisman et al (1996) across ten countries - United States, Canada, Puerto Rico, France, West Germany, Italy, Lebanon, Taiwan, Korea, and New Zealand – which shows women had higher rates of mental ill-health. More recently, Becchetti and Conzo (2021) examined sweeps 4-8 of the European Social Surveys (ESS), 2008-2016 across 31 countries, with a long list of controls including marital status, and pointed to a paradox whereby women reported higher happiness *and* higher levels of depression than men and that this result was robust when they split the sample by age, education, health status, wave and seasons within years. They suggest their results are consistent with women’s life satisfaction being more sensitive to good and bad events than men’s.

In seeking to explain this phenomenon Becchetti and Conzo (2021) argue that women take more time to revert to their previous wellbeing levels when faced with a shock compared to men. They argue this based on a regression they ran on a variable which asked, in 2006 and 2012 in the ESS:

Q1. "When things go wrong in my life it takes a long time to get back to normal?"

The distribution of responses on the ordinal agree/disagree scale is:

	Men	Women
Disagree strongly	11	8
Disagree	42	38
Neither	23	25
Agree	19	24
Agree strongly	4	6
N	45,562	54,426

We replicated their finding that males are significantly less likely to agree to the statement.⁵ It is unclear this shows resiliency as we discuss below.

There is also evidence for this paradox in the UK. Using the Annual Population Survey (APS) we explore later Bell and Blanchflower (2021) showed men had significantly lower life satisfaction levels than women in England, Scotland, Wales and Northern Ireland over the period 2016-2019, with controls. However, men scored significantly below women in GHQ unhappiness equations in Scotland using the Scottish Health Survey, 2008-2018, and in

⁵ The authors state that they use sweeps 4-8 of the survey but these data are available in sweeps 3 and 6. They report a sample size of 63,370 which is a puzzle as there are 46,147 observations for 2006 and 53,946 for 2012. With a pooled OLS regression (n=97,960), $R^2=.0945$ with controls for age and its square, wave, labor market status, country and years of education, the male coefficient is $-.1491$ ($t=22.36$) confirming their result. In private communication Leonardo Becchetti agreed that their analysis was for 2006 only and the sample size was a typographical error.

England using the Health Survey of England, 2003-2016, confirming the paradox. Blanchflower and Oswald (2016) found that men were also less likely to take anti-depressant medications. Using data from the Health Survey for England for the period 1998-2018, Blanchflower and Bryson (2021a) found that men had significantly lower pulse rates than women as well as lower GHQ scores, were less anxious and had better general health. This was true with and without controls for marital status and income.

2.2. Wellbeing of men and women post-pandemic

The COVID pandemic was a negative shock, not only to the economy, but to people's wellbeing. A substantial literature has investigated whether this shock to wellbeing differed markedly by gender and, if so, how and why.

Analysts have been tracking mental health in the United States using a new survey conducted by the US Census Bureau, the US Census Household Pulse Survey, which has been running since April 2021. Analyzing these data through to December 2021 Blanchflower and Bryson (2021b) found that men had lower levels of anxiety, worried less and were less likely than women to say they were unhappy and depressed in 2020 and 2021. These findings tend to confirm the pre-pandemic gender differential in unhappiness, with women expressing greater unhappiness than men. However, the pandemic may have compounded the stress and anxiety faced by women due to the differential impact of COVID on their time-use.

Using time-use data for mid-March to mid-June 2020, Giurge, Whillans and Yemiscigil (2021) found that time spent completing household chores was linked to lower well-being, in the United States, Canada, Denmark, Brazil and Spain. There were pervasive gender differences in time use during COVID-19 with women, especially mothers, spending more time on necessities such as caretaking tasks, childcare and chores. The implication is that some of the gender differences in wellbeing during COVID may be linked to differences in the tasks and responsibilities performed by men and women.

However, Del Boca et al (2020) noted, using a sample of Italian women in April 2020, that the negative consequences of additional chore provision were offset by completing these activities together or in the presence of other family members.⁶ Working women, they found, bear the brunt of the increased time needed for household chores and childcare. Men are more likely to be spending more time with the children, hence in what they call "more gratifying family work" rather than chores. The work-life balance on working women with children they found was greatest when their partners continued working outside the home.

Wellbeing deteriorated markedly with the on-set of COVID in the UK too. Using data from the UK Household Longitudinal Study (UKHLS) Proto and Quintana-Domeque (2021) confirmed a deterioration in mental health due to COVID, using the GHQ12 measure from 2017-2019 to April 2020. They found increases in mental distress which varied by ethnicity and gender. Women - regardless of their ethnicity - and minority ethnic men experienced a higher average increase in mental distress than white British men. Pierce et al (2021) also analyzed UKHLS, this time though to October 2020, and found that women had higher GHQ12 scores than men, at all ages. Banks, Fancourt and Xu (2021) also used the UKHLS and observed a much greater rise in GHQ scores for women than men in both April and September 2020.

⁶ This is consistent with evidence for the UK prior to the pandemic that people are happier when they are completing tasks together with others (Bryson and MacKerron, 2017).

For the UK, the journal *The Lancet* set up a Covid-19 Commission Mental Health Task Force to review the evidence through to April 2021. It concluded that

"A clear and consistent body of evidence suggests that psychological distress increased during the early months of the COVID-19 pandemic and that most (but not all) facets returned to pre-pandemic levels by mid-2020. While some components of subjective well-being showed signs of strain (e.g., increasing negative emotions), the data also reveal notable signs of resilience in life satisfaction, loneliness, social connection, and suicide." (Aknin et al., 2022).

Clearly what happened in the first couple of months of lockdown in March and April 2020 were crucial: psychological distress increased markedly in March and April 2020 but then fell back in mid-2020 to pre-pandemic levels (Banks and Xu, 2020; Fancourt, Steptoe and Bu, 2020).

However, the Task Force's pronouncement appears a little premature. There have been subsequent peaks and troughs in well-being with the coming and going of COVID cases. But that is not the end of the story. Zhou and Kan (2021) analyzed the GHQ12 score from the UKHLS, but their analysis window extended through to March 2021. They found that the score rose from 11.8 pre-COVID to 13.1 in April 2020 in the first lockdown, declining to 12.4 in July 2020 with easing of measures, then rising back to 13.4 in the second lockdown from November 2020 through January 2021 and then falling back to 12.9 when schools reopened in March 2021. The authors found that the rise in distress level was greater for women than for men with distress levels of women always higher. The distress levels of both women and men hit their lowest level in July to September 2020 but hit a new peak following a surge in cases leading to the reimposition of lockdown restrictions in November 2020 and January 2021, when women again suffered from a larger increase in distress levels than men. This is remarkably similar to the path we observe below in our analysis of the Annual Population Survey (APS).

The UCL Covid Social Study (www.covidsocialstudy.org), henceforth CSS, has tracked well-being in the UK since March 21st, 2020, just before the first lockdown was announced through to 9th January 2022. The study has tracked various measures of well-being. Of particular note is the evidence on life satisfaction which uses the same question as used in the APS we examine below. For the period 2015-2019 the average life satisfaction score in the APS averaged 7.7 (see **Appendix Table 1**). In the first week of the pandemic life satisfaction dropped to 5.40, which is a much larger fall than observed in the APS. It picked up to a high of 6.5 in September 7-13th before dropping back to a low of 5.63 in January 25-31.

The most recent data are available for the first week in January 2022 in report #42 which show that life satisfaction was broadly flat from August-November 2021 at around 6.6 before falling again at the start of 2022 to around 6.4. As we show below, some of this is likely a seasonal effect, as January appears to be the least happy month.

Foa, Fabian and Gilbert (2022) examined wellbeing using two years of data from YouGov's Great Britain Mood Tracker Poll through to July 2021. They found that the 11-step Cantril ladder of life satisfaction peaked at 7.15 at the start of 2020 before falling to a low of around 6.73 in March/April, before rising to 7.0 in July 2021, with a further low of just under 6.8 at the start of 2021. These changes are much smaller than in other surveys although the time paths look similar.

The Office for National Statistics (ONS) in the UK conducts its own large-scale survey of adults in Great Britain called the Opinions and Lifestyle Survey. ONS (2021c) found that 17% adults experienced some depression in the summer of 2021 which is a decrease from 21% at the start of 2021 but a substantial rise compared with 10% prior to the pandemic. The table below shows the percentage of men and women experiencing moderate to severe symptoms.⁷

	Men	Women
July 2019-March 2020	7	12
June 2020	15	23
November 2020	15	22
January-March 2021	17	24
July-August 2021	14	20

We can surmise from this longer time frame that depression rose for both men and women through to the first quarter of 2021, before falling back in summer 2021. But throughout, women were more likely than men to experience some form of depression. The ONS (2021a) noted that women had higher death rates from COVID-19, women were more likely to be furloughed and to spend significantly less time working from home and more time on unpaid household work and childcare. In April and early May 2020, around one in three women (34%) reported that their well-being was negatively affected by homeschooling a school age child compared with only one in five men (20%). By late January and early February 2021, it was taking a greater toll on both women (53%) and men (45%).

Adams-Prassl et al. (2020a) collected two independent waves of survey data in late March and early April 2020 in the UK, US and Germany. They find that women in the UK and the US (though not in Germany) were more likely to lose their jobs than men, while younger individuals were significantly more likely to experience a fall in their earnings. Of note though is that in the UK employment rates of women fell sharply in early 2020 but at the time of writing in February 2022 they have recovered at least as well as those of men. Indeed, the October 2021 rate for females is 98.4% of the January 2020 rate compared with 97.6% for men.

Although there is consensus that the pandemic is associated with some deterioration in wellbeing, the review above indicates that there are substantial shifts in people's mental health since March 2020, and that some of this is to be expected given previous work on the seasonality of subjective well- and ill-being. Banks, Fancourt and Xu (2021) noted that "*while there is very little large-scale evidence on the most extreme consequences of mental health problems – suicide and self-harm – what evidence there is has yet to show any consistent or significant trends in terms of causal effects of the pandemic (p.124)*". That looks right if one considers evidence on suicide rates. These tend to be markedly higher among men than women. For example, in the UK suicide rates for men fell from 16.9/100000 in 2019 to 15.4 in 2020. For women rates fell from 5.3 to 4.9 over those two years.⁸ Curtin, Hedegaard and Ahmad (2021) found for the United States that the age adjusted suicide rate for males fell from 22.4/100000 in 2019 to 21.9 in 2020 while for females, rates fell from 6.0 to 5.5. Appleby, Richards et al (2021) found no increase in suicides in England in the three months January 2020-March 2020 compared to April-October 2020. Pirkis et al (2021), found no evidence of

⁷<https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/datasets/coronavirusanddepressioninadultsinbritain>

⁸

<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/suicidesintheunitedkingdomreferencetables>

a rise in suicides, from January 1st, 2019, to July 31st, 2020, in 21 countries, while several had fewer suicides.

3. Empirical evidence

In this section we present empirical analyses of change over time in wellbeing, variously measured, pre- and post-pandemic. We use data for the United States, Europe and a large group of developed and developing countries before moving on to the UK. We report declines in wellbeing in 2020 and 2021. We also identify different impacts on men and women. We provide estimates using the raw data as well as with a limited set of controls, for race, age and location.

3.1. The United States

Chart 1a updates the earlier work discussed above for the United States using happiness data from the General Social Survey through to 2021. It plots 3-step happiness for the US with the latest GSS data for the longer period 1972-2021 (n=64,460) and shows that the happiness rates of men and women has moved closely together. The question asked is

Q2. "Taken all together, how would you say things are these days? would you say that you are very happy = 3, pretty happy = 2, or not too happy = 1?"

Chart 1b plots the proportion saying they are very happy in the GSS by gender. Over time happiness in the United States has fallen for both men and women whether using the average score or the percent very happy. There was a particularly sharp fall in 2021 to levels never seen before in the previous fifty years, in contrast to the very small decline in the Great Recession of 2008 and 2009. This suggests that the health element to the COVID shock, perhaps coupled with the policy-induced responses to it (lockdowns, school closures, and social distancing) impacted individuals' wellbeing in a way that a more 'conventional' recession does not.

There is some evidence that female happiness fell more than males in 2021 as COVID hit. If we run a regression of happiness using these GSS data from 1972-2021 on a set of year dummies, and a male dummy, the male dummy is insignificant. However, if we then add a male dummy interacted with a year 2021 variable, it is significantly positive.⁹

As noted earlier, Blanchflower and Oswald (2004) examined the GSS data for the period 1972-1998 and found evidence of a positive dummy on a female equation that included controls for age and its square and race. When separate equations were run by gender there was a negative time trend in the female equation and an insignificant one in the male equation. Stevenson and Wolfers (2009) extended this work through 2006 and also found negative time trends for women and not for men. However, it turns out these results are sensitive to model specification.

Table 1 replicates the Stevenson and Wolfers (2009) findings with these data updated through 2021.¹⁰ They included a male dummy and male and female interactions with year time trends

⁹ The results are as follows, with a full set of year dummies (n=63976). Equation is 2.1421 -.0090 (1.72) male + .0487 (2.30) male * year2021, Adjusted R²=.0095. If a 2021 equation is estimated the results is (n=3922) 1.9453 + .0397 (1.89) male. With t=statistics in parentheses. The results are similar using the proportion very happy as the dependent variable.

¹⁰ We re-estimated the Blanchflower and Oswald (2004) specification for the later years 2008-2021 and found a negative time trend in the female equation (male coefficient = -.0142, t=-9.4, n=9,785) and a negative for men also (-.0090, t=5.35, n=7,888). In pooled years analyses for the whole period 1972-2021 there was a negative time trend for females (-.0032, t=113.9, n=35,731) and one for males also (-.0023, t=9.1, n=28,245).

and we do the same where the time trend is defined as years since 1972. Whether we estimate happiness using OLS or ordered probit, or with and without controls, the results are essentially the same so we use OLS without controls for simplicity, reporting t-statistics, sample sizes and the adjusted R^2 for model fit (Stevenson and Wolfers do not report model fit statistics or sample sizes). They also used probits to estimate correlates of being very happy, so we do the same.

In column 1 of the table there is a negative time trend for women and an insignificant one for men in the period 1972-2006, just as Stevenson and Wolfers reported, and the female dummy is significant and positive. However, this result does not hold in the later period, 2008-2021, nor over the whole period 1972-2021 where both men and women have negative time trends, with women having a slightly higher coefficient. If we split the sample by gender and run separate happiness equations the time trend over the long sample in both is negative and significant also (results not reported).

In the final three columns we simply replace the time trends with a set of year dummies and in all cases the R-squareds are higher and *the female dummy is always insignificant*.¹¹ The specifications with linear time trends seem to be a poor approximation of the data.

In panel b) of the table we report the probits for being ‘very happy’. Results are similar to those for panel a): in the early period 1972-2006 there is a negative, statistically significant trend for women that is not apparent for men. But in the second period both men and women see a significant downward trend, though it is steeper for women. In the final three columns incorporating year dummies the coefficient for women is positive and significant in the first period, but not the second period.

In panels c) and d) we explore in more detail the sign of the female coefficient using five other wellbeing metrics also examined by Stevenson and Wolfers. Initially we included male and female time trend interactions and a female dummy. However, we found the interactions were never significant jointly, so we reverted to a simpler specification including a female dummy and year dummies since these were a better fit to the data in every case.

In part c) we look at an individuals’ satisfaction with their financial situation and, for the married, the happiness of their marriage. In all six regressions the female dummy is *negative* and significant, not positive.

A similar pattern emerges in part d) which estimates equations for satisfaction with three areas of life (one’s location, family life and friendship) which were used by Stevenson and Wolfers in their Table 6.¹² In all three cases the female coefficient is significant and negative. The female coefficient was also significant and negative in the early and full periods (results not reported). *The evidence suggests women's domain happiness and satisfaction is below that of men.*

The evidence of declining happiness in the United States is confirmed with evidence of rising deaths of despair, from drug overdoses, suicide, and alcohol poisoning (Case and Deaton, 2019) along with increases in pain in the United States (Blanchflower and Bryson, 2022b), and in

¹¹ Like Stevenson and Wolfers we also ran separate equations for sub-groups. We ran the estimates across all years including just year dummies and found the female variable for whites was positive (+.025, t=4.41) but was negative for blacks (-.029, t=1.94) and other races (-.042, t=1.80), and was negative also for those with children (-.027, t=4.53) and those with a high school education or less (-.048, t=4.13).

¹² They say their estimates are for the period 1972-2006 but the data file only includes the data from 1972-1994.

distress. Blanchflower and Oswald (2019), for example show a steady rise over time in the proportion of people saying that every one of the prior thirty days were bad mental health days. This extreme distress is especially marked in less educated, prime age whites that are also disproportionately impacted by deaths of despair. Although there is evidence of increasing amounts of pain, *there are few gender differences*. Instead, what is most marked is poorer mental health among the least educated, whites and especially among Native peoples (Blanchflower and Feir, 2022).

3.2. Europe

In **Table 2** we report annual data on 4-step life satisfaction in the Eurobarometer Surveys for 37 European countries, including eleven non-EU countries, namely Albania, Bosnia Herzegovina, Iceland, Macedonia, Montenegro, Norway, Serbia, Switzerland, Turkey, Turkish Cyprus and (now) the UK for the nineteen years of 2003-2021.¹³ The Eurobarometer life satisfaction question - used previously in Blanchflower (2021) and Blanchflower and Clark (2021) – is:

Q3. “On the whole, are you very satisfied, fairly satisfied, not very satisfied or not at all satisfied with the life you lead? Not at all satisfied (= 1); not very satisfied (= 2); fairly satisfied (= 3) and very satisfied (= 4)”.

The table reports the average life satisfaction rates from 2019, 2020 and 2021 separately for men and women and it is clear for both that there were declines in life satisfaction from 2019 to 2021 which in some cases were large. By way of comparison, it is worth recalling that there was little decline in happiness in most countries coinciding with the Great Recession. The major exceptions were Greece, Portugal, Italy, and Spain which experienced marked declines (Bell and Blanchflower, 2015). Indeed, in several of the major countries 2009 rates of life satisfaction were higher than in 2007 (for example Denmark, Finland, Germany, Netherlands, Sweden, and the UK).

In contrast to the Great Recession there are marked declines in happiness coinciding with the COVID pandemic. Eight of the 37 countries in the table (in bold) experienced falls of over 20 base points in life satisfaction. For example, Austria and the UK saw declines of more than twenty basis points, for both men and women. Denmark, which ranks as the happiest country in 2019 saw even bigger drops. Finland, Ireland, Luxembourg and Sweden also had large declines of over 20 basis points. In contrast Albania; Bulgaria; Greece, Macedonia, Portugal, Romania and Serbia saw *increases for both men and women*.

The COVID pandemic coincides with a decline in women’s life satisfaction relative to men’s such that by 2021 men’s satisfaction was above that of women overall and in nineteen countries, including Belgium, France, Germany, Greece, Iceland, Netherlands, Norway, Spain, Sweden, Switzerland, Turkey and the UK.

In the first column of **Table 3** we report the results of regressing the life satisfaction variable on a male dummy and a full set of year dummies separately for 36 countries using the Eurobarometer data for the pooled years 2003-2021.¹⁴ We report the coefficients and t-values on the male variable for each separate country regression and for all countries pooled. In the pooled country regression the male coefficient is precisely estimated to be zero. In thirteen of

¹³ The file also includes data for 2021 only for Switzerland, Norway, Bosnia Herzegovina and Kosovo.

¹⁴ In what follows for comparability purposes in the various wellbeing regressions we report we include a standard set of controls including gender, state or country of residence and year dummies.

these countries the coefficient on the male dummy is *significantly positive* (Belgium, Bulgaria, Cyprus, France, Greece, Hungary, Italy, Malta, Portugal, Romania, Slovenia, Spain and Switzerland). It is *negative and significant* in ten (Albania, Austria, Croatia, Estonia, Finland, Iceland, Ireland, Sweden, Turkey, and the UK) and insignificant in thirteen.

In the second section of **Table 3** we report equivalent estimates from the Mannheim Eurotrends file, 1973-2002 for the original 15 EU countries plus Norway. The dependent variable is the same life satisfaction variable, and we include a set of year dummies along with a male dummy. In three countries – Greece, Italy, and Portugal – the male coefficient is positive and significant, just as it was for the later period. Similarly, the male coefficient is significant and negative in both for Austria; Denmark; Finland, Ireland, and the UK. Overall, there are three positive and significant male coefficients, eight significant negatives and five insignificant. Plus, the pooled regression, with country dummies, is significantly negative in the earlier period.

