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Social Restrictions and Well-Being: Disentangling the Mechanisms

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ABSTRACT

Social Restrictions and Well-Being: Disentangling the Mechanisms*

Using a nationally representative 24-hour diary survey covering the first two years of the pandemic, we explore the mechanisms underlying the changes in wellbeing for men and women. We exploit the variation in the stringency of social restrictions implemented by the UK government during this period and use an event-study methodology to net out the impact of social restrictions from other pandemic effects. We find that well-being dropped by 47% (men) and 70% (women) of a standard deviation during the strictest lockdown, and this effect survives after accounting for financial conditions and changes in local infection and death rates. Our data on time allocation and individual preferences over the activities undertaken throughout the day reveal that the drop in well-being is primarily driven by a drastic reduction in time spent in leisure with non-household members or outside the home.

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1. Introduction

The Covid pandemic can be considered a unique event for its coverage, duration, impact and the unprecedent policy response to it. Many countries around the world have enacted stringent containment measures to contain the spread of the Covid-19 virus and to limit the number of fatalities. These restrictions have been at the centre of the political debate since the outbreak of the pandemic due to concerns about the potential negative externalities on the economy and on individuals. While it is undeniable that these measures saved lives (Flaxman et al., 2020; Dehning et al., 2020) there is also evidence of both direct economic costs such as increased unemployment rates and income losses (Witteveena and Velthorst, 2020) and indirect non-economic costs such as the worsening of mental health and well-being in general (e.g., Siflinger et al., 2021, Serrano-Alarcon et al., 2022). Well-being is widely considered to be a determinant of national performance (OECD, 2018; House of Lords, 2020). Therefore, understanding the mechanisms through which a negative macro-economic shock such as the Covid-19 pandemic can affect well-being is vital for the design of effective and comprehensive policy responses. Little is known about these mechanisms as their study requires comprehensive data on individual characteristics, preferences and behaviour all of which cannot yet be found in one place.

This paper uses nationally representative real-time survey data to explore the medium- and long-term impact of social restrictions on individual wellbeing in the United Kingdom, and the role of two mechanisms behind it, namely time allocation and individual preferences. The survey data were collected before the pandemic (April and October 2016) and during key moments characterised by the implementation of policies with different degrees of stringency: the first lockdown (May 2020), the easing of the social restrictions measures in Summer 2020, the second and the third lockdowns (November 2020 and January 2021) and finally September 2021 when most restrictions were lifted. Each of these six cross-sectional surveys includes information collected through online time use diaries, known as the Click and Drag Diary Instrument (CaDDI), on how, where and with whom individuals spend their time over a 24-hour period, as well as on subjective well-being and demographic and economic characteristics of the respondents. One unique feature of these diary data is the availability of information about the enjoyment experienced by respondents while doing different activities throughout the day (called 'instantaneous well-being' by Kahneman et al., 2004). This information is crucial for our understanding of individual preferences, and it allows us to link changes in time allocation to changes in subjective well-being throughout the pandemic. We complement these data with regional-level statistics on infection and death rates.

The United Kingdom offers an ideal context to study the well-being impact of the stringency of the policy response to the Covid-19 pandemic because of the multiple and sharp changes in the intensity of the lockdown measures implemented at local and national level. Figure 1a shows the variation in the stringency of these restrictions during the period March 2020 to

September 2021 using the Government Stringency Index (Hale et al., 2021).[2] The highest values of this index correspond to May 2020 and January 2021 when lockdown measures and stay-at-home restrictions were in place. Social interactions and individual freedoms were particularly limited by workplace closures and stay-at-home orders (Figures 1b-1d).

[Figure 1 here]

We exploit variation across time and in the stringency of these lockdown measures to implement an event-study methodology and estimate the effect of the social restrictions on well-being. We compare changes in well-being during periods of strict social restrictions with periods with no (or little) limitations on social interactions while controlling for a set of confounding factors.