Taken together these estimates suggest that men had *lower* life satisfaction in earlier years, whereas there is little overall difference since the turn of the century. However, there is huge heterogeneity in the correlation between gender and life satisfaction across countries in both periods, with male satisfaction above that of females in many instances.

In **Table 4** we report the results of estimating happiness and life satisfaction equations using sweeps 1-9 of the European Social Surveys, for 2002-2018 across thirty-eight European countries.¹⁵ The two wellbeing questions used are as follows.

Q4. "Taking all things together how happy would you say you are 0=extremely unhappy.....10=extremely happy"

Q5. "All things considered, how satisfied are you with your life as a whole nowadays 0=extremely dissatisfied...10=extremely satisfied"

The models condition on country fixed effects, and year. We find that the male coefficient is negative for happiness but insignificantly different from zero for life satisfaction. However, gender differences in wellbeing look very different across other wellbeing variables in these surveys. In panel a) of Table 4 there are eight measures of life domain satisfaction, also scored from 0-10, in relation to issues such as democracy, national government, the state of the economy, education and health services, and one's standard of living. In all cases the male coefficient is significant and positive. It seems men are more satisfied than women with most aspects of their daily lives, even if the gender difference on global happiness and satisfaction is not clear-cut.

In the years 2006, 2012 and 2014 the European Social Survey (ESS) respondents provided information on five negative affect variables regarding how often in the last week they had felt depressed, anxious, sad, lonely, and that their sleep was restless (for more on restless sleep see Blanchflower and Bryson, 2021c). Responses were coded none or almost none of the time (=1); some of the time (=2); most of the time (=3); all or almost all of the time (=4). The exact questions are reported in the notes to the table. In every case the male coefficient was negative confirming that women were less happy than men. Taken together with the evidence on domain

¹⁵ The countries are Albania; Austria; Belgium; Bulgari; Croatia; Cyprus; Czechia; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Kosovo; Latvia; Lithuania; Luxembourg; Montenegro; Netherlands; Norway; Poland; Portugal; Romania; Russia; Serbia; Slovakia; Slovenia; Spain; Sweden; Switzerland; Turkey; Ukraine and the UK.

satisfaction the ESS findings appear to cast doubt on the paradox of female (un)happiness. Instead, it appears *men express greater satisfaction with most aspects of life and are less likely to express unhappiness*.

Further doubts are raised about the paradox in **Table 5** which reports wellbeing equations using four sweeps of the European Quality of Life Surveys (EQLS) from 2003, 2007, 2011 and 2016 (n=140,000). With controls for wave and country the coefficient on male in a happiness equation is *positive* and significant while on life satisfaction it is positive with the t-value of 1.6.

But it turns out that there are nine other well-being variables in the 2007, 2011 and 2016 surveys. Five of them are related to positive affect – feeling cheerful and being in good spirits; calm and relaxed; active and vigorous; they woke up feeling fresh and rested and say that their daily life has been filled with things that interest them. Answers have five options including at no time, less than half the time and so on as explained in the table. In all five cases the male coefficient is significant and positive.

There are also four negative affect variables – feeling left out of society, feeling lonely, downhearted and depressed or feeling tense. Here the male coefficients are all negative and significant.

These patterns in the male coefficient are replicated in the COVID period, as indicated in **Table 6** which estimates gender differentials in wellbeing using a recent Eurobarometer #95.1 for March-April 2021 for the 27 EU member countries. It contains a number of questions on wellbeing, with the questions set out in the table, along with the standard 4-step life satisfaction question in which the male coefficient is insignificant. This contrasts with the coefficients on the remaining six variables which are responses to a question on the respondent's current emotional status. The one positive affect variable – calm - has a positive and significant male coefficient. The remaining five negative affect variables – loneliness, fear, helplessness, frustration and uncertainty - all have significant negative coefficients.

The evidence from these European surveys is that men tend to express greater satisfaction with various aspects of their lives, while women express greater unhappiness when reporting on questions regarding negative affect. However, there is less consistency in the male/female differential on 'global' happiness and satisfaction responses.

3.3. The world

To capture male/female differences in wellbeing across the world we make use of data from the Gallup World Polls (GWP) of 2005-2021. Zweig (2014) had previously used the 2005-2008 GWP Cantril ladder variable to examine the male/female happiness gap. It is apparent from the raw data she presents that male happiness is above female happiness in 30 of the 73 countries she examines – Austria; Germany; Italy, Netherlands, Norway, Portugal, Spain, Sweden and the USA plus Belarus, Bulgaria, Cyprus, Estonia; Hungary, Latvia; Lithuania; Russia; Slovakia; Slovenia; Cambodia, Kazakhstan; Kyrgyzstan; Tajikistan; Bolivia; Chile; Columbia; Costa Rica; Guatemala, Peru and Uruguay.

Table 7 reports male coefficients and t-statistics from regressions for 166 countries pooled. The first two columns estimate differences on enjoyment 'yesterday' as captured by the question:

Q6. "Did you experience the following feelings during a lot of the day yesterday? How about enjoyment?"

For comparison purposes the last two columns report male coefficients on Cantril's life satisfaction variable where the question asked is: which has a mean of 5.526.

Q7. 'Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time, assuming that the higher the step the better you feel about your life, and the lower the step the worse you feel about it? Which step comes closest to the way you feel?'

The mean on enjoyment is 0.70 while the Cantril mean is 5.526. The answers are contradictory. Male enters positively for enjoyment yesterday and negatively to the Cantril variable that relates to life in general rather than yesterday. It seems men are happier 'in the moment' than women but less happy if asked a question inviting them to reflect on their general happiness.

The second part of the table reports the results of running enjoyment equations by country, with year dummies as controls. It should be noted the number of years varies somewhat by country. We find that 30 countries had significant negatives including the Nordic countries which have high levels of gender equality of Denmark, Finland Norway and Sweden; 59 had insignificant coefficients. However, just under half, or 77 countries had *positive* and significant male coefficients. The list includes the USA, Canada, Germany, Greece, Spain, New Zealand and Austria plus several developing countries such as Afghanistan, Iraq, Morocco and Mozambique, Rwanda and former Soviet-bloc countries such as Georgia, Belarus and Ukraine. Once again there appears to be substantial heterogeneity in wellbeing patterns by gender across countries.

3.4. The United Kingdom

We now move on to look at gender differences in wellbeing for the UK in the Eurobarometer Surveys 1973-2021, the Annual Population Surveys, 20012-2021, the Opinions and Lifestyle Survey, 2020-2022, the Health Survey for England 2010-2019 and the 2020-2021 British Birth Cohort COVID surveys.

We begin by comparing files similar to the GSS for the United States tracking life satisfaction back to the early 1970s. The trends in 4-step life satisfaction scores in [Chart 2](#) plot average 4-step life satisfaction scores for the UK for men and women using the 2003-2021 Eurobarometer files and the Mannheim Eurobarometer Trend files of 1973-2002. In contrast to the United States, life satisfaction rose steadily over time for men and women and female life satisfaction was above the male rate in the majority of years. Men's and women's life satisfaction plummets with the COVID pandemic. The female life satisfaction score for 2021 is below its prior historic lows while for men it is on a par with lows only previously seen in 1995 and the mid-1970s.

The bulk of our analysis involves examining micro data for the UK from the Annual Population Surveys of 2012-2021. In addition to the large sample sizes, these data have two important advantages over many other studies. First, the survey is conducted throughout the year, and the date of survey interview is recorded in the data. This allows us to control for seasonal patterns in wellbeing data, which have been identified in the past especially in suicides.

Monday is the peak day for suicides (Maldonado and Kraus, 1993). Hartz et al (2000) found depression, hostility, anger and irritability as highest in winter and lowest in summer with females having stronger seasonal variation in wellbeing than males. We identify gendered patterns in the seasonal fluctuations, which have not been identified before.

Second, the APS contains information on three, 11-step, well-being variables.¹⁶ The questions asked are as follows, where respondents are asked to give their answers on a scale of 0 to 10.

Q8. "Life satisfaction - Overall, how satisfied are you with your life nowadays?"

Q9. "Happiness - Overall, how happy did you feel yesterday?"

Q10. "Anxious - Overall, how anxious did you feel yesterday?"

The results are reported quarterly by the Office of National Statistics.¹⁷ The first of these variables refers to the integral of how life has been going and is unlikely to be changed quickly as compared with happiness and anxiety which relate directly to what happened the previous day. As would be expected, movements from the latter two are more pronounced and sharper than movements in the former that are initially slower to decline.

We trace the monthly path of well-being during period when the COVID virus had its greatest impact. This especially occurred in March and April 2020 and then recovery followed through September 2020, only to drop precipitously in late 2020 to reach a low on all measures in January 2021. Once again well-being rose through to July 2021 but has slowed since then with an especially big drop in October 2021 as the Omicron variant of the COVID virus hit. We find that the negative sign on the male variable observed in earlier studies and in the UK for the period 2012-2019 switched and became positive in the case of the two positive affect measures. The anxiety gap between men and women increased in the pandemic; it seems that rise is driven by a rise in loneliness.

These patterns are depicted in [Charts 3-5](#) which plot by month separately for men and women the monthly changes with weights imposed.¹⁸ [Chart 3](#) for happiness and [Chart 4](#) for life satisfaction show the female series above the male series through to 2019 and below it subsequently. In [Chart 5](#) for anxiety the female series is always above the male series. In all three there is a larger decline in well-being in 2020 and 2021 for women than there is for men. But by October 2021 female happiness rates, for the first time in nearly two years, are once again higher than for males. Life satisfaction rates also converge by October 2021.

¹⁶ Data is also available on this question – "overall, to what extent do you feel the things you do in your life are worthwhile?" It follows closely the path followed by life satisfaction, given both relate to the integral of the past and we do not report separate results here. In the regressions we restrict the data to the years 2013-2021 as the highest qualification variable was not included in the 2012 survey.

¹⁷ [Appendix Table 1](#) reports the official quarterly wellbeing estimates from the Office of National Statistics. ONS (2020) also reported on the early impact of COVID-19 on anxiety in April and May 2020 using the APS data. It found that factors most strongly associated with high anxiety during lockdown include loneliness, marital status, sex, disability, whether someone feels safe at home or not and work being affected by the coronavirus (COVID-19) pandemic. The odds of reporting high anxiety they found were twice as large for those aged 75 years and over than those aged 16 to 24 years.

¹⁸ [Appendix Table 2](#) reports weighted estimates for the three variables separately by gender.

Charts 6 and 7 use new data by gender from the Opinions and Lifestyle Survey (OALS) in the UK from March 2020 through to February 2022.¹⁹ As in the case of the APS, the questions regarding happiness and anxiety refer to 'yesterday'.

Q11. Overall, how happy did you feel yesterday?"

Q12. "Overall, how anxious did you feel yesterday?"

These questions are answered on a scale of 0 to 10, where 0 is "not at all" and 10 is "completely". The ONS publishes regular reports by gender on these two variables.²⁰ **Chart 6** uses data from these surveys and plots male and female happiness scores from seventy-nine surveys. In eleven men's happiness was below women's; in twenty-one they were the same and in forty-seven cases male rates were above female rates. **Chart 7** plots the anxiety rates and, in every case, female anxiety scores are above male rates, with a differential that is roughly constant over time. These raw data reflect the findings discussed earlier, confirming that women tend to be more anxious than men, whereas differences in happiness are much less clear-cut.

The time paths for men and women's happiness in the OALS are very similar to those reported in **Chart 3** using the APS data, although the levels in the OALS are lower. Both have lows in March 2020 with recovery to a peak around July 2020 and a major trough at the start of 2021.²¹ The low for females of 6.1 in 20-30 March 2020 is well below that of men of 6.6. The low in January 2021 is also a lot lower for women than men. For example, in the survey for 27-31 January the male happiness score was 6.6 versus 6.2 for females.²² The APS data stopped in October 2021, having started falling; the extent of that drop looks greater than in the OALS data. By the start of February 2022 happiness levels were above their March 2020 levels but below what they had been in the summer of 2021 before omicron. Male and female happiness rates were both 6.9.

Table 8 presents pre-COVID (2013-19) and post-COVID (2020-2021) well-being equations for happiness, life satisfaction and anxiety using the APS by year from 2012 to 2021 that provide very similar evidence to the OALS in 2020 and 2021. Controls are race, year and country of residence – England, Northern Ireland, Scotland or Wales. In the case of happiness, the sign on the male coefficient switches from negative to positive over time. The coefficient is negative and significant in 2012 only and negative but insignificant from 2015-2017. The sign switches to positive but insignificant in 2018 and positive and significant in 2019-2021. The phenomenon of a positive male coefficient started pre-COVID and so cannot be attributed solely to the effects of the pandemic.

For life satisfaction there are negative and significant male coefficients in every year through 2017, in 2018 and 2019 they are insignificant and then both are positive in 2020 and 2021. In

¹⁹ See 'Coronavirus and the Social Impacts on Great Britain', ONS, 18 February 2022.

²⁰

<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/datasets/coronavirusandthesocialimpactsongreatbritaindata>

²¹ To get a sense of the decline in happiness in March 2020, between 2015 and 2019 weighted APS happiness averaged 7.53. For 2020 happiness averaged 7.38 for men and 7.30 for women and 7.47 and 7.39 for women in 2021. In the case of OALS happiness averaged 7.00 for men and 6.86 for women in 2020 and 6.99 for men and 6.91 for women in 2021. The UCL Covid Social Survey has even lower happiness scores, which dropped to 5.6 for women and 6.0 for men in April 2020 and in the latest report #41 at the end of 2021 were at 6.4 for women and 6.8 for men.

²² The data are provided in **Appendix Table 4**.

the case of anxiety, the negative coefficient gets larger over time. There is therefore a clear reversal whereby, under COVID, men's wellbeing has improved compared with the wellbeing of women.

Table 9 reports these results in a different way. It pools all the years of data together and reports separate estimates for the three well-being variables. We first created a new variable 'newtime' which for the years the years 2020 and 2021 is the month of interview and for the years prior to 2020 is the year of interview. That allows us to also include month of interview dummies to account for seasonal effects, which it turns out have an impact on the results by month. There are clear monthly patterns in the data that need to be taken account of, especially when tracking monthly changes in well-being in the Covid era. The excluded category in each case is January which is the month with the lowest happiness. In the case of anxiety, November is the most anxious month. For happiness July is the happiest month, while June is for life satisfaction. This proves important as we track the path of the virus and how it impacts wellbeing, but it has not featured in the literature hitherto.

In addition to a male dummy, each equation includes four interaction terms between male and year. In all three columns the male coefficient – which captures being male prior to 2018 - is significantly negative. However, the male interactions with recent years are all positive and statistically significant in the case of happiness and life satisfaction. Anxiety is different: the male coefficient is negative and so are the male interaction terms suggesting a bigger negative effect at the end of the period for males in the pandemic.

Tables 10 focuses on the monthly changes in 2020 and 2021 for happiness with the same controls as in **Table 9**. It uses the data for the longer time period 2013-2021. The separate estimates by gender reveal not only that there is substantial monthly variance in wellbeing, but that these monthly patterns differ by gender. Failure to account for this leads to misleading inferences about gender differences in the path of well-being in the COVID years.

To illustrate this **Chart 8** plots female and male happiness shifts during COVID with and without month controls. It is apparent that the line for women with month controls included is well below that of the estimate without seasonal adjustment. Also, with month controls, the female series is below that of men until the last data point in October 2021. Men are happier than women here in 17/18 months. **Chart 9** shows smaller differences between seasonally adjusted and unadjusted estimates for life satisfaction. Females saw a much larger dip in life satisfaction at the end of 2020 and the start of 2021 but caught up quickly by March 2021 and for most of the rest of 2021 females had higher levels of life satisfaction. **Chart 10** shows that seasonal adjustment makes little difference to the gender gap in anxiety: women are always more anxious than men.

In **Table 11** we examine pre-pandemic estimates of two wellbeing metrics from the English Health Surveys 2010-2019 in the first two columns. The questions were

Q13. "Overall satisfaction with life nowadays? 0-10- mean.

Q14. "Been feeling good about myself – none of the time (=1); rarely (=2); some of the time (=3); often (=4) and all of the time (=5).

Men have both higher life satisfaction than women and spend more time than women feeling good about themselves. In the two right-hand columns we estimate equations using British birth cohort data post-pandemic in relation to 11-step life satisfaction and a 3-step loneliness

variable using data on 64,000 respondents of various ages for 2020 and 2021 from three waves of a COVID-19 study. These are 1) Millennium Cohort Study (born 2000-02) both cohort members and parents (MCS), 2) Next Steps (born 1989-90) (NS), which formerly was The Longitudinal Study of Young People in England, 3) 1970 British Cohort Study (BCS70), and 4) 1958 National Child Development Study (NCDS).

The questions asked were the same for all four cohorts: was Q8 above for life satisfaction and

Q15 "Lonely – how often do you feel lonely – hardly ever (=1); some of the time (=2) often (=3)?"

We include wave and cohort dummies along with regional controls plus a gender dummy. In column 3 the male variable is significantly positive in a life satisfaction equation. In the fourth column the dependent variable is loneliness with a higher number meaning more loneliness and the male coefficient is negative. Hence males have higher levels of life satisfaction and are less lonely. This confirms evidence from the APS for 2020 and 2021.

The patterns by gender we observed in the period since 2020 after the onset of the pandemic are also entirely consistent with those found for the UK in UCL's Covid Social Study. In report #41 for December 2021 separate results by gender are reported.²³ A number of factors are apparent.

- a) Males have lower levels of depression and anxiety across all months of the survey (Figure 5) and have lower levels of loneliness (Figure 22i) and covid-19 stress (Figure 9i). and the gender gap is broadly constant in all of them over time.
- b) Financial (Figure 11i), food security (Figure 12i) and unemployment stress (Figure 10i); thoughts of death (Figure 14i), self-harm (Figure 16i) are broadly flat over time with only small gender differences.
- c) Life satisfaction and happiness are always higher for men than women (Figures 20i and 24i).

Women are less happy than men in these data for the UK.

4. Variation by Month

Why are the results for 2020 and 2021 presented here so different from those in other studies? It turns out that many studies do not have complete coverage over a year. For example, in the Eurobarometer data for 2020 and 2021 used in [Table 2](#), data is taken from two surveys in both 2020 and 2021.²⁴ The data for 2020 were taken from Eurobarometer #93.1 and #93.2 drawn in July-August 2020 and August-September 2021; for 2021 Eurobarometers #94.3 (February-March) and #95.1 (March-April) were used. The concern is that these surveys may miss the kind of monthly variations we have identified here. This makes it difficult to track movement in wellbeing over time because any movements may simply reflect seasonal differences in wellbeing which coincide with the time of year the survey was undertaken.

²³ https://www.covidsocialstudy.org/files/ugd/064c8b_8023e18f2f0a44fda625e222d7cf50a3.pdf

²⁴ Most other years in the Eurobarometer have between one and three surveys applying to very different months.

It is not just seasonal differences that are hard to capture in the absence of monthly data. Analysts can also miss short-term changes in wellbeing which are an important part of the literature. This is because some events have short-lived effects. Kimball, Levy, Ohtake and Tsutsui (2006) examined high frequency weekly data for the US on happiness from the Monthly Surveys of Consumers in August, September and October 2005 at the time when Hurricane Katrina hit New Orleans. The levy was breached on August 29th, 2005. The authors found that happiness dipped significantly in the US during the first week of September after the seriousness of the damage became clear. They found the dip was especially large in the 'South Central' region, (Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas), closest to the devastation of Katrina. The dip in happiness lasted two or three weeks in South Central but returned to normal in the rest of the country in one to two weeks. Interestingly, men did not have significantly different responses to Katrina than women. They also found some evidence that happiness dipped briefly in the week of October 13-19 after news of an earthquake hitting Pakistan and India on October 8, 2005. Similar short-term effects have been identified in relation to terrorist-related incidents (Clark et al., 2020; Bryson and MacKerron, 2022).

Table 12 reports the male coefficients from estimating 118 separate happiness 'yesterday' regressions with the APS for every month from March 2012 to October 2021. Results are only reported if the male coefficient is significantly different from zero, whatever the sign. Sample sizes each month are smaller at the end of the period but average around 12,000 observations. In ninety months, the male coefficient is insignificantly different from zero. In the period through to the middle of 2019 there are eighteen months where the coefficient is significant and negative. In ten months from September 2019 the sign switches to *positive* as COVID hits. Of particular note is the positive in September 2019. The evidence does suggest that the move to a positive male coefficient started prior to the pandemic and was exacerbated by it.

It seems to be important to separate out the monthly changes in well-being from the regular seasonal patterns in the data, which tend to show that the early summer months of June and July have the highest wellbeing levels and January has the lowest.

Table 13 shows that the choice of month to draw a sample is crucial. We present separate results by month with our standard list of controls for year, age and its square, country of residence and race. We again present the male coefficient, t-values and sample size, overall and separately by month, first for the UK, using the APS surveys for each of the three variables. We start with happiness, where four months (January, September, October and December) are significantly positive, seven are insignificantly different from zero while only one, March, is significantly negative. In the case of life satisfaction three are significantly negative (January, February and March) while nine are insignificant. For anxiety all coefficients are significantly negative with the largest negative for December and the smallest for March.

Part 2 of **Table 13** presents the only other major data file that we are aware of that contains both data on happiness and the number of bad mental health days, which also has full coverage by month - the BRFSS files of 2005-2010 for the United States – covering the years of the Great Recession when the monthly unemployment rate doubled from 5% to 10%.²⁵ The life satisfaction equation was not included in the surveys after 2010.

²⁵ There are 3188 observations for January and 606 for February 2011 in the 2010 survey. The data, from the Centers for Disease Control, are described here - <https://www.cdc.gov/brfss/index.html>

The questions used are:

Q16. In general, how satisfied are you with your life? Very satisfied (=4), satisfied (=3), dissatisfied (=2), very dissatisfied (=1).

Q17. "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

Sample sizes are over 2 million and we present results separately by month. Each equation includes a full set of year dummies, year, race and state of residence education along with a gender dummy. Of interest is that in the 4-step life satisfaction overall equation the male coefficient is significant and *positive*. Of the twelve, life satisfaction monthly equations for 2005-2011, in four the male coefficient is significant and positive – February, August, October and November - and the remaining eight are insignificantly different from zero. As with the anxiety variable in the UK the male coefficient on the number of bad mental health days is negative overall and in each of the twelve, monthly, regressions.

Data is also available on bad mental health days for 2019-2021 and the results are similar, all the coefficients are negative and bigger in absolute terms than in the earlier period. The number of bad mental health days variable has been included in the surveys every year from 1993-2021. In [Chart 11](#) we plot the average number of bad mental health days, with sample weights imposed. It is clear there has been a steady rise over time. We also calculate the averages by gender and then plotted the female-male difference, which is always positive, and which rises sharply from 2019 onwards.

5. With or without controls for marital status and income

There is also an issue regarding whether controls should be included in these various happiness regressions and if so which (See Glenn, 2009, Blanchflower and Oswald, 2009). Our position here is to simply include essentially exogenous controls – race, gender, state or country of residence and month and year of survey.²⁶

It turns out that the male coefficients in wellbeing equations such as in [Table 13](#) are sensitive to the inclusion of one potentially endogenous variable, marital status that is correlated with race. Income has similar effects. The first column of [Table 14](#) reports the overall results from [Table 13](#). In column 2 marital status is added and the male coefficient now becomes negative. Instead, in column 3 we add labor market status which has little or no impact. This is true in part a) using the APS and in part b) using BRFSS for 2005-11 and 2019-2021. Income and health status also tend to drive the male coefficient from positive to negative.

As an example, Layard, Clark and Senik (2012) estimated life satisfaction equations using the German Socio-Economic Panel (GSOEP), the British Household Panel (BHPS) and the World Values Survey (WVS) for prime age (30-55) and included time and area effects and controls in all three for labor force status, education and the number of children. They also included controls for health status, marital status and income and argued "*In most advanced countries*

²⁶ It turns out that in the United States the U-shape in age in wellbeing data is not so clear in the raw data. Blanchflower and Graham (2022) note that the US has higher marriage rates than other major advanced countries and a higher divorce rate. It turns out that there is a clear U-shape with limited controls for the unmarried but an early peak for the married and then a decline though midlife for the married. The addition of controls has much less effect outside the United States.

women report higher satisfaction and happiness than men. In our appendix women report higher life satisfaction scores than do men in all three of the data sets analyzed."

As a further illustration, in an earlier paper Blanchflower and Oswald (2011) examined a 4-step life satisfaction variable used above in the 2009 BRFSS and found a *negative* male coefficient. Part c) of [Table 14](#) uses the same 2009 BRFSS data and shows that a positive male coefficient is obtained if marital status or income are omitted as controls, which were included by Blanchflower and Oswald (2011). We explore the stability of the male coefficient using their list of controls

Row i) includes no controls at all and the male coefficient is +.0069 and significant with a t-statistic of over three. In rows ii) through vi) other controls used by Blanchflower and Oswald are added successively, and the coefficient remains significant and positive varying from .0049 to .0105. Adding BMI does reduce the sample size somewhat. Rows vii)-ix) show that the sign switches to negative if income or marital status alone or in combination are included. Finally rows xi) and xii) use the Blanchflower Oswald specification adding the number of moderate and vigorous exercise minutes and a smoking variable, these lower sample sizes somewhat but the male coefficients remain negative.²⁷ Interestingly adding a host of other significant variables fails to remove the positive male coefficient and the size of the coefficient is relatively stable to changes in specification.

6. Discussion

For the last few years there is increasing consistent evidence that there is not a female paradox in wellbeing. Men have higher wellbeing than women, whether that is measured using negative or positive affect variables and the gap has increased during the COVID-19 pandemic and associated lockdowns. There is some evidence though that the trend to observing a positive male coefficient in happiness equations had been in train prior to COVID.

We showed how much variation by month there is in happiness and life satisfaction data. Women's wellbeing is much more volatile than men's although it seems to have greater resilience. Initially the onset of lockdown, in March and April 2020 and January 2021 were greater hits to women's wellbeing than they were for men. But their wellbeing recovered faster, mostly missed by annual data. The data, however, are heavily impacted by monthly factors that we showed made a big difference especially in happiness data.

We showed there are obvious seasonal patterns in wellbeing data. Indeed, there are also seasonal patterns in suicide which tend to peak in April-June and early summer, and they are lowest from November to January (Christodoulou et al, 2012). Yu et al (2020) examined data for 12 countries from 1986-2016 and also found that counts peaked in spring and declined in winter. Why the monthly patterns in the suicide data in the opposite of the monthly patterns in the wellbeing data remains a puzzle.

What we have seen is something quite unusual – a sign change on a variable in happiness and life satisfaction equations in the UK. In this case the male dummy goes from significantly

²⁷ Blanchflower and Oswald found that the coefficient on the male variable was -.0067 (t=3.1) and n=365,449 with marital status and -.0194 (t=9.0) with income added (n=365,446) which is very close to the results reported in rows ix) and x).

negative to significantly positive.²⁸ The question is whether this will continue in the future. Women have experienced much greater downward hits than men consistent with Becchetti and Conzo (2021) claim that women are relatively more affected in their satisfaction about life by the good and bad events. But it does not seem they are less resilient than men or take more time to revert to their previous wellbeing levels than men do as they claim. They seem to be *more* resilient – they take a bigger hit but seem to catch-up quickly.

We are not the first to track wellbeing during the COVID pandemic. However, those studies that have been set up to do precisely this can only examine fluctuations in wellbeing as the pandemic unfolds. They are unable to assess changes in wellbeing relative to the pre-pandemic period. This is problematic since, as we will show, wellbeing fell in many countries with the onset of the pandemic, as one would expect with such a health shock. This drop in wellbeing is notable in the UK, which is the focus of our investigations, but is clearly not confined to the UK. Accounting for pre-existing trends in wellbeing, and gender differences in those patterns, is potentially important given the unresolved literature on whether men’s and women’s wellbeing has been converging or diverging over time (Blanchflower and Oswald, 2004 and Stevenson and Wolfers, 2008, 2009). But it is also crucial because, without information on what happened to seasonal patterns in wellbeing pre-pandemic, it is difficult to know whether variance within 2020 and 2021 is part of that ‘normal’ seasonal pattern, or perhaps linked to phases of the pandemic (lockdown, school closures, new virus variants etc.).

Pre-existing surveys provide an opportunity to observe what has happened to wellbeing, and differences between men’s and women’s wellbeing, pre- and post-pandemic. However, they will also struggle to distinguish between COVID effects and naturally occurring variance over time if they are unable to account for the monthly fluctuations in wellbeing, something we illustrate in detail below. Unfortunately, this is the case for a number of surveys. Most conduct survey fieldwork at a given time of year, such that survey respondents are necessarily reporting wellbeing at a given moment in the seasonal cycle. In other surveys, fieldwork timing may differ across years, or across countries, something which can profoundly affect efforts to take comparable wellbeing measures across years.

We contribute to the literature in several ways. First, using the General Social Survey (GSS) for the United States we track men and women’s happiness between 1973 and 2021. We show mean happiness does not differ significantly over time between men and women but falls gradually over time for both through to 2019. Happiness then plummets in 2021 for both, though women’s satisfaction falls further.

Second, using the European Commission’s Eurobarometer data for 37 countries we show life satisfaction fell between 2019 and 2021, in twenty-three for men and twenty-seven countries for women. Well-being dropped sharply for both men and women in the UK, as well as in the Netherlands, Austria and three Scandinavian countries - Denmark, Finland, Sweden - that traditionally rank among the happiest in the world.²⁹

Third, using data for Europe from the European Social Surveys and the European Quality of Life Surveys as well as a Eurobarometer Survey from 2020, we find broad evidence from a

²⁸ Blanchflower and Clark (2021) found the same in relation to the sign on children in a happiness equation. For school-aged children the sign flipped from negative to positive once controls were included for difficulty in paying the bills.

²⁹ The World Happiness Report, 2021 based on average life evaluations ranked Finland first, Denmark third, and Sweden 6th., the US 14th and the UK 18th.

variety of wellbeing questions – on calmness, restless sleep., being cheerful, lonely, fearful, helpless, anxious, frustrated, tense and more – we find that men have higher wellbeing than women. We also find that men are more satisfied than women in regard to broader questions about the state of the economy, democracy and the state of health services and education in their country. We confirm that for the US using data from the Behavioral Risk Factor Surveillance System (BRFSS) for the period 2005-2011.

Fourth, we turn to our main focus, namely gender differences in wellbeing and whether these have changed as a result of the COVID pandemic. We confirm this using the Eurobarometer data from 2003-2021. By 2021 life satisfaction levels of men were above those of women in half of the countries, including in France, Germany, the Netherlands and the UK. We examine data for the UK from the Annual Population Survey and find that over time the sign on the male coefficient has shifted from negative to positive, but this change was already in train prior to the pandemic. The years 2020 and 2021 mark an important change but the change was already underway in 2018 and 2019. Data from the Opinion and Lifestyle Survey for the UK finds that for most of the period from April 2020 through February 2022, male happiness, yesterday, was above female happiness. We also find evidence for this from the Health Survey for England and from four UK birth cohorts.

Fifth, we show that in *all* of the various negative affect variables we examine, including anxiety depression, bad mental health days and many more, we confirm that women are always and everywhere more unhappy than men.

Sixth, we show that there are seasonal patterns in positive affect data but not in negative affect data. This means that surveys such as the Eurobarometer, that do not cover the entire year may well suffer from a selection bias.

We show that gender differences and trends in wellbeing, vary markedly according to the wellbeing metric used and the frequency with which wellbeing is reported in surveys. In particular, we show for the first time that there are significant variations by month in happiness data regarding whether males are happier than females, but we find little variation by month in unhappiness data. For example, women are consistently more anxious than men, and whilst the gap in anxiety increased during COVID, it varied little month by month. In contrast, when examining movements in positive affect one requires high frequency data throughout the year to adequately track differences in men's' and women's wellbeing. These monthly data reveal that women's happiness was more adversely affected by the COVID shock than men's, but also that women's happiness rebounded more quickly suggesting resilience.

We also find that there are many other positive affect variables other than happiness and life satisfaction. These include being calm, having enjoyment, feeling cheerful, fresh and rested, active and vigorous and many more. In these men are always happier than women. We find similarly using broader issues relating to the economy, democracy, health and education services that men are more content than women. We find similarly for satisfaction with the city where someone lives, their friendships and family life.

At the time of writing in March 2022, we find that the latest data for the years 2020 and 2021 for the US, the EU27 and the UK suggest that there is increasing evidence that there is no longer *any* female paradox. We report some evidence from the UK that this pattern started before the COVID pandemic. There is strong evidence from a number of data sources and countries that men are happier, and less unhappy, than women. The question is whether this

will change as the virus recedes and societies return to normal. The female paradox in wellbeing, for now at least, is resolved. Men are happier than women.

References

- Adams-Prassl, A, T. Boneva, M. Golin and C. Rauh (2020), 'Inequality in the impact of the coronavirus shock: Evidence from real time surveys,' *Journal of Public Economics*, 189: 104245.
- Aknin, L.B., J.E. De Neve, E.W. Dunn, D.E. Fancourt, E. Goldberg, J.F. Helliwell, S.P. Jones, E. Karam, R. Layard, S. Lyubomirsky, A. Rzepa, S. Saxena, E.M. Thornton, T.J. VanderWeele, A.V. Whillans, J. Zaki, O. K. Caman and Y.B. Amor (2022), 'Mental health during the first year of the COVID-19 pandemic: a review and recommendations for moving forward,' *Perspectives on Psychological Science*, in press.
- Appleby, L., N. Richards, S. Ibrahim, P. Turnbull, C. Rodway, N. Kapur (2021), 'Suicide in England in the COVID-19 pandemic: early figures from real time surveillance,' *The Lancet, Regional Health Europe*, 4, 1—11, May 1.
- Banks, J., and X. Xu (2020), 'The mental health effects of the first two months of lockdown during the Covid-19 pandemic in the UK,' *Fiscal Studies*, 41(3): 685-708.
- Banks, J., Fancourt, D. and X. Xu (2021), 'Mental health and the Covid-19 pandemic,' in *World Happiness Report, 2021*, edited by Helliwell, J.F., R. Layard, J.D. Sachs, J. De Neve, L.B. Aknin and S. Wang.
- Becchetti, L. and G. Conzo (2021), 'The gender life satisfaction/depression paradox,' *Social Indicators Research*,
- Bell, D.N.F and D.G. Blanchflower (2021), 'The U-shape of happiness in Scotland,' *Scottish Journal of Political Economy*, 68(4): 407-433.
- Bell, D.N., Blanchflower, D.G. (2015), 'Youth unemployment in Greece: measuring the challenge.,' *IZA Journal of Labor Studies*, 4(1).
- Bertrand, M. (2010), 'New perspectives on gender,' Chapter 17 in O. Ashenfelter and D. Card (eds.) *Handbook of Labor Economics Volume 4b*: 1545-1592
- Bertrand, M. (2013). 'Career, family, and the wellbeing of college-educated women,' *American Economic Review*, 103(3): 244-50.
- Bertrand, M., Kamenica, E. and Pan, J. (2015). 'Gender identity and relative income within households', *The Quarterly Journal of Economics*, 130(2): 571–614.
- Blanchflower, D.G. (2021), 'Is happiness U-shaped everywhere? Age and subjective well-being in 145 countries,' *Journal of Population Economics*, 34: 575–624.
- Blanchflower, D.G. (2020), 'Unhappiness and age,' *Journal of Economic Behavior and Organization*, 176: 461-488.
- Blanchflower D.G. and A.J. Bryson (2022a), 'Well-being rankings around the world', working paper.

Blanchflower D.G. and A.J. Bryson (2022b), 'Further decoding the mystery of American pain: The importance of work,' *PLos One*, January 13, 2022.

Blanchflower, D.G. and A.J. Bryson (2021a), 'Taking the pulse of nations: a biometric measure of well-being,' NBER working paper #29587.

Blanchflower D.G. and A.J. Bryson (2021b), 'Biden, Covid and mental health in America,' NBER working paper 29040.

Blanchflower D.G. and A.J. Bryson (2021c), 'Unemployment and sleep: evidence from the United States and Europe,' *Economics and Human Biology*, 43, December, 101042.

Blanchflower, D.G. and A.E. Clark (2021), 'Children, unhappiness and family finances,' *Journal of Population Economics*, 34: 625-653.

Blanchflower, D.G. and D. Feir (2021), 'Native Americans' experience of chronic distress in the USA,' *Journal of Population Economics*, forthcoming.

Blanchflower, D.G. and C. Graham (2022), 'Happiness and aging in the United States,' forthcoming in *Handbook of the Economics of Ageing*, edited by David Bloom, Alfonso Sousa-Poza and Uwe Sunde, Routledge.

Blanchflower, D.G. and C.L. Graham (2021a), 'The U-shape of happiness: a response,' *Perspectives in Psychological Science*, 16(6): 1435-1455.

Blanchflower, D.G. and C.L. Graham (2021b), 'The mid-life dip in well-being: a critique,' *Social Indicators Research*, <https://doi.org/10.1007/s11205-021-02773-w>

Blanchflower D.G. and A.J. Oswald (2020), 'Trends of extreme distress in the USA, 1993-2019,' *American Journal of Public Health*, 110, pp. 1538-1544.

Blanchflower, D.G. and A.J. Oswald (2016), 'Antidepressants and age: a new form of evidence for U-shaped well-being through life,' *Journal of Economic Behavior & Organization* 127: 46–58.

Blanchflower, D.G. and A.J. Oswald (2011), 'International happiness: a new view on the measure of performance,' *Academy of Management Perspectives*, 2(1): 6-22.

Blanchflower, D.G. and, A.J. Oswald (2009), 'The U-shape without controls: A response to Glenn', *Social Science and Medicine*, 69, pp. 486-488.

Blanchflower, D.G. and A.J. Oswald (2004), 'Well-being over time in Britain and the USA,' *Journal of Public Economics*, 88, Issues 7-8: 1359-1386.

Brodeur, A. A.E. Clark, S. Flèche and N. Powdthavee (2021), 'COVID-19, lockdowns and well-being: evidence from Google Trends,' *Journal of Public Economics*, 193, 104346.

Bryson, A, and G. MacKerron (2022), 'How does terrorism affect individuals' wellbeing?' UCL mimeo

Bryson, A, and G. MacKerron (2017), 'Are you happy while you work?' *Economic Journal*, 127: 106–125.

Case, A. and A. Deaton (2019), *Deaths of Despair and the Future of Capitalism*, Princeton University Press, Princeton, NJ.

Christodoulou, C., A. Douzenis, F.C. Papaadopoulos, G. Biuras, R. Gournellis and L. Lykouras, (2012), 'Suicide and seasonality,' *Acta Psychiatrica Scandinavica*, Feb;125(2): 127-146.

Clark, A.E., Doyle, O. and Stancanelli, E. (2020), 'The impact of terrorism on individual well-being: evidence from the Boston Marathon bombing,' *The Economic Journal*, 130 (October): 2065-2104.

Curtin, S.C., H. Hedegaard and F.B. Ahmad (2021), 'Provisional numbers and rates of suicide by month and demographic characteristics, United States, 2020,' Vital Statistics Rapid Release, Report 16, CDC, November 2021. <https://www.cdc.gov/nchs/data/vsrr/VSRR016.pdf>

Del Boca, D. N. Oggero, P. Profeta, M. Rossi (2020), 'Women's and men's work, housework and childcare, before and during COVID-19,' *Review of Economics of the Household*, 18: 1–17.

Etheridge, B. and L. Spantig (2021), 'The gender gap in mental well-being during the COVID-19 outbreak: evidence from the UK,' ISER Working Paper 2020-08.

Fancourt, D., A. Steptoe and F. Bu (2020), 'Trajectories of anxiety and depressive symptoms during enforced isolation due to COVID-19 in England: a longitudinal observational study,' *The Lancet Psychiatry*, published online Dec 9. [www.DOI:10.1016/S2215-0366\(20\)30482-X](http://www.DOI:10.1016/S2215-0366(20)30482-X)

Foa, R.S., M. Fabian and S. Gilbert (2022), 'Subjective well-being during the 202-21 global coronavirus pandemic; evidence from high frequency time series data,' Bennett Institute for Public Policy, University of Cambridge, February.

Fortin, Helliwell and Wang (2015), 'How does subjective well-being vary around the world by gender and age,' *World Happiness Report, 2015*, edited by J.F. Helliwell, R. Layard, and J. Sachs, Sustainable Development Solutions Network, New York.

Giurge, L.M., A.V. Whillans and A. Yemiscigil (2021), 'A multi-country perspective on gender differences in time use during COVID-19,' *Proceedings of the National Academy of Sciences*, 118 (12) e2018494118; DOI:10.1073/pnas.2018494118

Glenn, N. (2009), 'Is the apparent U-shape of well-being over the life course a result of inappropriate use of control variables? A commentary on Blanchflower and Oswald (66:8, 2008, 1733–1749),' *Social Science and Medicine*, 69(4), pp. 481–485.