Our results show that lockdowns, more than the financial and health shocks induced by the pandemic, negatively affect the well-being of both men and women as measured by their life satisfaction. We find a significant reduction in well-being even after accounting for socio-economic characteristics (including household income, employment status and type of occupation) and the local impact of the pandemic in terms of infection and death rates. This drop is largest when the most stringent lockdown restrictions are in place and is equivalent to twice (1.5 for men) the well-being loss caused by a terrorist attack such as the Boston bombing (Clark et al. 2020).

To explore the channels through which social restrictions influence well-being, we first compare trends over time in subjective well-being with variations in the satisfaction with different aspects of life affected by the pandemic and social restrictions (health status, financial conditions, quality and quantity of social life). Satisfaction with the quality of time spent in leisure and social activities is the only aspect that follows a pattern similar to the one observed for overall subjective well-being, providing a first indication that social restrictions affected well-being through changes in social life and leisure. We further confirm this hypothesis by showing that compared to paid work, unpaid work and personal care, respondents have a strong preference for spending their time in leisure activities, especially if done with non-household members or away from home. Yet as social restrictions are implemented during the lockdowns, respondents reduce the amount of time spent in leisure activities with non-household members or away from home. Taken together this evidence supports the hypothesis that social restrictions cause a loss in well-being through changes in everyday life and social interactions.

This paper contributes to the literature on the well-being impact of the Covid-19 pandemic in two ways. First, compared to the other studies focusing on the onset of the pandemic (e.g. Banks and Xu 2020; Biroli et al., 2021; Brodeur et al., 2021; Giuntella et al., 2021; Mckeown et al., 2021; Bau et al, 2022; Blanden et al., 2022; Etheridge and Spantig, 2022), we document changes in well-being during a much longer period of time (first two years of the pandemic). Some studies that only used data from the first wave of the pandemic concluded that well-being

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[2] Restrictions include: school closures; workplace closures; cancellation of public events; restrictions on public gatherings; closures of public transport; stay-at-home requirements; public information campaigns; restrictions on internal movements; international travel controls.

returned to pre-pandemic levels in Summer 2020. On the contrary we show that it takes much longer for men's well-being to return to the pre-pandemic levels while for women the well-being is still lower in September 2021. These longer-term impacts have implications for policy design.

Secondly we contribute to this literature by exploring the role played by individual preferences and changes in time allocated to different everyday activities in explaining the drastic drop in well-being that men and women experienced during the pandemic. Previous studies provide indirect evidence on how the onset of the pandemic caused an increased sense of isolation and loneliness driven by the lack of interactions with friends and family members from different households, by exploring changes in Google trends (Brodeur et al., 2020) and composition of helpline calls (Brülhart et al. 2021). Other studies explore the drastic changes in time allocation, focusing in particular on intra-household allocation of time to unpaid work (e.g., Biroli et al. 2021). Our paper advances the literature by using more direct and detailed information on time allocation for a nationally representative sample of individuals collected through time-use diaries and by combining this information with evidence on time use preferences and on satisfaction with different aspects of people's lives that were directly affected by the pandemic.

Finally, our findings from this research advances the long-standing literature on gender differences in well-being. In line with previous research, we find that women are more negatively affected than men by disastrous events such as Covid-19 (Adams-Prassl et al. 2020; Andrew et al. 2020; Oreffice and Quintana-Domeque, 2021; Blanchflower and Bryson, 2022; Etheridge and Spantig, 2022). Then our use of data on time-use preferences allows us to better understand the underlying reasons for gender differences in responses to shocks. In particular we show that women have a stronger preference for spending time on leisure activities away from home or with non-household members and containment measures limit these very activities.

The rest of the paper is organised as follows. Section 1 sets out the data and Section 2 presents the empirical approach. The estimation results are given in Section 3. Finally the findings are discussed and conclusions are drawn in Section 4.

2. Data, Sample and Key Variables

This study employs nationally representative data for the United Kingdom collected before and during the Covid-19 pandemic. Respondents were members of the large Dynata agency market research panel, who volunteered for the surveys and were selected based on age, sex, social grade and region quotas that were nationally representative of the 2016 population.[3] Data were

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[3] In Table C1 (Appendix C) we report the main demographic characteristics of individuals aged 18-69 in the 2016 Annual Population Survey (APS) and those of the CaDDI respondents included in our analysis. The comparison shows that CaDDI respondents are more likely to have achieved a post-secondary qualification, and slightly younger, but are otherwise similar to their APS counterparts. Throughout the analysis we use the unweighted sample however in Appendix A we show that our main results are robust to the use of weights that ensure the joint distribution of education, age and gender in our sample is the same as that of the 18 to 69 year old individuals

collected from six cross-sectional sample waves: May and October 2016 (to reduce single-season effects); May-June 2020 during the first UK lockdown; August 2020 during the post-lockdown summer relaxation of restrictions; November 2020 and January 2021 during the second and third national lockdowns; and finally in August-September 2021, when most restrictions were removed.

Our final sample includes 3,181 individuals aged 18 to 69 and 6,432 diaries as each respondent completed diaries for 1 to 3 days. Table A1 in Appendix A reports the main socio-economic and demographic characteristics of the individuals in our sample. Half of the respondents are female, most of them are employed (70-79%) and married or in a partnership (60-66%) and around a third live with at least one child aged 16 or younger. About half of our sample is characterised by individuals with a post-secondary qualification.[4]

Individual surveys are combined with online time use CaDDI diaries. These diaries include detailed information on how, where and with whom individuals spend their time throughout the 24-hour day. Continuous diaries, like CaDDI, are considered the golden standard and to be preferred to survey questions to measure changes in individuals' behaviour because they reduce recall issues and are less affected by social desirability bias (Gershuny et al., 2019; Sullivan et al., 2021).

2.1 Subjective Well-being

We measure subjective well-being using individuals' answers to the following survey question: "How dissatisfied or satisfied would you say you are with your life overall?" Respondents rate their overall life satisfaction on a seven-point scale from "completely dissatisfied" to "completely satisfied".[5]

This measure of subjective well-being is close to the concept of experienced utility, which economists often use as an appropriate measure of welfare (e.g., Kahneman, Diener and Schwarz, 1999; Blanchflower and Oswald 2000; Krueger and Schkade, 2008; Diener et al., 2018). Subjective well-being has been used to assess the impact of different economic phenomena (e.g., Luechinger and Raschky, 2009; Levinson, 2012; Ludwig et al., 2012; Danzer and Danzer, 2016; Perez-Truglia, 2020) and policymakers are increasingly using subjective well-being measures to monitor social progress.

To explore the impact of the policy response to the Covid-19 pandemic on different aspects of life, we also use information on the level of satisfaction associated to specific domains, such as own health, household income, amount of leisure time and quality of social life and leisure.

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[4] in the 2016 APS data. Other results with weights available on request.In additionall our models include controls for these demographic characteristics.

[4] Because of lack of real-time representative data, social scientists have often used commercially-run panels to understand the outcomes of the COVID crises, given their rapid response times (e.g., Adams-Prassl et al., 2020; Andrew et al., 2020).

[5] The full scale is (1) Completely dissatisfied, (2) Mostly dissatisfied, (3) Somewhat dissatisfied, (4) Neither satisfied or dissatisfied, (5) Somewhat satisfied, (6) Mostly satisfied and (7) Completely satisfied.

Each of these aspects are measured using similar questions to the one employed to measure satisfaction with life overall, and the same seven-point scale. Panel A in Table A2 reports the descriptive statistics for these measures of satisfaction by survey wave.