Goldin, C. (2020), 'Journey across a century of women,' 20th Marty Feldstein Lecture, <https://www.nber.org/lecture/2020-martin-feldstein-lecture-journey-across-century-women>

Graham, C.L and S. Chattopadhyay (2013), 'Gender and well-being around the world,' *International Journal of Happiness and Development*, 1(2): 213-232.

Hansen, B., Sabia, J. J. and Schaller, J. (2022), 'Schools, job flexibility and married women's labor supply: evidence from the COVID-19 pandemic,' *NBER Working Paper #29660*

Harmatz, M.G., A.D. Well, C.E. Overtree, K.Y. Kawamura, M. Rosal and I.S. Ockene (2000), 'Seasonal variation of depression and other moods: a longitudinal approach,' *Journal of Biological Rhythms*, 15(4): 344–350.

Helliwell, J.F., R. Layard, J.D. Sachs, J. De Neve, L.B. Aknin and S.Wang (2021), *The World Happiness Report, 2021* Sustainable Development Solutions Network, New York. <https://happiness-report.s3.amazonaws.com/2021/WHR+21.pdf>

Herbst, C.M. (2011), 'Paradoxical' decline? Another look at the relative reduction in female happiness,' *Journal of Economic Psychology*, 32; 773-788.

Kimball, M., H. Levy, F. Ohtake and Y. Tsutsui (2006), 'Unhappiness after Hurricane Katrina,' NBER working paper #12062.

Layard, R., A. Clark and C. Senik (2012), 'The causes of happiness and misery,' in *World Happiness Report, 2012* edited by J.F. Helliwell, R. Layard and J. Sachs: 10-57

Maldonado, G. and J.F. Kraus (1991), 'Variation in suicide occurrence by time of day, day of the week, month and lunar phase,' *Suicide and Life Threatening Behavior*, 21(2); 174-187.

Matteucci, N., & S.V. Lima (2016), 'Women and happiness,' In *Handbook of Research Methods and Applications in Happiness and Quality of Life*, Edward Elgar Publishing.

Meisenberg, G. and M.A. Woodley (2015), 'Gender differences in subjective well-being and their relationships with gender equality,' *Journal of Happiness Studies*, 16: 1539-1555,

Montgomery, M. (2022), 'Reversing the gender gap in happiness,' *Journal of Economic Behavior and Organization*, forthcoming.

ONS (2021a) Coronavirus (COVID-19) and the different effects on men and women in the UK, March 2020 to February 2021, ONS, 10 March. <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/articles/coronaviruscovid19andthedifferenteffectsonmenandwomenintheukmarch2020tofebruary2021/2021-03-10>

ONS (2021b), 'Deaths caused by suicide by quarter in England', 8 December 2021. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathscausedbysuicidebyquarterinengland>

ONS (2021c), 'Coronavirus and depression in adults in Great Britain, July to August, 2021,' October 1, 2021

<https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/coronavirusanddepressioninadultsgreatbritain/julytoaugust2021>

ONS (2020), 'Coronavirus and anxiety,' Great Britain, 3 April 2020 to 10 May 2020', ONS, 15 June 2020.

<https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/coronavirusandanxietygreatbritain/3april2020to10may2020>

Pierce, M., S. McManus, H. Hope, M. Hotopf, T. Ford, S.L. Hatch, A. John, E. Kontopantelis, R.T. Webb, S. Wessely and K.M. Abel (2021), 'Mental health responses to the COVID-19 pandemic: a latent class trajectory analysis using longitudinal UK data,' *The Lancet Psychiatry*, 8(7); 610-619.

Pirkis, J., John, A., Shin, S., DelPozo-Banos, M., Arya, V., Analuisa-Aguilar, P., et al (2021). 'Suicide trends in the early months of the COVID-19 pandemic: an interrupted time-series analysis of preliminary data from 21 countries,' *The Lancet Psychiatry*.

Proto, E., & Quintana-Domeque, C. (2021), 'COVID-19 and mental health deterioration by ethnicity and gender in the UK,' *PloS One*, 16(1), e0244419.

Stevenson, B. and J. Wolfers (2009), 'The paradox of declining female happiness,' *American Economic Journal: Economic Policy*, 1:2: 190-225.

Stevenson, B. and J. Wolfers (2008), 'Happiness inequality in the United States,' *The Journal of Legal Studies*, 37(2), S533-S579.

Weissman, M. M., Bland, R. C., Canino, G. J., et al. (1996), 'Cross-national epidemiology of major depression and bipolar disorder,' *JAMA*, 276: 293–299.

Wielgoszewska, B., Bryson, A., Costa-Dias, M., Foliano, F., Joshi, H. and Wilkinson, D. (2021) "Exploring the Reasons for Labour Market Gender Inequality a Year into the Covid-19 Pandemic: Evidence from the UK Cohort Studies", *QSS Working Paper #21-23*.

Yu, J., D. Yang, Y. Kim, M. Hashizume, A. Gasparrini, B. Armstrong, Y. Honda, A. Tobias, F. Sera, A. M. Vicedo-Cabrera, H. Kim, C. Íñiguez, E. Lavigne, M. S. Ragetti, N. Scovronick, F. Acquavota, B. Chen, Y. L. Guo, M. de Sousa Zanotti Stagliori Coelho, P. Saldiva, A. Zanobetti, J. Schwartz, M. L. Bell, M. Diaz, C. De la Cruz Valencia, I. Holobacă, S. Fratianni and Y. Chung (2020), 'Seasonality of suicide: a multi-country multi-community observational study,' *Epidemiology and Psychiatric Sciences*, 29.

Zhou, M. and M. Kan (2021), 'The varying impacts of COVID-19 and its related measures in the UK: A year in review,' *PLoS One*: September 29, 2021.

Zweig, J. (2014), 'Are women happier than men? Evidence from the Gallup World Poll', *Journal of Happiness Studies*, 16; 515-541.

Table 1. US happiness regressions from the General Social Survey, 1972-2021

a) OLS Happiness

	1972-2006	2008-2021	1972-2021	1972-2006	2008-2021	1972-2021
Female dummy	.0409 (3.57)	.2248 (2.30)	.0282 (2.91)	.0064 (1.09)	.0048 (0.49)	.0060 (1.18)
Female time trend	-.0016 (4.19)	-.0142 (9.36)	-.0032 (13.95)			
Male time trend	.0004 (0.89)	-.0090 (5.37)	-.0023 (9.03)			
Year dummies				Yes	Yes	Yes
Adjusted R ²	.0004	.0064	.0043	.0016	.0139	.0094
N	46,303	17,673	63,976	46,303	17,673	63,976

b) % very happy probit

	1972-2006	2008-2021	1972-2021	1972-2006	2008-2021	1972-2021
Female dummy	.0915 (3.90)	.5963 (2.95)	.0789 (3.99)	+.0318 (2.60)	-.0002 (0.01)	.0233 (2.22)
Female time trend	-.0047 (5.83)	-.0258 (8.18)	-.0059 (12.50)			
Male time trend	-.0011 (1.26)	-.0118 (3.40)	-.0036 (6.81)			
Year dummies				Yes	Yes	Yes
Pseudo R ²	.0007	.0038	.0026	.0018	.0082	.0053
N	46,303	17,673	63,976	46,303	17,673	63,976

c) Family finances and marital happiness

"We are interested in how people are getting along financially these days. So far as you and your family are concerned, would you say that you are [3] Pretty well satisfied with your present financial situation; [2] More or less satisfied; or [1] Not satisfied at all?"
If currently married: "Taking things all together, how would you describe your marriage? Would you say that your marriage is [3] Very happy; [2] Pretty happy; or [1] Not too happy?"

	Family finances			Marital happiness		
	1972-2006	2008-2021	1972-2021	1972-2006	2008-2021	1972-2021
Female dummy	-.0324 (4.65)	-.0786 (6.97)	-.0452 (7.62)	-.0514 (7.37)	-.0529 (4.25)	-.0518 (8.51)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	.0025	.0073	.0094	.0040	.0029	.0040
N	46433	17671	63976	24455	8044	32,499

D) Satisfaction with location, family and friends, 1972-1994.

“For each area of life I am going to name tell me the number that shows how much satisfaction you get from that area: [7] A very great deal; [6] A great deal; [5] Quite a bit; [4] A fair amount; [3] Some; [2] A little; [1] None.” – i) The city or place you live in 2) your family life and 3) your friendships?”

1972-1994	City	Family life	Friendships
Female dummy	-.0884 (4.51)	-.1614 (9.11)	-.1498 (9.33)
Year dummies	Yes	Yes	Yes
Adjusted R ²	.0037	.0044	.0078
N	24133	24070	24,128

Table 2. 4-step Life Satisfaction in 37 European countries, Eurobarometers, 2019-2021

	Males			Females		
	2019	2020	2021	2019	2020	2021
All	3.04	3.00	2.94	3.03	3.02	2.93
Albania	2.46	2.34	2.58	2.58	2.37	2.62
Austria	3.25	3.13	2.97	3.29	3.17	3.07
Belgium	3.14	3.14	3.11	3.13	3.13	3.01
Bulgaria	2.43	2.40	2.47	2.46	2.42	2.50
Croatia	2.93	2.99	2.88	2.94	3.00	2.92
Cyprus	3.18	3.23	3.00	3.11	3.17	2.98
Czechia	3.06	3.09	3.10	3.10	3.16	3.07
Denmark	3.72	3.66	3.40	3.70	3.72	3.41
Estonia	2.92	2.86	2.83	2.95	2.91	2.85
Finland	3.28	3.12	3.03	3.33	3.20	3.11
France	3.04	3.02	2.95	2.99	2.99	2.90
Germany	3.20	3.25	3.21	3.23	3.24	3.19
Greece	2.49	2.58	2.53	2.43	2.60	2.50
Hungary	2.78	2.87	2.70	3.83	2.92	2.75
Ireland	3.35	3.22	3.14	3.37	3.20	3.17
Italy	2.72	2.74	2.55	2.75	2.72	2.60
Latvia	2.90	2.96	2.71	2.89	3.00	2.71
Lithuania	2.83	2.95	2.78	2.89	2.99	2.77
Luxembourg	3.36	3.20	3.12	3.38	3.22	3.02
Macedonia	2.56	2.70	2.76	2.59	2.66	2.76
Malta	3.14	3.14	3.12	3.09	3.13	3.08
Montenegro	2.84	2.78	2.78	2.72	2.71	2.61
Netherlands	3.53	3.50	3.43	3.51	3.49	3.42
Poland	2.99	3.07	2.99	3.01	3.05	3.00
Portugal	2.74	2.82	2.77	2.72	2.77	2.77
Romania	2.55	2.78	2.69	2.59	2.76	2.71
Serbia	2.52	2.51	2.61	2.52	2.58	2.62
Slovakia	2.93	2.86	2.77	2.92	2.83	2.78
Slovenia	3.19	3.20	3.01	3.19	3.21	2.98
Spain	3.10	3.08	3.00	3.11	3.08	2.94
Sweden	3.43	3.13	2.97	3.46	3.38	3.27
Turkey	2.78	2.68	2.71	2.83	2.69	2.65
Turkish Cyprus	2.77	2.82	2.84	2.80	2.71	2.69
UK	3.35	3.17	3.10	3.39	3.22	3.08
Norway			3.16			3.13
Switzerland			3.29			3.20
Iceland			3.33			3.25
Bosnia			2.78			2.82

Notes: Bold and italics means male rate in 2021 above female rate.

Table 3. 4-step Life satisfaction equations and male coefficients for 36 European countries, 2003-2021 – 13 positives; 10 negative 13 insignificant

Country	2003-2021		1975-2002	
	Coefficient (t-stat)	N	Coefficient (t-stat)	N
All	.0000 (0.00)	1,740,043	-.0126 (7.17)	647,865
Albania	-.0725 (5.63)	12,470		
Austria	-.0254 (4.68)	59,630	-.0255 (1.99)	10,969
Belgium	+.0331 (6.30)	60,247	.0018 (0.30)	53,991
Bulgaria	+.0128 (1.92)	58,247		
Croatia	-.0210 (3.23)	56,596		
Cyprus	+.0574 (6.42)	29,124		
Czechia	.0005 (0.10)*	59,661		
Denmark	-.0040 (0.89)*	59,640	-.0290 (5.65)	52,936
Estonia	-.0200 (3.63)	58,380		
Finland	-.0661 (13.69)	59,666	-.0849 (7.13)	11,101
France	+.0396 (6.83)	59,969	.0049 (0.79)	55,314
Germany	.0054 (1.23)*	91,188	.0075 (1.60)	78,523
Greece	+.0462 (6.79)	59,385	+.0239 (2.82)	41,945
Hungary	+.0162 (2.62)	59,661		
Iceland	-.0442 (2.47)	5,051		
Ireland	-.0330 (6.16)	59,599	-.0922 (14.07)	52,799
Italy	+.0132 (2.31)	60,046	+.0510 (8.12)	56,099
Latvia	-.0017 (0.28)*	58,264		
Lithuania	-.0001 (0.02)*	58,415		
Luxembourg	-.0082 (1.16)*	30,106	-.0221 (2.48)	21,086
Macedonia	-.0022 (0.20)*	25,955		
Malta	+.0340 (4.42)	29,102		
Montenegro	-.0237 (1.59)*	12,392		
Netherlands	-.0079 (1.60)*	60,214	-.0627 (11.50)	53,885
Norway			-.0274 (2.01)	8,986
Poland	.0060 (1.13)*	57,170		
Portugal	+.0550 (9.82)	60,471	+.0616 (8.17)	33,781
Romania	+.0215 (3.37)	59,631		
Serbia	-.0090 (0.72)*	16,138		
Slovakia	-.0098 (1.67)*	59,864		
Slovenia	+.0155 (2.90)	59,230		
Spain	+.0218 (3.79)	59,622	.0051 (0.64)	33,870
Sweden	-.0404 (8.37)	60,457	.0049 (0.43)	11,008
Switzerland	.0945 (2.42)	1,104		
Turkey	-.0355 (3.28)	30,187		
Turkish Cyprus	.0127 (0.92)*	17,419		
UK	-.0291 (5.92)	72,315	-.0469 (8.64)	71,572

Notes: all equations include year dummies.

* means coefficient insignificantly different from zero. Source: Eurobarometers 2003-2021 and The Mannheim Eurobarometer Trend File, 1970-2002

Table 4. Wellbeing in 39 countries, European Social Survey sweeps 1-9, 2002-2018.

	Male coefficient and t-value	N
a) 2002-2018		
1. How happy are you? 0-10	-.0240 (4.11)	430,755
How satisfied with... (0 extremely dissatisfied – extremely satisfied10)		
2. Life as a whole	-.0090 (1.38)	431,345
3. National government	+.0538 (7.37)	416,920
4. The way democracy works in your country	+.1329 (18.38)	415,025
5. Present state of the economy in country	+.2074 (30.58)	425,122
6. State of education in country nowadays	+.0372 (5.46)	411,703
7. State of health services in country nowadays	+.2272 (32.31)	428,131
8. How life turned out so far (2006)	+.1185 (6.47)	46,709
9. Standard of living (2006)	+.1424 (7.26)	46,693
b) 2006, 2012 and 2014		
How often in the past week have you felt – none or almost none, some of the time, most of the time, all or almost all the time		
10. Depressed	-.1431 (39.51)	140,611
11. Anxious	-.1338 (29.99)	100,520
12. Sad	-.1714 (47.44)	140,612
13. Lonely	-.1053 (27.44)	140,658
14. Sleep was restless	-.1895 (42.29)	140,993

Equations include eight sweep and thirty-eight country dummies – t-statistics in parentheses. Countries are Albania; Austria; Belgium; Bulgaria; Croatia; Cyprus; Czechia; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Kosovo; Latvia; Lithuania; Luxembourg; Montenegro; Netherlands; Norway; Poland; Portugal; Romania; Russian Federation; Serbia; Slovakia; Slovenia; Spain; Sweden; Switzerland; Turkey; Ukraine and United Kingdom. Years in survey by country found here:

https://www.europeansocialsurvey.org/data/country_index.html

Table 5. Wellbeing in 36 European Countries from European Quality of Life Surveys, 2003-2016

	Male coefficient (t-value)	N
i) 2003-2016		
1) Happiness (1=10)	+.0229 (2.23)	141,184
2) Life satisfaction (1-10)	+.0177 (1.61)	141,780
ii) 2007, 2011 & 2016 <i>"I have felt.....at no time; some of the time; less than half of the time; more than half of the time; most of the time and all of the time?"</i>		
3) Cheerful and in good spirits	+.1279 (18.22)	115,635
4) Calm and in good spirits	+.2239 (30.50)	115,649
5) Active and vigorous	+.1829 (23.58)	115,565
6) Woke up feeling fresh and rested	+.2388 (29.12)	115,563
7) My daily life has been filled with things that interest me	+.1368 (17.85)	115,081
8) Lonely (2011, 2016)	-.1922 (20.86)	80,026
9) Downhearted and depressed (2011, 2016)	-.2007 (22.79)	79,916
10) Tense (2011, 2016)	-.1459 (15.37)	79,976
"Strongly disagree; disagree; neither; agree and strongly agree		
11) I feel left out of society (2007, 2011, 2016)	-.0279 (4.73)	115,305

Notes: Controls are country and wave.

Countries are Albania; Austria; Belgium; Bulgaria; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Macedonia; Germany; Greece; Hungary; Iceland; Ireland; Italy; Kosovo; Latvia; Lithuania; Luxembourg; Malta; Montenegro; Netherlands; Norway; Poland; Portugal; Romania; Serbia; Slovakia; Slovenia; Spain; Sweden; Turkey and United Kingdom

Table 6. Well-being in 27 EU countries in 2021 Eurobarometer Survey, March-April 2021

	Male coefficient (t-value)
1. Life satisfaction (n=26,613)	-.0135 (1.68)
Feelings describing current emotional status (1,0 dummies) n=26,669:	
	Male coefficient (t-value)
2. Calm	+.0742 (15.37)
3. Loneliness	-.0341 (7.70)
4. Fear	-.0690 (15.09)
5. Helplessness	-.0403 (7.94)
6. Frustration	-.0154 (2.78)
7. Uncertainty	-.0601 (10.00)

Controls are country dummies only. Countries are Austria; Belgium; Bulgaria; Croatia; Cyprus ; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Ireland; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Poland; Portugal; Romania; Slovakia; Slovenia; Spain and Sweden; Source: Eurobarometer 95.1

Table 7. Enjoyment and Cantril life satisfaction from Gallup World Poll, 2005-2021

a) Overall, 2005-2021

	Enjoyment		Cantril Life satisfaction	
Male	+.0083 (13.97)	+.0048 (7.95)	-.0700 (25.07)	-.1094 (38.85)
Age		-.0051 (59.09)		-.0372 (91.55)
Age ² *100		.0037 (33.02)		.0307 (70.33)
Year dummies	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes
Education dummies	No	Yes	No	Yes
Constant	.8790	1.0724	7.5015	7.5243
Adjusted R ²	.0523	.0655	.1901	.2147
N	2,267, 773	2,178,946	2,333,834	2,244,571

b) 77 countries with positive and significant male coefficients on enjoyment

Afghanistan	+.0434 (5.34)	14,043
Armenia	+.0256 (2.93)	13,754
Austria	+.0174 (2.56)	14,925
Bahrain	+.0163 (2.08)	14,114
Belarus	+.0454 (5.34)	13,893
Belgium	+.0216 (3.04)	13,995
Belize	+.0566 (2.03)	974
Benin	+.0300 (3.42)	12,874
Bolivia	+.0456 (6.49)	15,779
Botswana	+.0160 (1.87)	12,063
Brazil	+.0196 (3.01)	18,043
Cambodia	+.0614 (8.83)	15,572
Canada	+.0150 (2.80)	16,344
CAR	+.0230 (1.64)	4,958
Chad	+.0262 (3.13)	13,934
Chile	+.0283 (4.40)	15,201
Colombia	+.0369 (5.59)	15,912
Comoros	+.0301 (3.09)	8,968
Congo Brazzaville	+.0159 (1.76)	11,897
Costa Rica	+.0302 (5.22)	15,910
Cyprus	+.0278 (3.71)	12,550
Dominican Republic	+.0557 (7.34)	15,005
Ecuador	+.0248 (3.83)	15,029
El Salvador	+.0199 (3.05)	14,971
Ethiopia	+.0168 (1.86)	11,204
Gabon	+.0553 (5.58)	9,927
Georgia	+.0431 (5.24)	14,807
Germany	+.0364 (8.18)	37,102
Ghana	+.0194 (2.53)	15,928

Greece	+0.0284 (3.74)	15,015
Guatemala	+0.0445 (6.69)	13,985
Guinea	+0.0209 (2.21)	10,069
Haiti	+0.0348 (2.58)	5,447
Honduras	+0.0172 (2.43)	13,825
India	+0.0057 (1.51)	59,207
Iraq	+0.0216 (2.69)	15,679
Israel	+0.0135 (1.78)	14,875
Ivory Coast	+0.0179 (1.69)	8,866
Jamaica	+0.0669 (4.50)	3,522
Kosovo	+0.0134 (1.74)	13,820
Lebanon	+0.0128 (1.78)	18,928
Libya	+0.0387 (3.10)	6,003
Madagascar	+0.0247 (2.79)	10,969
Malawi	+0.0133 (1.56)	12,982
Malta	+0.0511 (5.66)	12,006
Mauritius	+0.0202 (2.02)	7,968
Montenegro	+0.0175 (2.04)	12,729
Morocco	+0.0278 (3.19)	12,645
Mozambique	+0.0240 (2.12)	7,782
Nagorno-Karabakh	+0.0758 (2.35)	998
Namibia	+0.0633 (5.00)	5,982
Netherlands	+0.0149 (2.63)	14,721
New Zealand	+0.0161 (2.68)	13,789
Nicaragua	+0.0452 (6.43)	14,974
North Macedonia	+0.0411 (4.80)	12,929
Northern Cyprus	+0.0595 (4.72)	5,999
Pakistan	+0.0311 (4.56)	20,523
Panama	+0.0162 (2.43)	13,955
Peru	+0.0444 (6.24)	14,735
Portugal	+0.0914 (11.44)	14,990
Romania	+0.0387 (4.94)	14,785
Russia	+0.0134 (2.58)	35,420
Rwanda	+0.0188 (2.36)	12,451
Slovenia	+0.0303 (3.41)	12,435
Somaliland region	+0.0182 (1.84)	6,997
South Africa	+0.0193 (2.90)	16,020
Spain	+0.0375 (5.05)	16,986
Tajikistan	+0.0224 (2.96)	16,550
Turkey	+0.0250 (3.24)	16,602
Ukraine	+0.0301 (3.78)	15,469
UAE	+0.0227 (3.78)	20,871
United States	+0.0122 (2.14)	16,229
Uruguay	+0.0174 (2.68)	14,922
Uzbekistan	+0.0251 (3.58)	15,024
Venezuela	+0.0146 (2.39)	13,909

Vietnam	+0.0221 (2.77)	15,428
Zambia	+0.0134 (1.75)	13,959

Thirty countries with negative and significant male coefficient

Algeria; Azerbaijan; Bangladesh; China; Croatia; Czech Republic; Denmark; Estonia; Finland; Iceland; Indonesia; Iran; Japan; Laos; Latvia; Malaysia; Mauritania; Moldova; Mongolia; Niger; Norway; Palestinian; Poland; Singapore; Slovakia; South Korea; Sudan; Sweden; Taiwan; Turkey; United Kingdom and Yemen.