2.2 Time Allocation and Instantaneous Well-being

We use information from diaries on time use, location and copresence to construct a measure of time (in minutes) spent in leisure activities, following the same approach as in Aguiar and Hurst (2007).[6] We distinguish between the time spent in leisure activities at home and away from home. We also define time spent in leisure activities by copresence (alone or with other family members and with non-household members)[7]. Panel B in Table A2 reports the average time spent in leisure by location and by copresence. As expected, time spent alone or with family members in leisure activities increased substantially during the pandemic (from 368 minutes in 2016 to 448 in May 2020 during the first national lockdown). On the contrary, the time spent in leisure activities with non-household members (e.g., friends, co-workers) decreased drastically (82% reduction) from almost an hour a day (51 minutes) to less than 10 minutes during the January 2021 lockdown. Similar trends are observed when leisure time is split by location.[8]

A unique advantage of our data compared to other well-being data collected during the Covid-19 pandemic consists in the fact that individuals are asked also to report their feelings experienced during the time spent in each activity, known in the literature as "experienced" or "instantaneous" well-being (e.g., Kahneman et al., 2004; Kahneman and Krueger, 2006; Sevilla, Gimenez-Nadal, Gershuny, 2012). While completing their time diary, respondents reported the instantaneous enjoyment (or utility) experienced for every ten-minutes slot over the 24 hours of the day, using a 7-point scale, from "Didn't enjoy at all" to "Enjoyed very much". Using these details, we can define the associated enjoyment for each episode, as the average instantaneous utility over the total time of the episode. Panel C in Table A2 reports the mean of the instantaneous enjoyment in all activities. The mean instantaneous enjoyment is stable over time.

2.3 Control Variables

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[6] Appendix B reports the complete list of activities included in our definition of leisure.

[7] Previous studies have found that, in general, women tend to associate higher levels of enjoyment when they engage in activities with other people (Hamermesh 2020).

[8] Table C2 shows the comparison of average minutes spent in leisure by location and copresence in the 2016 CaDDI survey with the nationally representative 2014-15 UK Time Use Survey (UKTUS). Respondents to CaDDI recorded longer time spent in leisure in 2016 than respondents in the UKTUS in 2014-15. In particular we observe larger differences in the number of minutes spent in leisure alone or with household members and at home, compared to UKTUS respondents. This could be the result of some respondent bias, with those spending more time at home also being more likely to complete CaDDI-type surveys. An alternative explanation is the different design and timing of the surveys (CaDDI survey took place in May and October of 2016 as opposed to across a full year in 2014-15).

The survey administered to all respondents collects rich information on socio-demographic and economic characteristics, such as: age, marital status, number of children aged 16 or under, labour market status (in employment, unemployed or inactive, student, retired), highest qualification achieved, region of residence (North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East London, South East, South West, Wales, Scotland, Northern Ireland), household income (less than £20,000; £20,000-£30,000; £30,000 to £60,000; £60,000 to £90,000 and above £90,000) and Standard Occupational Classification (SOC) codes that we map into indicators for high (SOC major group 1, 2 and 3) mid (SOC major group 4, 5, 6 and 7) and low skilled occupations (SOC major group 8 and 9).

Finally additional data on Covid-19 infection and death rates at the regional level were collected from the UK Coronavirus Dashboard for the days of the survey interviews.[9] Rolling three-day averages for infection and death rates are then used as additional covariates in all regressions.

3. Empirical Strategy

To understand the impact of the policy response to the Covid-19 outbreak on subjective well-being, we rely on an event-study specification where we compare changes in life satisfaction between 2016 (our baseline) and different stages of the pandemic when social restrictions with different stringency were introduced in the United Kingdom. Empirically, our event-study methodology is based on the following specification[10]:

$$
\begin{aligned}
Sat_i = {} & \alpha_0 + \delta W_i + \alpha_1^M May20_i + \alpha_2^M Aug20_i + \alpha_3^M Nov20_i + \alpha_4^M Jan21_i + \alpha_5^M Sep21_i + \\
& + \alpha_1^W May20_i * W_i + \alpha_2^W Aug20_i * F_i + \alpha_3^W Nov20_i * W_i + \alpha_4^W Jan21_i * W_i + \\
& + \alpha_5^W Sep21_i * W_i + X_i \boldsymbol{\gamma} + \varepsilon_i
\end{aligned}
\tag{1}
$$

where Sat_i represents the self-reported measure of life satisfaction of individual i, and $May20_i$, $Aug20_i$, $Nov20_i$ and $Jan21_i$ are binary indicators for each period of the pandemic covered by our data; X_i includes economic and socio-demographic characteristics described in the previous section, indicators for region of residence and three-days moving averages of infection and death rates ; F_i is a dummy taking value 1 if the respondent is a woman, and 0 otherwise; finally ε_i is an idiosyncratic error term. Equation 1 assumes that ordinal comparability is permitted: when two respondents give the same answer, they are assumed to have similar levels of satisfaction.

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[9] Data can be downloaded from: https://coronavirus.data.gov.uk.

[10] As the data employed in this study includes only one survey collected before the start of the pandemic (2016), one may argue that there would have been a decrease in life satisfaction in 2020-2021 regardless of the pandemic, in other words, one may question the existence of a decreasing trend in Britons' life satisfaction over time. We use time series data on life satisfaction covering the period 2012-2020 from the Annual Population Survey to rule out this hypothesis by showing the presence of a structural break in the first and second quarters of 2020.

Our coefficients of interest are α_k^g (where $k = 1,..5$ and $g = M, W$). They identify changes in subjective well-being induced by the policy measures introduced as a response to the pandemic. Given the evidence from the previous literature showing that men and women have different preferences, risk attitudes and levels of subjective well-being, we allow these coefficients to differ by gender (i.e., α_k^M can differ from α_k^W).

Our identification exploits variation in the timing and stringency of social restrictions. Differently from other countries, the United Kingdom was affected by multiple and sudden changes in social restrictions. To disentangle the effect of the policy response from economic and health shocks we include in the regression employment status, household income, type of occupation and the number of Covid-19 cases and Covid-related deaths by 100,000 inhabitants at regional level.

4. Results

4.1 The well-being impact of the stringency of the containment measures

Table 1 shows changes in subjective well-being during different stages of the pandemic when containment measures with different stringency levels are in place. Column 1 shows that subjective well-being decreases substantially during the pandemic, and, differently from what other studies find, such reduction persists even one year after the onset of the pandemic. Accounting for demographic characteristics (such as age, household composition, number of children, employment status and education) and the region of residence does not affect the results as shown in columns 2 and 3.

[Table 1]

The negative change in subjective well-being is not monotone over time and, instead, it appears to be proportional to the intensity of the lockdown measures and social restrictions implemented during the pandemic. Admittedly, these results may be cofounded by other factors, such as the financial and health shocks caused by the pandemic. However, when we control for the economic status of the respondents and the regional infection and death rates of Covid-19 in the days of the interview, a proxy used for the health effects of the virus, we find that the key coefficients do not change significantly, as reported in columns 4 to 6. In the first lockdown (May 2020) men's level of life satisfaction reduces by 28% while for women the drop is 47% of a standard deviation. However, life satisfaction started increasing again once social restrictions are lifted (August 2020). When new containment measures are introduced in November 2020 and then, even stricter, in January 2021, the average life satisfaction drops again, with the negative change being larger in January 2021 (47% and 70% for men and women, respectively), suggesting that people do not adjust to the "new normality". Table A3 in the appendix shows that these results are robust to re-weighting the sample in order to match the distribution of observable characteristics of the working age population in the 2016 APS data. Taken together these results suggest that the decline in well-being is caused by policy restrictions more than by the economic and health crisis generated by the pandemic.

[Figure 2]

This hypothesis is supported by the results in Figure 2, where we show how, among different aspects of people's life that changed during the pandemic (own health, household income, quality and quantity of social life and leisure time), only satisfaction with the quality of social life and leisure time follows a trend similar to the one we observe for subjective well-being.[11] The most noticeable drop in the quality of leisure are reported in May 2020 and January 2021, i.e. during the most stringent lockdowns, when meeting friends and family members from different households is banned and all public gatherings and social events cancelled. In September 2021, instead, when most restrictions are lifted, the levels of satisfaction with the quality of social life returns to the pre-pandemic levels.