Fifty-nine countries with insignificant coefficients

Albania; Angola; Argentina; Australia; Bhutan; Bosnia and Herzegovina; Bulgaria; Burkina Faso; Burundi; Cameroon; Congo (Kinshasa); Croatia; Cuba; Djibouti; Egypt; Eswatini; Guyana; Hong Kong; Ireland; Italy; Jordan; Kazakhstan; Kenya; Kuwait; Kyrgyzstan; Lesotho; Liberia; Lithuania; Luxembourg; Mali; Mexico; Myanmar; Nepal; Netherlands; Nigeria; Paraguay; Philippines; Puerto Rico; Qatar; Saudi Arabia; Senegal; Serbia; Sierra Leone; South Sudan; Sri Lanka; Suriname; Switzerland; Syria; Tanzania; Thailand; The Gambia; Togo; Trinidad & Tobago; Tunisia; Turkmenistan; Uganda and Zimbabwe;

Table 8. UK OLS Coefficients on male dummy in Well-being equations APS 2013-2021

	Happiness		Life satisfaction		Anxious	
All	+0.0058 (1.62)	1,453,690	-.0107 (3.52)	1,454,283	-.3749 (78.32)	1,452,481
2012	-.0421 (3.84)	166,339	-.0598 (6.41)	166,406	-.2561 (17.90)	166,122
2013	-.0170 (1.57)	166,132	-.0416 (4.49)	166,212	-.2961 (20.83)	165,895
2014	-.0147 (1.36)	165,597	-.0448 (4.95)	165,693	-.3092 (21.74)	165,393
2015	-.0070 (0.65)	158,326	-.0239 (2.63)	158,377	-.3355 (23.17)	158,138
2016	-.0182 (1.63)	150,645	-.0338 (3.65)	150,706	-.3421 (23.10)	150,530
2017	-.1046 (1.35)	154,295	-.0259 (2.84)	154,349	-.3760 (25.62)	154,219
2018	+0.0098 (0.88)	148,046	+0.0109 (1.17)	148,105	-.4240 (28.35)	147,980
2019	+0.0277 (2.49)	145,439	.0102 (1.08)	145,505	-.4486 (29.69)	145,380
2020	+0.1080 (8.66)	112,536	+0.0860 (7.92)	112,566	-.5582 (32.60)	112,520
2021	+0.1089 (7.77)	86,335	+0.1027 (8.32)	86,364	-.5621 (29.16)	86,304

Excluded 2013 for 2013-19 and 2020 for 2020-2021; controls are race, country of residence and month. Source: Annual Population Surveys

Table 9. OLS UK Well-being equations APS 2013-2021.

	Happiness	Life satisfaction	Anxious
Male	-.0296 (6.76)	-.0420 (11.29)	-.3100 (52.71)
Male*2021	.1247 (8.16)	.1376 (10.61)	-.2390 (11.69)
Male*2020	.1238 (9.14)	.1203 (10.47)	-.2367 (13.06)
Male*2019	.0460 (3.81)	.0468 (4.56)	-.1298 (8.02)
Male*2018	.0258 (2.16)	.0464 (4.57)	-.1032 (6.43)
2012	.2239 (9.22)	-.0970 (4.71)	-.8470 (26.06)
2013	.2832 (11.68)	-.0532 (2.59)	-.9229 (28.43)
2014	.3539 (14.59)	.0311 (1.51)	-.9676 (29.80)
2015	.3956 (16.30)	.1034 (5.02)	-1.0076 (31.01)
2016	.4146 (17.03)	.1238 (5.99)	-.9936 (30.49)
2017	.4520 (18.57)	.1509 (7.31)	-.9935 (30.50)
2018	.4434 (17.89)	.1378 (6.56)	-.9955 (30.02)
2019	.4281 (17.28)	.1278 (6.09)	-.9225 (27.83)
January 2020	.4102 (13.07)	.0777 (2.92)	-.8746 (20.81)
February 2020	.3293 (10.51)	.0846 (3.18)	-.7654 (18.25)
April 2020	-.0040 (0.12)	-.0511 (1.74)	-.0933 (2.01)
May 2020	.2300 (7.15)	-.0321 (1.18)	-.4536 (10.54)
June 2020	.2502 (7.37)	-.0631 (2.19)	-.6312 (13.90)
July 2020	.3615 (10.95)	-.0109 (0.39)	-.6763 (15.30)
August 2020	.3322 (10.61)	-.0353 (1.33)	-.6364 (15.19)
September 2020	.3505 (10.59)	-.1210 (4.31)	-.5792 (13.07)
October 2020	.2318 (6.57)	-.2115 (7.07)	-.4565 (9.67)
November 2020	.2131 (6.92)	-.2014 (7.71)	-.5644 (13.69)
December 2020	.0817 (2.45)	-.2295 (8.10)	-.3251 (7.27)
January 2021	.0127 (0.39)	-.3956 (4.40)	-.2983 (6.88)
February 2021	.1907 (5.63)	-.3283 (1.43)	-.6174 (13.62)
March 2021	.3136 (9.36)	-.1532 (5.39)	-.7971 (17.77)
April 2021	.4390 (12.74)	-.0329 (1.13)	-.8622 (18.69)
May 2021	.3420 (10.38)	-.0179 (0.64)	-.8183 (18.55)
June 2021	.4223 (12.20)	-.0397 (1.35)	-.8897 (19.21)
July 2021	.3833 (11.17)	.0311 (1.07)	-.7889 (17.17)
August 2021	.3889 (11.95)	.0132 (0.48)	-.7455 (17.12)
September 2021	.3773 (11.10)	-.0177 (0.61)	-.7271 (15.97)
October 2021	.2846 (5.37)	-.0667 (1.48)	-.6889 (9.72)
February	.0771 (8.13)	.0243 (3.03)	-.0504 (3.97)
March	.1100 (11.92)	.0135 (1.73)	-.0720 (5.83)
April	.1393 (14.89)	.0208 (2.62)	-.0867 (6.92)
May	.1636 (17.40)	.0404 (5.07)	-.0681 (5.41)
June	.1808 (19.41)	.0582 (7.38)	-.0697 (5.59)
July	.2000 (21.58)	.0503 (6.40)	-.1299 (10.74)
August	.1778 (18.98)	.0582 (7.33)	-.0981 (7.83)
September	.1064 (11.47)	.0367 (4.67)	-.0279 (2.25)
October	.0790 (8.33)	.0294 (3.66)	-.0069 (0.55)
November	.0499 (5.35)	.0324 (4.10)	.0275 (2.21)
December	.1275 (13.69)	.0530 (6.72)	-.0802 (6.44)
_cons	7.1810	8.1233	3.5011
Adjusted R ²	.0078	.0097	.0101
N	1,453,690	1,454,283	1,452,481

Excluded March 2020; controls included for race and country of residence. Source: Annual Population Surveys.

Table 10. UK Happiness equations 2012-2021 by gender

	Male		Female	
2012	.0870 (2.64)	.0469 (1.37)	.2513 (8.05)	.2661 (8.23)
2013	.1584 (4.81)	.1195 (3.50)	.2995 (9.60)	.3149 (9.75)
2014	.2284 (6.93)	.1908 (5.59)	.3698 (11.85)	.3849 (11.92)
2015	.2746 (8.32)	.2368 (6.93)	.4088 (13.08)	.4232 (13.09)
2016	.2849 (8.62)	.2475 (7.23)	.4307 (13.76)	.4487 (13.84)
2017	.3229 (9.78)	.2850 (8.33)	.4679 (14.96)	.4857 (14.99)
2018	.3390 (10.26)	.2994 (8.74)	.4640 (14.82)	.4792 (14.77)
2019	.3436 (10.39)	.3048 (8.91)	.4487 (14.32)	.4636 (14.31)
January 2020	.2744 (6.32)	.3496 (7.70)	.3202 (7.74)	.4575 (10.57)
February 2020	.2202 (5.08)	.2242 (4.93)	.3563 (8.66)	.4119 (9.55)
April 2020	.0727 (1.50)	.0186 (0.37)	-.0118 (0.26)	-.0216 (0.46)
May 2020	.3021 (6.74)	.2218 (4.74)	.2698 (6.38)	.2373 (5.38)
June 2020	.3353 (7.05)	.2399 (4.86)	.3097 (6.91)	.2580 (5.54)
July 2020	.3644 (7.86)	.2478 (5.14)	.5189 (11.96)	.4497 (9.96)
August 2020	.3476 (7.97)	.2582 (5.66)	.4404 (10.74)	.3901 (9.09)
September 2020	.3121 (6.72)	.2685 (5.56)	.3730 (8.56)	.4136 (9.12)
October 2020	.2028 (4.07)	.1822 (3.53)	.1986 (4.28)	.2702 (5.61)
November 2020	.1514 (3.55)	.1750 (3.91)	.1535 (3.80)	.2423 (5.73)
December 2020	.1134 (2.45)	.0510 (1.06)	.0856 (1.93)	.1041 (2.25)
January 2021	.0223 (0.52)	.0975 (2.15)	-.1938 (4.73)	.0565 (1.32)
February 2021	.1712 (3.75)	.1752 (3.68)	.1470 (3.41)	.2026 (4.51)
March 2021	.2850 (6.04)	.2851 (6.04)	.3363 (7.58)	.3363 (7.58)
April 2021	.3845 (8.21)	.3304 (6.78)	.5343 (12.16)	.5245 (11.48)
May 2021	.3495 (7.93)	.2692 (5.84)	.4327 (10.33)	.4002 (9.15)
June 2021	.4311 (9.14)	.3357 (6.85)	.5402 (12.25)	.4885 (10.65)
July 2021	.4471 (9.66)	.3305 (6.86)	.4936 (11.23)	.4244 (9.29)
August 2021	.4043 (9.25)	.3150 (6.89)	.4976 (12.10)	.4473 (10.40)
September 2021	.3464 (7.50)	.3029 (6.30)	.3957 (9.14)	.4364 (9.69)
October 2021	.1592 (2.16)	.1386 (1.85)	.3316 (4.65)	.4033 (5.57)
February		.0712 (5.17)		.0816 (6.26)
March		.0752 (5.61)		.1372 (10.83)
April		.1293 (9.48)		.1471 (11.48)
May		.1555 (11.37)		.1698 (13.16)
June		.1706 (12.60)		.1889 (14.77)
July		.1918 (14.22)		.2065 (16.24)
August		.1646 (12.08)		.1876 (14.61)
September		.1188 (8.79)		.0967 (7.61)
October		.0959 (6.97)		.0657 (5.05)
November		.0516 (3.82)		.0485 (3.78)
December		.1377 (10.23)		.1189 (9.26)
_cons	7.4377	7.3645	7.2435	7.1087
Adjusted R ²	.0103	.0109	.0055	.0062
N	642,432	642,432	811,258	811,258

Excluded March 2020. Controls include country, age and its square and race: Source: Annual Population Surveys

Table 11. Well-being from four UK birth cohorts, 2020-2021 and the Health Survey of England, 2010-2019

	English Health Surveys		Birth Cohorts	
	Life satisfaction 2016-2019	Good for me 2010-2019	Life satisfaction 2016-2019	Lonely 2010-2019
Male	.0680 (2.81)	.1609 (20.91)	.1610 (10.84)	-.1191 (25.39)
BCS70			-.2054 (9.13)	.0534 (7.51)
Next steps			-.4554 (17.43)	.2842 (34.44)
MCS CM			-1.0873 (42.14)	.5249 (64.44)
MCS Parent			-.0861 (3.59)	.0085 (1.12)
Constant	7.1895	3.4507	7.2830	1.4578
Adjusted R ²	.0091	.01207	.0457	.0958
N	28,773	57,084	63,863	63,796

T-statistics in parentheses. Equations include wave, region and year dummies

Notes: Excluded category NCDS in part 1.

Part 1 source: Health Surveys for England

Q12. "Overall satisfaction with life nowadays? 0-10- mean =7.44.

Q13. "Been feeling good about myself – none of the time (=2%); rarely (8%)' some of the time (34%); often (41%) and all of the time (15%) coded 1 through 5.

Part 2. Source: Wave 1 April 2020; Wave 2 September 2020; Wave 3 February 2021.

- Millennium Cohort Study (born 2000-02) both cohort members and parents (MCS),
- Next Steps (born 1989-90) (NS), was Longitudinal Study of Young People in England
- 1970 British Cohort Study (BCS70),
- 1958 National Child Development Study (NCDS)

Table 12. Happiness regressions by month in the APS for the UK – coefficient (t-value>1.9) on male dummy

January 2012-2021 October=118 monthly regressions

2012		
March	-.0932 (2.38)	13,111
May	-.0840 (2.12)	13,209
July	-.0676 (1.93)	16,120
November	-.1019 (2.59)	12,777
2013		
March	-.1106 (3.15)	16,037
August	-.0877 (2.27)	13,126
2014		
February	-.0781 (2.00)	12,806
March	-.0711 (2.09)	16,092
2015		
June	-.0804 (2.10)	12,507
July	-.0777 (2.01)	12,284
2016		
March	-.1269 (3.13)	11,549
June	-.0964 (2.40)	11,522
2017		
February	-.0798 (2.00)	11,531
March	-.0982 (2.49)	11,654
April	-.0954 (2.67)	13,926
September	-.0811 (2.08)	11,992
2018		
March	-.0859 (2.12)	11,549
2019		
April	-.0835 (2.10)	10,965
September	+.0776 (2.10)	13,301
2020		
March	+.1229 (2.66)	9,349
April	+.2173 (4.37)	7,258
May	+.1589 (3.81)	9,875
June	+.1594 (3.41)	7,860
October	+.1351 (2.68)	6,816
November	+.1296 (3.46)	12,102
December	+.1666 (3.67)	8,387
2021		
January	+.3464 (8.77)	11,345
February	+.1594 (3.70)	9,172

Eighteen negative, 10 positive and 90 insignificantly different from zero.

Controls age and its square race and country. Overall equations include year and month dummies and year equations include month dummies.

Table 13. Monthly regressions for wellbeing in UK and USA = male coefficients

a) UK	Happiness		Life satisfaction		Anxiety	
		N		N		N
All	+.0053 (1.48)*	1,453,690	-.0108 (3.56)	1,454,283	-.3746 (78.26)	1,452,481
1. January	+.0351 (2.89)	126,738	-.0059 (0.58)*	126,816	-.4073 (25.17)	126,610
2. February	.0008 (0.06)*	118,906	-.0271 (2.55)	118,916	-.3392 (20.32)	118,779
3. March	-.0381 (3.12)	127,540	-.0460 (4.45)	127,607	-.3194 (19.73)	127,447
4. April	-.0073 (0.58)*	119,606	-.0152 (1.43)*	119,095	-.3460 (20.78)	119,518
5. May	.0051 (0.41)7	122,249	-.0012 (0.11)*	121,669	-.3762 (22.67)	122,149
6. June	-.0042 (0.34)*	121,553	-.0142 (1.38)*	121,607	-.3814 (23.08)	121,444
7. July	-.0104 (0.87)*	124,743	-.0109 (1.06)	124,788	-.3341 (20.61)	125,231
8. August	-.0096 (0.80)*	125,906	-.0199 (1.94)	125,957	-.3665 (22.61)	125,810
9. September	+.0312 (2.54)	125,517	-.0136 (1.31)	125,593	-.4208 (25.75)	125,423
10. October	+.0310 (2.35)	107,551	.0127 (1.15)*	107,694	-.3720 (21.09)	107,565
11. November	.0150 (1.19)*	117,373	.0024 (0.22)*	116,882	-.4124 (24.47)	117,285
12. December	+.0282 (2.21)	114,746	+.0175 (1.63)*	114,268	-.4267 (25.24)	114,655

Notes: Controls include country of residence, year and race. * = insignificant

b) USA	Life satisfaction		#Bad mental health days			
	2005-2011	N	2005-2011	N	2019-2021	N
All	+.0038 (4.53)	2,310,420	-1.0643 (103.85)	2,378,026	-1.2788 (71.04)	803,518
1. January	.0046 (1.53)*	176,263	-1.0463 (28.61)	181,814	-1.3033 (18.26)	51,275
2. February	+.0061 (2.08)	193,830	-1.0579 (30.25)	199,751	-1.1005 (17.66)	64,920
3. March	.0027 (0.94)*	196,654	-1.0748 (30.67)	202,552	-1.1419 (20.79)	78,272
4. April	.0037 (1.27)*	195,637	-1.0696 (30.40)	201,326	-1.3943 (23.26)	69,868
5. May	-.0029 (1.01)*	194,635	-1.0413 (29.33)	200,553	-1.3103 (21.70)	71,071
6. June	.0011 (0.36)*	190,579	-1.0244 (28.74)	196,588	-1.2246 (19.69)	68,884
7. July	.0015 (0.96)*	190,480	-1.0223 (28.82)	195,463	-1.1804 (19.45)	69,395
8. August	+.0091 (3.11)	195,927	-1.0614 (30.26)	201,220	-1.2919 (20.58)	64,956
9. September	.0003 (0.09)*	187,865	-1.0536 (29.00)	192,593	-1.3329 (20.01)	60,016
10. October	+.0069 (2.39)	200,556	-1.0995 (31.26)	206,358	-1.2565 (19.87)	68,336
11. November	+.0074 (2.51)	195,031	-1.0802 (30.68)	200,348	-1.4920 (24.06)	71,635
12. December	.0050 (1.70)*	192,963	-1.1227 (31.76)	199,190	-1.3849 (21.12)	64,576

Notes: Controls include state of residence, year and race. * = insignificant. Source: UK = APS 2009-2021. USA=BRFSS, 2005-2011.

Table 14. Effects of including marital status and labor force status as controls in overall equations

	Male coefficients (t-values)			N
	No marital status	+ marital status	+ labor force status	
a) APS, 2012-2021				
Happiness	.0053 (1.48)	-.0332 (9.29)	.0016 (0.45)	1,453,690
Life satisfaction	-.0108 (3.56)	-.0631 (20.99)	-.0617 (20.53)	1,454,283
Anxiety	-.3746 (78.26)	-.3640 (75.60)	-.3730 (77.57)	1,452,481
b) BRFSS 2005-2021				
Life satisfaction, 2005-2011	+.0038 (4.53)	-.0169 (19.94)	+.0038 (4.44)	2,310,402
Bad mental health days 2005-11	-1.0643 (103.85)	-1.0421 (100.83)	-1.0072 (99.29)	2,377,372
Bad mental health days 2019-2021	-1.2788 (71.04)	-1.3737 (76.13)	-1.2501 (69.71)	803,466

Controls are month, year, race and state/country in column 1. Column two adds marital status to column 1 controls. Column 3 adds labor force status to column 1 controls and does not include marital status.

c) BRFSS 2009	Male coefficient (t-value)	N
i) No controls	+.0069 (3.40)	402,711
ii) Add age, age ² , state & race only	+.0049 (2.38)	402,621
iii) Adds education & labor market status	+.0052 (2.57)	402,620
iv) Adds BMI	+.0105 (5.06)	387,515
v) Adds children & any exercise	+.0051 (2.49)	387,515
vi) Adds #adults & # children & fruit/veg portions	+.0086 (4.14)	387,515
vii) Adds marital status	-.0102 (4.92)	387,514
viii) Adds income drops marital status	-.0123 (5.98)	387,512
ix) Adds marital status and income	-.0224 (10.77)	387,511
x) Drops BMI	-.0257 (12.56)	402,615
Blanchflower and Oswald specifications		
xi) vii) + exercise minutes & smoking	-.0076 (3.50)	369,026
xii) xi) + income	-.0202 (9.36)	369,023

Standard controls as in Blanchflower and Oswald (2011) are state dummies, age and its square, state, number of children, BMI, fruit and vegetable portions, education, exercise minutes moderate, exercise minutes vigorous, race and number of adults in household.

Chart 1a. US Happiness by Gender, GSS 1972-2021

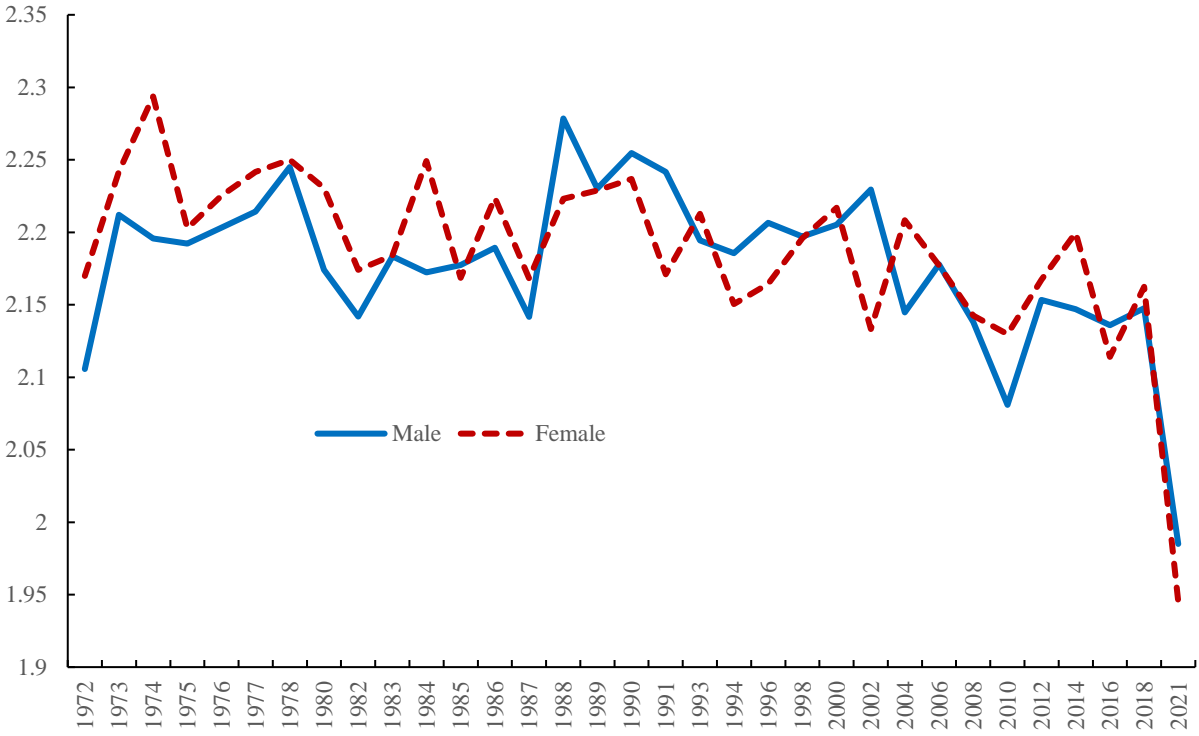


Chart 1b. US % Very Happy by Gender - GSS, 1972-2021

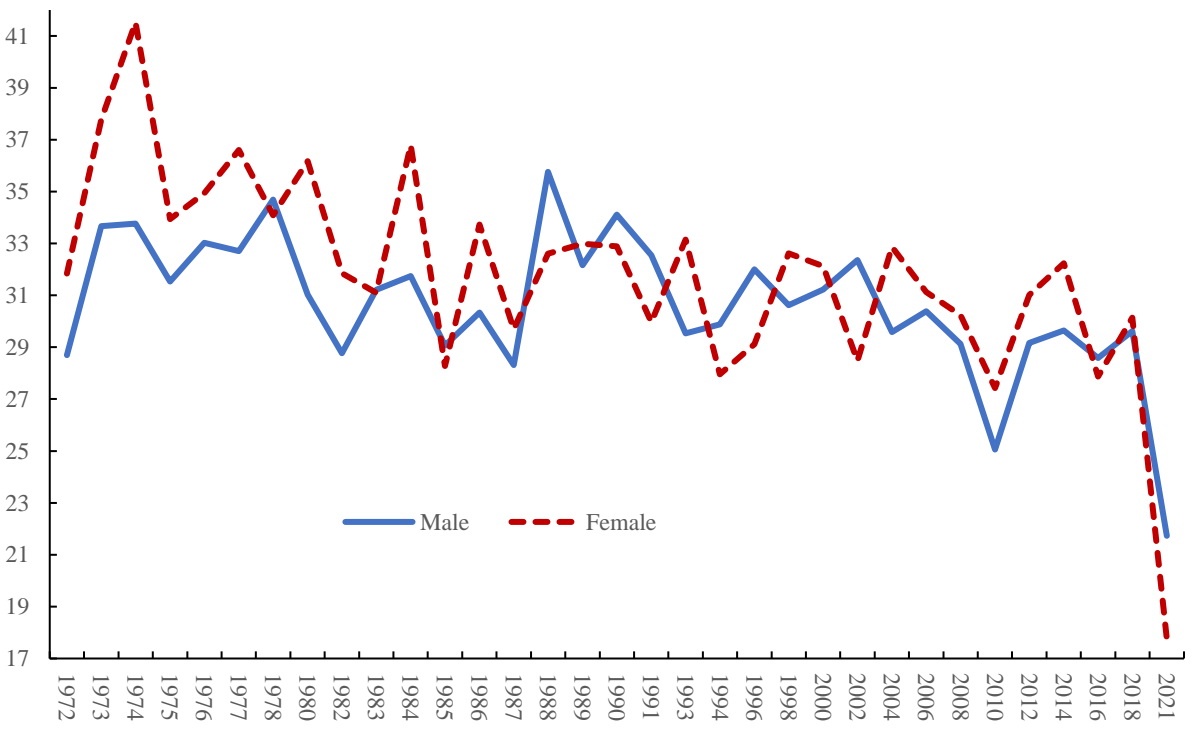


Chart 2. UK 4-step Life Satisfaction by Gender from Eurobarometers, 1973-2021

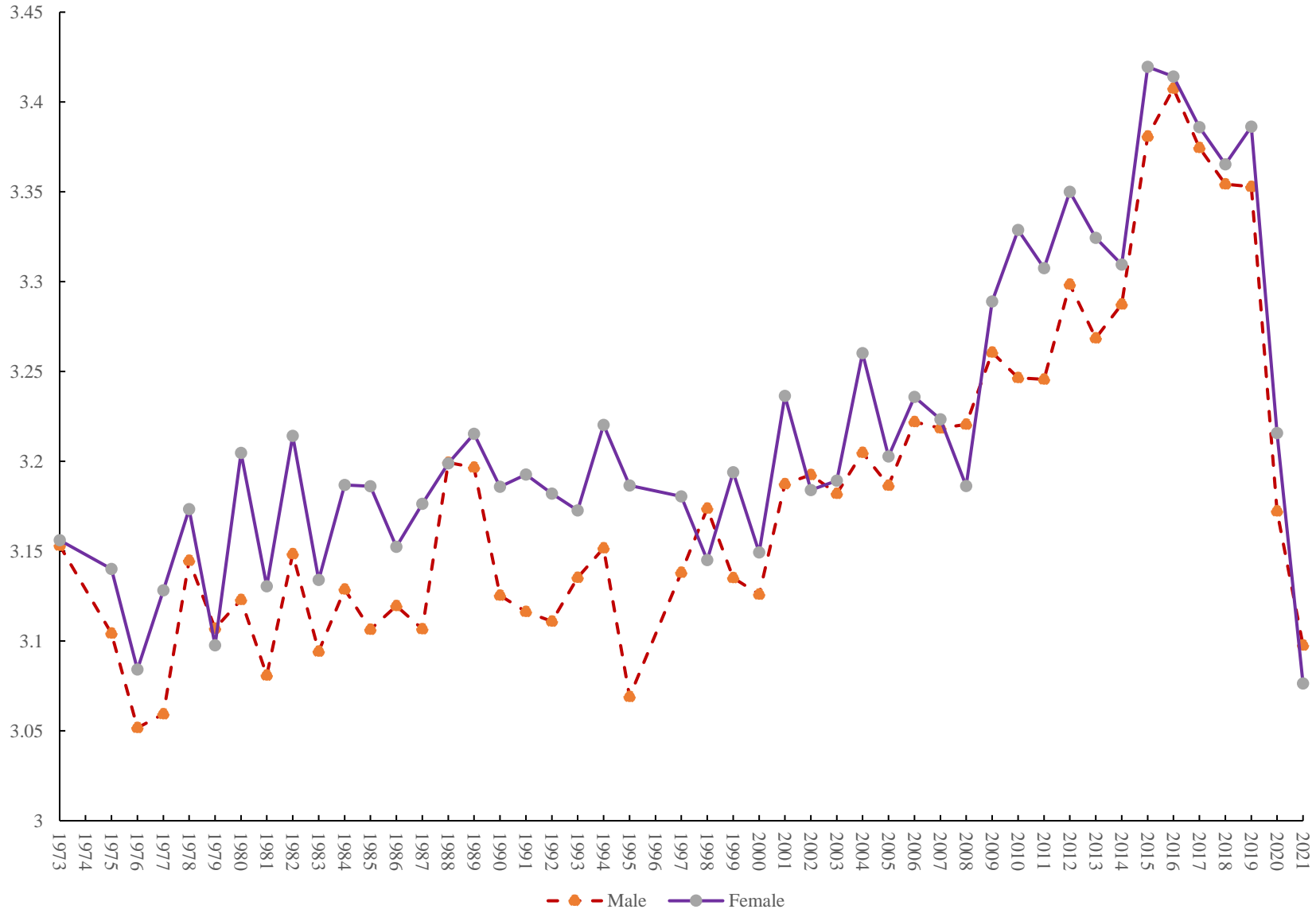


Chart 3. Monthly Happiness by Gender, UK, APS 2012-2021.

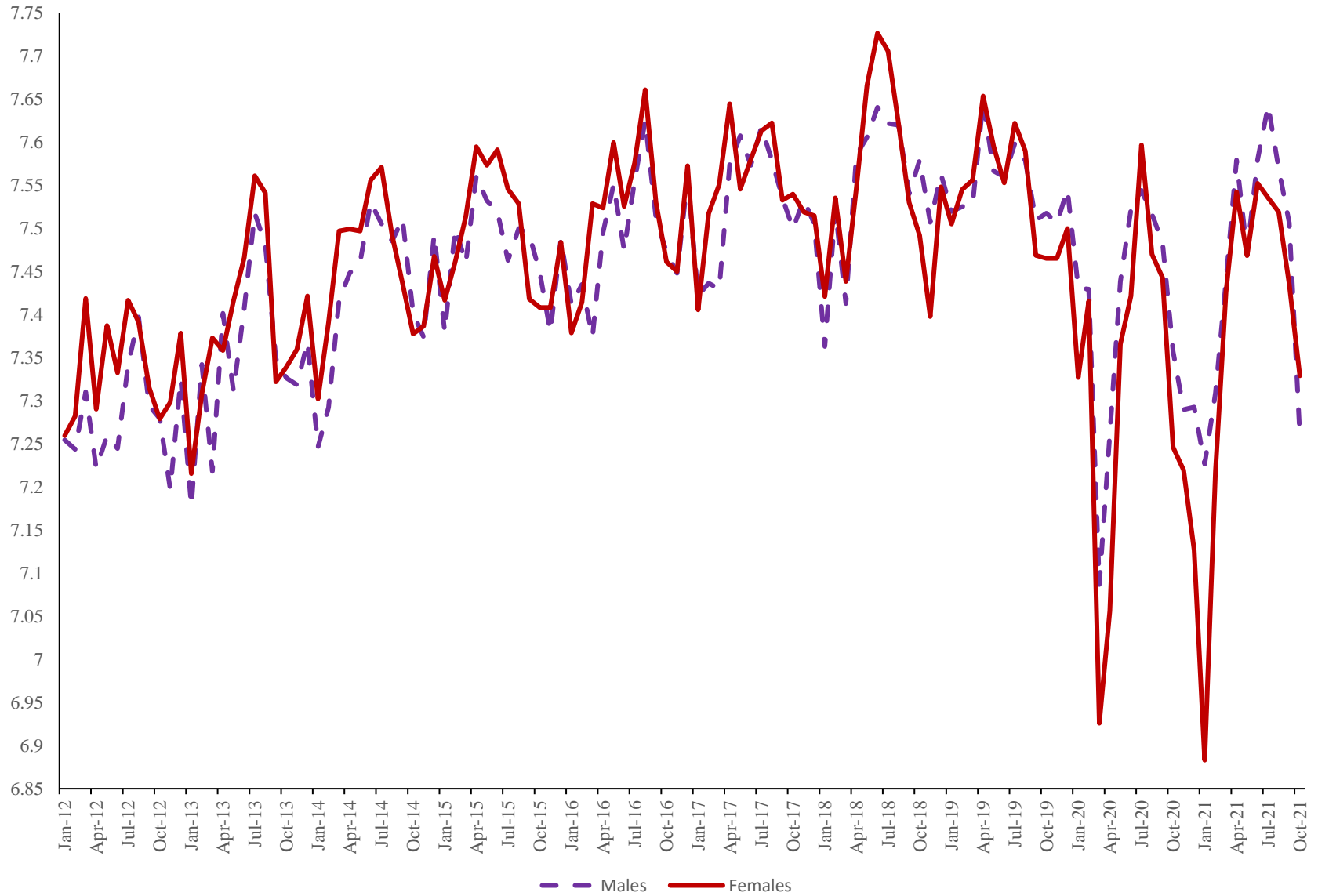


Chart 4. Life Satisfaction by Gender, UK, APS 2012-2021

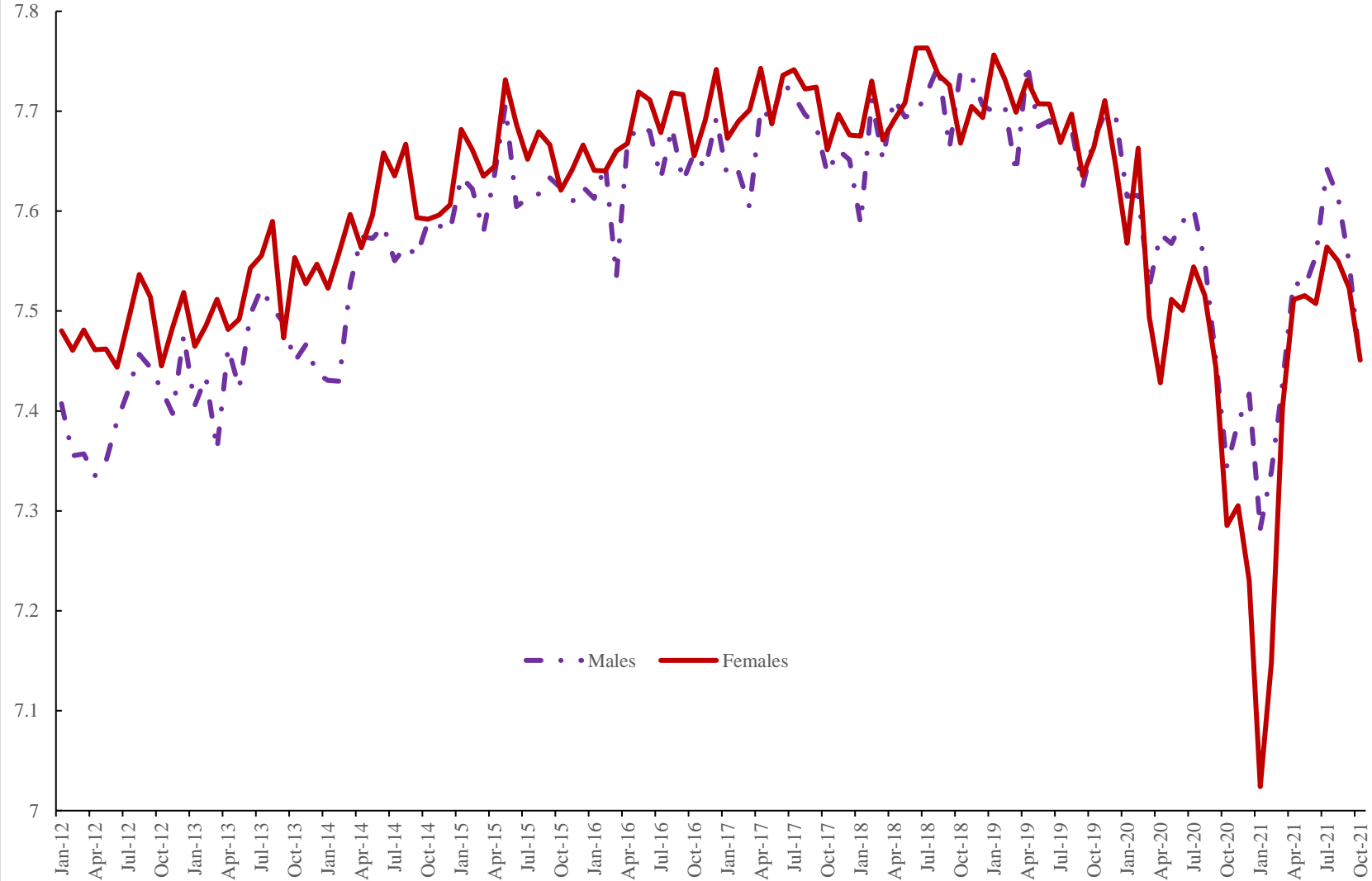


Chart 5. Anxiety by Gender, UK, APS 2012-2021

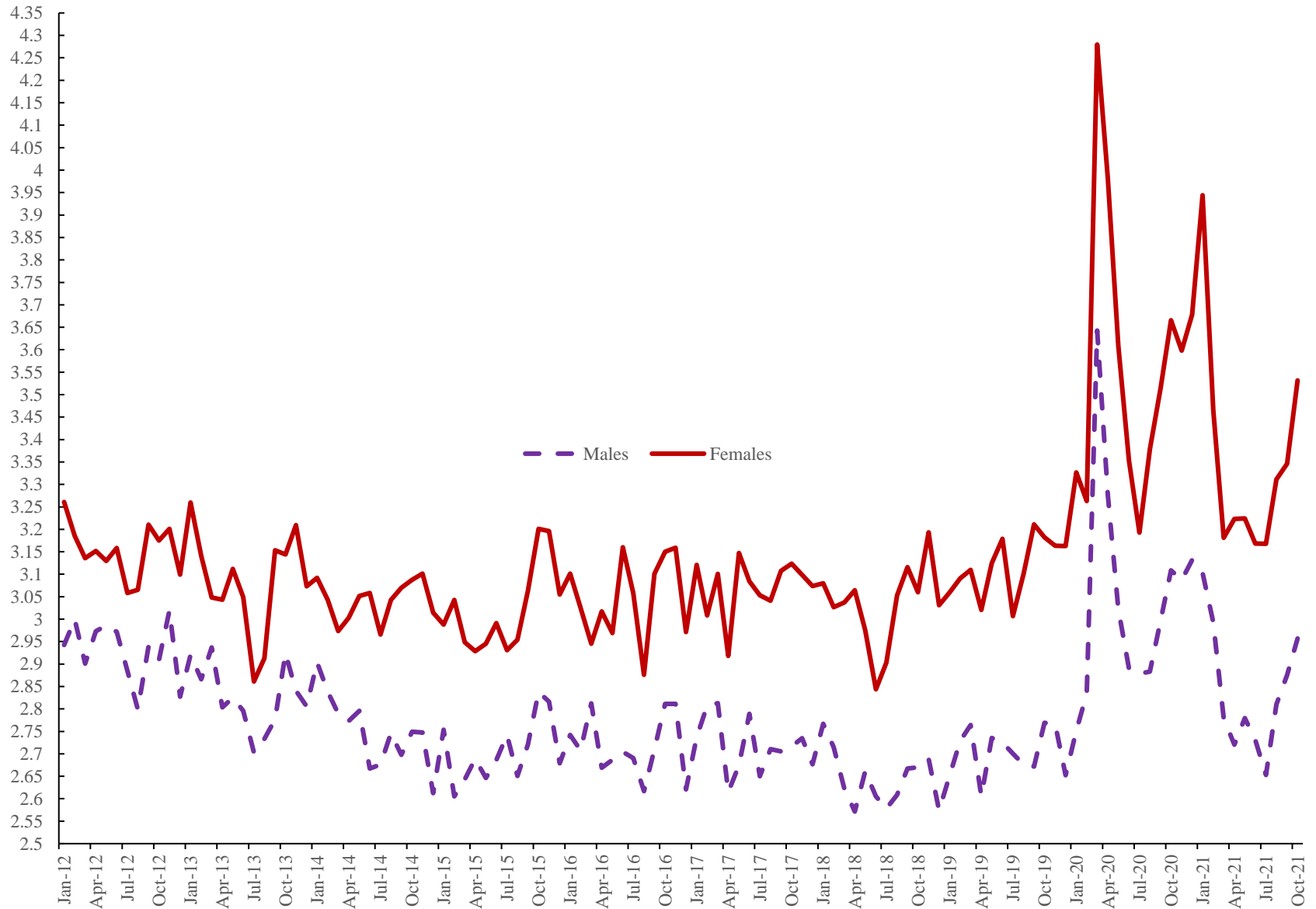


Chart 6. Male and Female Happiness, March 2020-February 2022
 UK Opinions and Lifestyle Survey

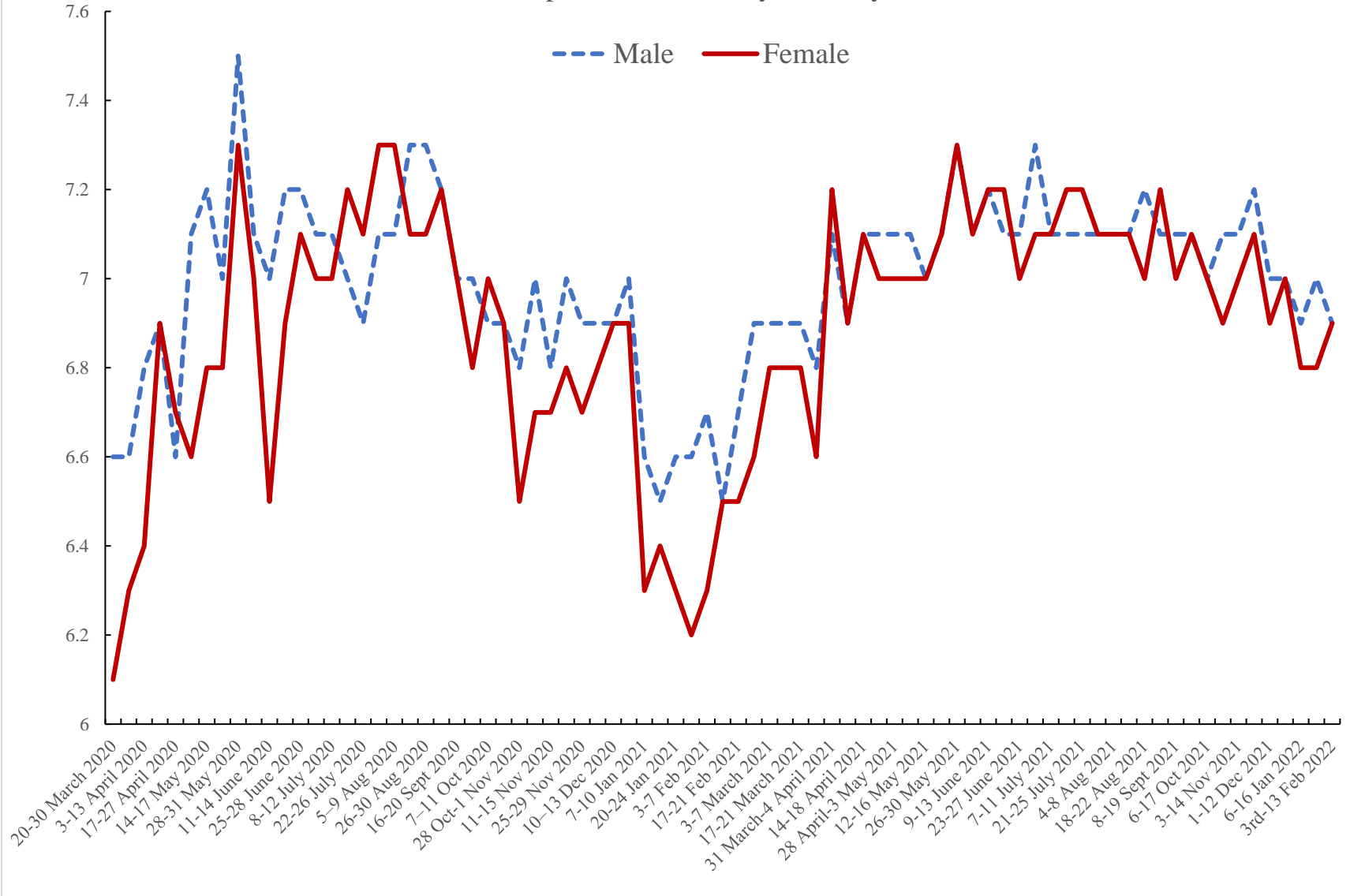


Chart 7. Male and Female Anxiety, March 2020-February 2022
UK Opinions and Lifestyle Survey

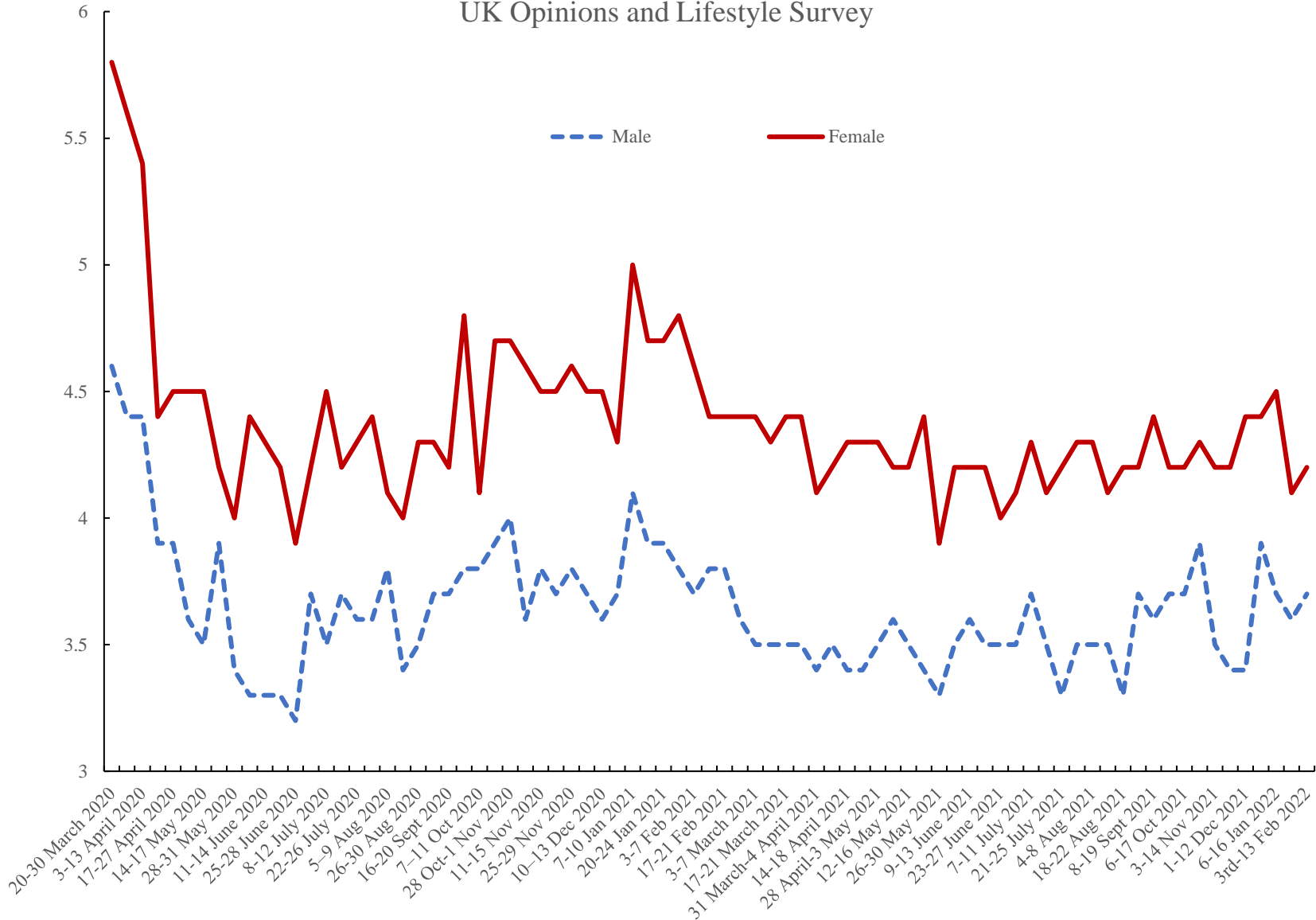


Chart 8. Happiness with and without month effects, 2020-2021

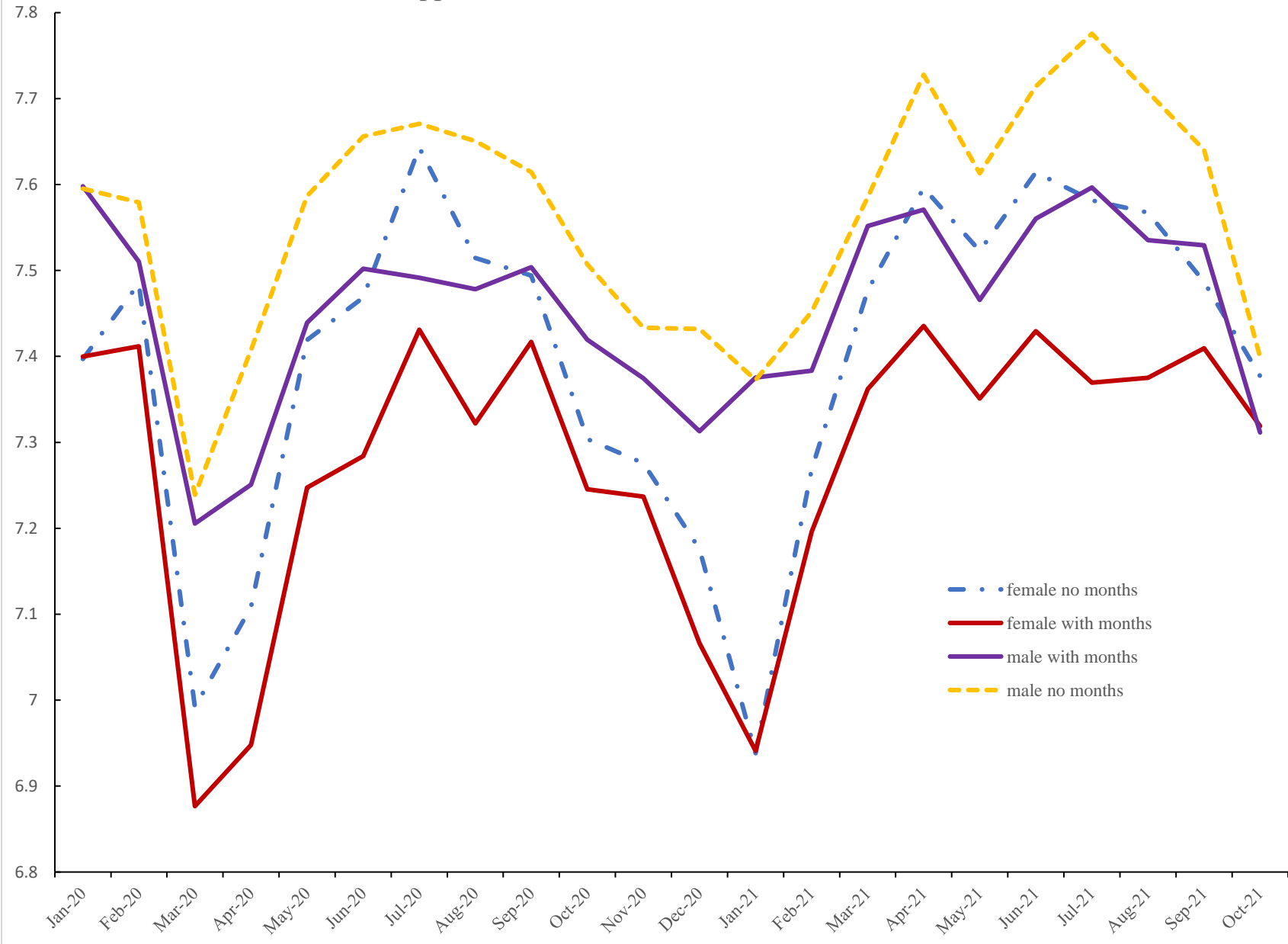


Chart 9. UK Life satisfaction with and without month effects, 2020-2021

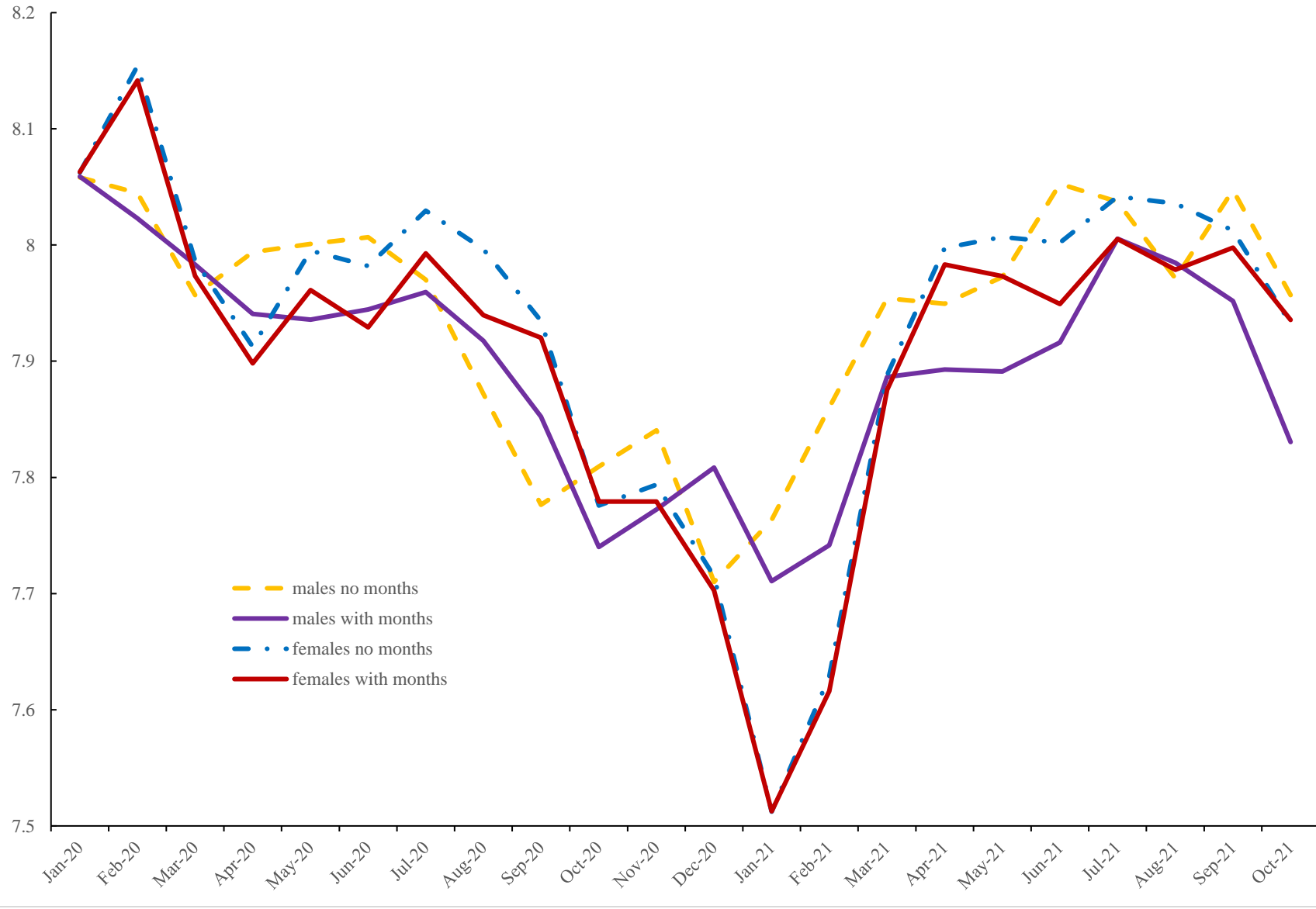


Chart 10. UK anxiety with and without month effects, APS 2020-2021

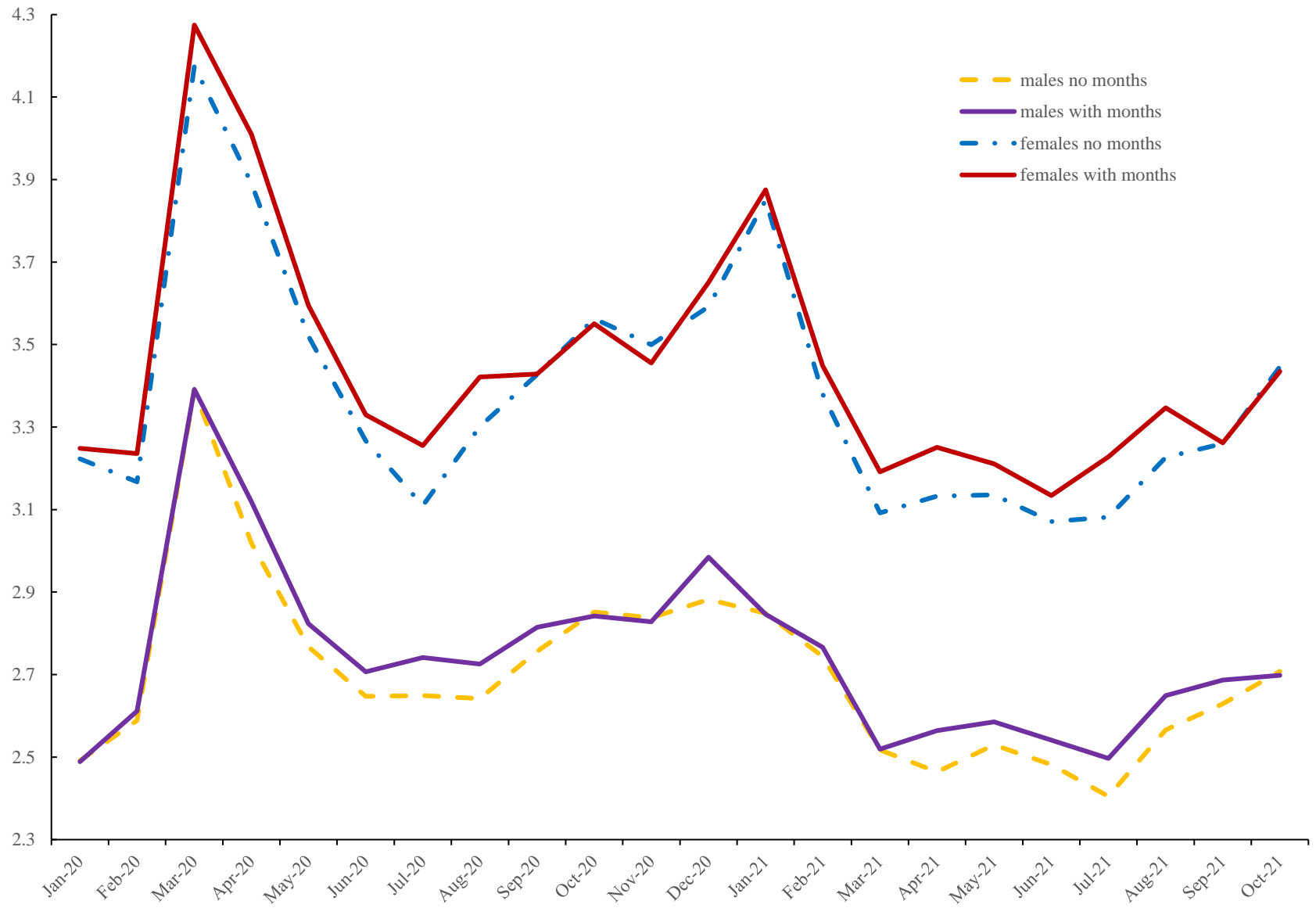
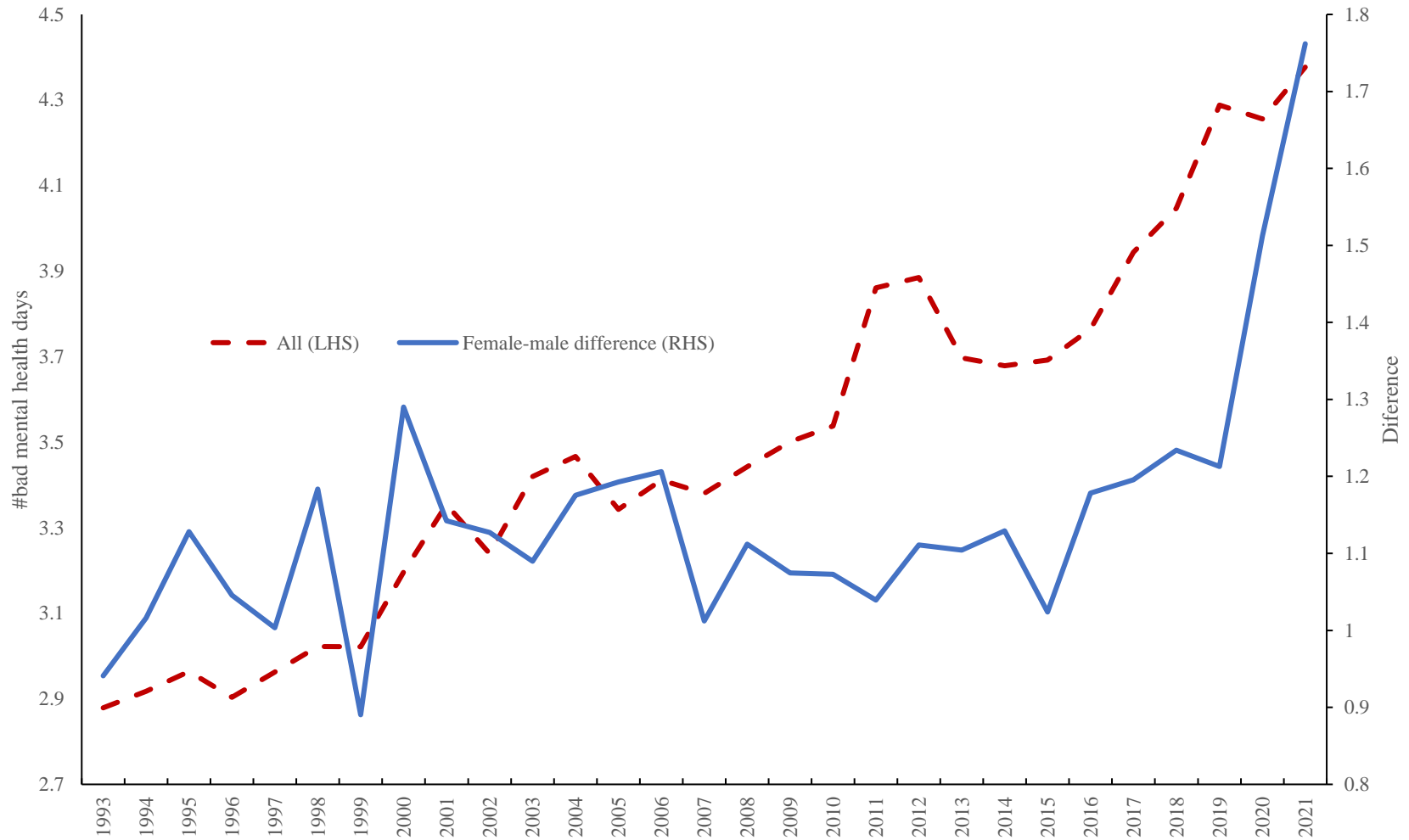


Chart 11. USA #Bad mental health days and female-male differential, 1993-2021
(weighted)



Appendix Table 1. Official ONS quarterly estimates seasonally unadjusted

	Happiness	Life satisfaction	Anxious
Q2-2011	7.25	7.35	3.25
Q3-2011	7.24	7.39	3.14
Q4-2011	7.28	7.45	3.10
Q1-2012	7.33	7.43	3.06
Q2-2012	7.23	7.40	3.08
Q3-2012	7.30	7.46	3.02
Q4-2012	7.32	7.47	3.04
Q1-2013	7.34	7.46	3.03
Q2-2013	7.31	7.47	2.95
Q3-2013	7.40	7.51	2.86
Q4-2013	7.39	7.50	3.00
Q1-2014	7.39	7.53	2.94
Q2-2014	7.44	7.58	2.89
Q3-2014	7.45	7.58	2.87
Q4-2014	7.45	7.61	2.88
Q1-2015	7.49	7.65	2.83
Q2-2015	7.49	7.64	2.82
Q3-2015	7.44	7.64	2.84
Q4-2015	7.47	7.65	2.96
Q1-2016	7.50	7.65	2.89
Q2-2016	7.42	7.65	2.90
Q3-2016	7.51	7.66	2.87
Q4-2016	7.51	7.69	2.95
Q1-2017	7.50	7.68	2.96
Q2-2017	7.51	7.68	2.89
Q3-2017	7.51	7.69	2.90
Q4-2017	7.55	7.69	2.92
Q1-2018	7.51	7.69	2.88
Q2-2018	7.53	7.68	2.80
Q3-2018	7.54	7.70	2.87
Q4-2018	7.54	7.73	2.90
Q1-2019	7.57	7.73	2.93
Q2-2019	7.51	7.64	2.94
Q3-2019	7.51	7.64	2.92
Q4-2019	7.53	7.70	3.00
Q1-2020	7.40	7.67	3.26
Q2-2020	7.26	7.45	3.36
Q3-2020	7.43	7.48	3.20
Q4-2020	7.28	7.38	3.43
Q1-2021	7.31	7.33	3.23
Q2-2021	7.44	7.48	3.04

<https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/datasets/quarterlypersonalwellbeingestimatesnonseasonallyadjusted>

Appendix Table 2. Happiness, life satisfaction and anxiety by gender (weighted)

	Happy		Life satisfaction		Anxious	
	Male	Female	Male	Female	Male	Female
2012	7.28	7.34	7.40	7.48	2.93	3.15
2013	7.35	7.40	7.45	7.52	2.83	3.08
2014	7.43	7.46	7.55	7.60	2.75	3.04
2015	7.48	7.50	7.63	7.67	2.70	3.02
2016	7.49	7.52	7.65	7.69	2.72	3.05
2017	7.53	7.55	7.67	7.70	2.72	3.07
2018	7.55	7.55	7.70	7.71	2.64	3.03
2019	7.55	7.54	7.68	7.70	2.72	3.12
2020	7.39	7.30	7.52	7.46	3.05	3.58
2021	7.47	7.39	7.49	7.41	2.84	3.35
All	7.45	7.60	7.58	7.60	2.78	3.14
	Male	Female	Male	Female	Male	Female
2019						
September	7.51	7.47	7.62	7.64	2.67	3.21
October	7.52	7.47	7.67	7.66	2.77	3.18
November	7.51	7.47	7.70	7.71	2.77	3.16
December	7.54	7.50	7.69	7.64	2.65	3.16
2020						
January	7.43	7.33	7.61	7.57	2.75	3.33
February	7.43	7.42	7.62	7.66	2.83	3.26
March	7.09	6.93	7.52	7.49	3.64	4.28
April	7.26	7.06	7.58	7.43	3.28	3.98
May	7.44	7.37	7.57	7.51	3.02	3.61
June	7.52	7.42	7.59	7.50	2.89	3.35
July	7.54	7.60	7.60	7.54	2.88	3.19
August	7.52	7.47	7.55	7.52	2.88	3.38
September	7.48	7.44	7.45	7.44	3.00	3.51
October	7.36	7.25	7.34	7.29	3.11	3.67
November	7.29	7.22	7.39	7.31	3.09	3.60
December	7.29	7.13	7.42	7.23	3.13	3.68
2021						
January	7.23	6.88	7.28	7.02	3.10	3.94
February	7.31	7.22	7.34	7.15	2.99	3.47
March	7.44	7.43	7.43	7.40	2.78	3.18
April	7.58	7.54	7.53	7.51	2.72	3.22
May	7.47	7.47	7.52	7.52	2.78	3.22
June	7.58	7.55	7.55	7.51	2.73	3.17
July	7.64	7.54	7.64	7.56	2.65	3.17
August	7.57	7.52	7.61	7.55	2.81	3.31
September	7.51	7.44	7.55	7.52	2.88	3.35
October	7.26	7.33	7.45	7.45	2.96	3.53

Appendix Table 3. UK Happiness by month – Annual Population Survey

Happy	Males	Females	Male-female
12-Jan	7.25	7.26	-0.01
12-Feb	7.24	7.28	-0.04
12-Mar	7.31	7.42	-0.11
12-Apr	7.22	7.29	-0.07
12-May	7.26	7.39	-0.13
12-Jun	7.24	7.33	-0.09
12-Jul	7.34	7.42	-0.08
12-Aug	7.4	7.39	0.01
12-Sep	7.29	7.32	-0.03
12-Oct	7.28	7.28	0
12-Nov	7.20	7.30	-0.1
12-Dec	7.32	7.38	-0.06
13-Jan	7.18	7.22	-0.04
13-Feb	7.34	7.31	0.03
13-Mar	7.22	7.37	-0.15
13-Apr	7.40	7.36	0.04
13-May	7.31	7.42	-0.11
13-Jun	7.41	7.47	-0.06
13-Jul	7.52	7.56	-0.04
13-Aug	7.48	7.54	-0.06
13-Sep	7.35	7.32	0.03
13-Oct	7.33	7.34	-0.01
13-Nov	7.32	7.36	-0.04
13-Dec	7.37	7.42	-0.05
14-Jan	7.25	7.30	-0.05
14-Feb	7.29	7.39	-0.1
14-Mar	7.42	7.50	-0.08
14-Apr	7.45	7.50	-0.05
14-May	7.46	7.50	-0.04
14-Jun	7.53	7.56	-0.03
14-Jul	7.51	7.57	-0.06
14-Aug	7.49	7.49	0
14-Sep	7.51	7.44	0.07
14-Oct	7.40	7.38	0.02
14-Nov	7.37	7.39	-0.02
14-Dec	7.49	7.47	0.02
15-Jan	7.38	7.42	-0.04
15-Feb	7.50	7.46	0.04
15-Mar	7.46	7.51	-0.05
15-Apr	7.56	7.59	-0.03
15-May	7.53	7.57	-0.04
15-Jun	7.52	7.59	-0.07
15-Jul	7.46	7.55	-0.09
15-Aug	7.50	7.53	-0.03

15-Sep	7.49	7.42	0.07
15-Oct	7.45	7.41	0.04
15-Nov	7.38	7.41	-0.03
15-Dec	7.49	7.48	0.01
16-Jan	7.41	7.38	0.03
16-Feb	7.43	7.41	0.02
16-Mar	7.37	7.53	-0.16
16-Apr	7.50	7.52	-0.02
16-May	7.55	7.60	-0.05
16-Jun	7.47	7.53	-0.06
16-Jul	7.56	7.58	-0.02
16-Aug	7.62	7.66	-0.04
16-Sep	7.51	7.53	-0.02
16-Oct	7.47	7.46	0.01
16-Nov	7.45	7.45	0
16-Dec	7.56	7.57	-0.01
17-Jan	7.42	7.41	0.01
17-Feb	7.44	7.52	-0.08
17-Mar	7.43	7.55	-0.12
17-Apr	7.57	7.64	-0.07
17-May	7.61	7.55	0.06
17-Jun	7.57	7.58	-0.01
17-Jul	7.62	7.61	0.01
17-Aug	7.58	7.62	-0.04
17-Sep	7.54	7.53	0.01
17-Oct	7.50	7.54	-0.04
17-Nov	7.53	7.52	0.01
17-Dec	7.51	7.51	0
18-Jan	7.36	7.42	-0.06
18-Feb	7.52	7.54	-0.02
18-Mar	7.41	7.44	-0.03
18-Apr	7.58	7.55	0.03
18-May	7.61	7.67	-0.06
18-Jun	7.64	7.73	-0.09
18-Jul	7.62	7.71	-0.09
18-Aug	7.62	7.62	0
18-Sep	7.54	7.53	0.01
18-Oct	7.58	7.49	0.09
18-Nov	7.51	7.40	0.11
18-Dec	7.56	7.55	0.01
19-Jan	7.52	7.51	0.01
19-Feb	7.53	7.54	-0.01
19-Mar	7.53	7.56	-0.03
19-Apr	7.65	7.65	0
19-May	7.57	7.60	-0.03
19-Jun	7.56	7.55	0.01

19-Jul	7.60	7.62	-0.02
19-Aug	7.58	7.59	-0.01
19-Sep	7.51	7.47	0.04
19-Oct	7.52	7.47	0.05
19-Nov	7.51	7.47	0.04
19-Dec	7.54	7.50	0.04
20-Jan	7.43	7.33	0.1
20-Feb	7.43	7.42	0.01
20-Mar	7.09	6.93	0.16
20-Apr	7.26	7.06	0.2
20-May	7.44	7.37	0.07
20-Jun	7.52	7.42	0.1
20-Jul	7.54	7.60	-0.06
20-Aug	7.52	7.47	0.05
20-Sep	7.48	7.44	0.04
20-Oct	7.36	7.25	0.11
20-Nov	7.29	7.22	0.07
20-Dec	7.29	7.13	0.16
21-Jan	7.23	6.88	0.35
21-Feb	7.31	7.22	0.09
21-Mar	7.44	7.43	0.01
21-Apr	7.58	7.54	0.04
21-May	7.47	7.47	0
21-Jun	7.58	7.55	0.03
21-Jul	7.64	7.54	0.1
21-Aug	7.57	7.52	0.05
21-Sep	7.51	7.44	0.07
21-Oct	7.26	7.33	-0.07

Appendix Table 4. Data by gender by survey from the ONS Opinions and Lifestyle Survey by gender for happiness and anxiety

	Happiness		Anxiety	
	Male	Female	Male	Female
20-30 March 2020	6.6	6.1	4.6	5.8
27 March-6 April 2020	6.6	6.3	4.4	5.6
3-13 April 2020	6.8	6.4	4.4	5.4
9-20 April 2020	6.9	6.9	3.9	4.4
17-27 April 2020	6.6	6.7	3.9	4.5
24 April-3 May 2020	7.1	6.6	3.6	4.5
14-17 May 2020	7.2	6.8	3.5	4.5
21-24 May 2020	7.0	6.8	3.9	4.2
28-31 May 2020	7.5	7.3	3.4	4.0
4-7 June 2020	7.1	7.0	3.3	4.4
11-14 June 2020	7.0	6.5	3.3	4.3
18-21 June 2020	7.2	6.9	3.3	4.2
25-28 June 2020	7.2	7.1	3.2	3.9
2-5 July 2020	7.1	7.0	3.7	4.2
8-12 July 2020	7.1	7.0	3.5	4.5
15-19 July 2020	7.0	7.2	3.7	4.2
22-26 July 2020	6.9	7.1	3.6	4.3
29 July-2 Aug 2020	7.1	7.3	3.6	4.4
5-9 Aug 2020	7.1	7.3	3.8	4.1
12-16 Aug 2020	7.3	7.1	3.4	4.0
26-30 Aug 2020	7.3	7.1	3.5	4.3
9-13 Sept 2020	7.2	7.2	3.7	4.3
16-20 Sept 2020	7.0	7.0	3.7	4.2
30 Sept-4 Oct 2020	7.0	6.8	3.8	4.8
7-11 Oct 2020	6.9	7.0	3.8	4.1
14-18 Oct 2020	6.9	6.9	3.9	4.7
28 Oct-1 Nov 2020	6.8	6.5	4.0	4.7
5-9 Nov 2020	7.0	6.7	3.6	4.6
11-15 Nov 2020	6.8	6.7	3.8	4.5
18- 22 Nov 2020	7.0	6.8	3.7	4.5
25-29 Nov 2020	6.9	6.7	3.8	4.6
2-6 Dec 2020	6.9	6.8	3.7	4.5
10-13 Dec 2020	6.9	6.9	3.6	4.5
22 Dec 2020-3 Jan 2021	7.0	6.9	3.7	4.3
7-10 Jan 2021	6.6	6.3	4.1	5.0
13-17 Jan 2021	6.5	6.4	3.9	4.7
20-24 Jan 2021	6.6	6.3	3.9	4.7
27-31 Jan 2021	6.6	6.2	3.8	4.8
3-7 Feb 2021	6.7	6.3	3.7	4.6
10-14 Feb 2021	6.5	6.5	3.8	4.4
17-21 Feb 2021	6.7	6.5	3.8	4.4
24-28 Feb 2021	6.9	6.6	3.6	4.4

3-7 March 2021	6.9	6.8	3.5	4.4
10-14 March 2021	6.9	6.8	3.5	4.3
17-21 March 2021	6.9	6.8	3.5	4.4
24-28 March 2021	6.8	6.6	3.5	4.4
31 March-4 April 2021	7.1	7.2	3.4	4.1
7-11 April 2021	6.9	6.9	3.5	4.2
14-18 April 2021	7.1	7.1	3.4	4.3
21-25 April 2021	7.1	7.0	3.4	4.3
28 April-3 May 2021	7.1	7.0	3.5	4.3
5-9 May 2021	7.1	7.0	3.6	4.2
12-16 May 2021	7.0	7.0	3.5	4.2
19-23 May 2021	7.1	7.1	3.4	4.4
26-30 May 2021	7.3	7.3	3.3	3.9
2-6 June 2021	7.1	7.1	3.5	4.2
9-13 June 2021	7.2	7.2	3.6	4.2
16-20 June 2021	7.1	7.2	3.5	4.2
23-27 June 2021	7.1	7.0	3.5	4.0
30 June-4 July 2021	7.3	7.1	3.5	4.1
7-11 July 2021	7.1	7.1	3.7	4.3
14-18 July 2021	7.1	7.2	3.5	4.1
21-25 July 2021	7.1	7.2	3.3	4.2
28 July-1 Aug 2021	7.1	7.1	3.5	4.3
4-8 Aug 2021	7.1	7.1	3.5	4.3
11-15 Aug 2021	7.1	7.1	3.5	4.1
18-22 Aug 2021	7.2	7.0	3.3	4.2
27 Aug-5 Sept 2021	7.1	7.2	3.7	4.2
8-19 Sept 2021	7.1	7.0	3.6	4.4
22 Sept-3 Oct 2021	7.1	7.1	3.7	4.2
6-17 Oct 2021	7.0	7.0	3.7	4.2
20-31 Oct 2021	7.1	6.9	3.9	4.3
3-14 Nov 2021	7.1	7.0	3.5	4.2
18-28 Nov 2021	7.2	7.1	3.4	4.2
1-12 Dec 2021	7.0	6.9	3.4	4.4
15 Dec '21- 3 Jan '22	7.0	7.0	3.9	4.4
6-16 Jan 2022	6.9	6.8	3.7	4.5
19-30 Jan 2022	7.0	6.8	3.6	4.1
3rd-13 Feb 2022	6.9	6.9	3.7	4.2