We also observe important gender differences in the impact of the social restrictions. Women experience a drop in subjective well-being twice as large as for men, in line with previous studies finding that women's psychological well-being is more likely to be affected by macroeconomic shocks (Adams-Prassl et al. 2020; Alon et al., 2020; Andrew et al. 2020; Oreffice and Quintana-Domeque, 2021). For women, it also takes longer to recover such shocks. Indeed, in September 2021, when men's well-being returns to the pre-pandemic levels, women still experience a 36% lower level of life satisfaction.[12]

4.2 Exploring the mechanisms: social isolation and loneliness

We exploit a unique feature of our data, namely the availability of information on individuals' time allocation combined to the level of enjoyment associated to each activity, to show that changes in time spent in preferred activities driven by policy restrictions are at the origin of changes in well-being.

We measure individuals' preferences in their time allocation by estimating the mean instantaneous well-being for each activity (personal care, leisure with non-family members and family members, unpaid work, such as housework and childcare, and paid work) with a regression analysis at episode level, while controlling for the episode length, day of the week, individual characteristics, regional dummies and Covid 19 infection and death rates. As shown in Figure 3, we find that respondents enjoy the most leisure activities, especially with non-household members. The least preferred activities are paid and unpaid work. The only gender difference we observe in the ranking of these activities is that women assign a higher level of enjoyment to leisure time with others and outside of the home than men.

[Figure 3]

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[11] These results are also in line with studies showing that individuals who have more extravert and open personality traits report a higher mental health deterioration during the Covid-19 pandemic (Proto and Zhang, 2021).

[12] Figure A1 shows the results when we allow the effect of the stringency of the social restrictions to vary across groups. We find no significant differences in trends, however, in line with previous studies (Biroli et al., 2021, Blanden et al., 2022), we find that the drop is larger (and statistically different) for parents, compared to adults with no children.

Table 2 presents the estimates for changes in leisure time by copresence and location during the pandemic. Column 1 shows that time in leisure alone or with household members increases for everyone throughout the pandemic with the biggest surges observed in May 2020 (an hour and a half for both, men and women), November 2020 (108 minutes for men and 86 minutes for women) and January 2021 (130 minutes for men and 105 minutes for women). A very similar pattern is observed for time in leisure at home, as reported in column 3: the increase is 76 and 100 minutes (respectively for men and women) during the first lockdown, 93 and 95 minutes during the second and 118 and 105 during the third, stricter, lockdown. The reduction in time spent with non-household members follows the inverse trend where individuals spend less time with non-household members in periods when stricter social restrictions are in place, as reported in column 2: the reduction in leisure with others is 31 and 41 minutes, respectively for men and women, in May 2020; 28 and 31 minutes in November 2020; and 30 and 35 minutes in January 2021. Results in column 4 shows that the same trend is followed by changes in time away from home. We note here that in September 2021, when all social restrictions are removed, men's leisure time with non-household members and away from home returns to the pre-pandemic levels. Similarly, their life satisfaction returns to the pre-pandemic levels. As reported in table 1. For women, instead, while the amount of time spent with non-household members increases with respect to the lockdown periods, it is still lower than the pre-pandemic level, as it is their life satisfaction.

[Table 2]

Figure 4 reports changes in the composition of leisure time with non-family members in 2016, during the three lockdowns and in September 2021. Compared to 2016 during the lockdowns both men and women spend less time in all leisure activities with non-household members, with those involving different locations than home almost reduced to zero (e.g., going out to drink or eat, to the cinema or theatre). As restriction were lifted, men allocate their time across leisure activities with non-household members more similarly to how they did it in 2016. Leisure time of women with non-household members increases after the three lockdowns but time spent outside their home, such as in cinema, theatres, sport events, in recreational courses, playing sports and exercising is still less than 2016.

[Figure 4]

5. Discussion and conclusions

The research in this paper uses a unique dataset from the UK to assess the mechanisms behind a substantial decrease in the wellbeing of during different phases of the Covid-19 crisis. The research focuses on individual preferences over their time allocation and the behavioural changes determined by social restrictions with different degrees of stringency that were implemented over the pandemic.
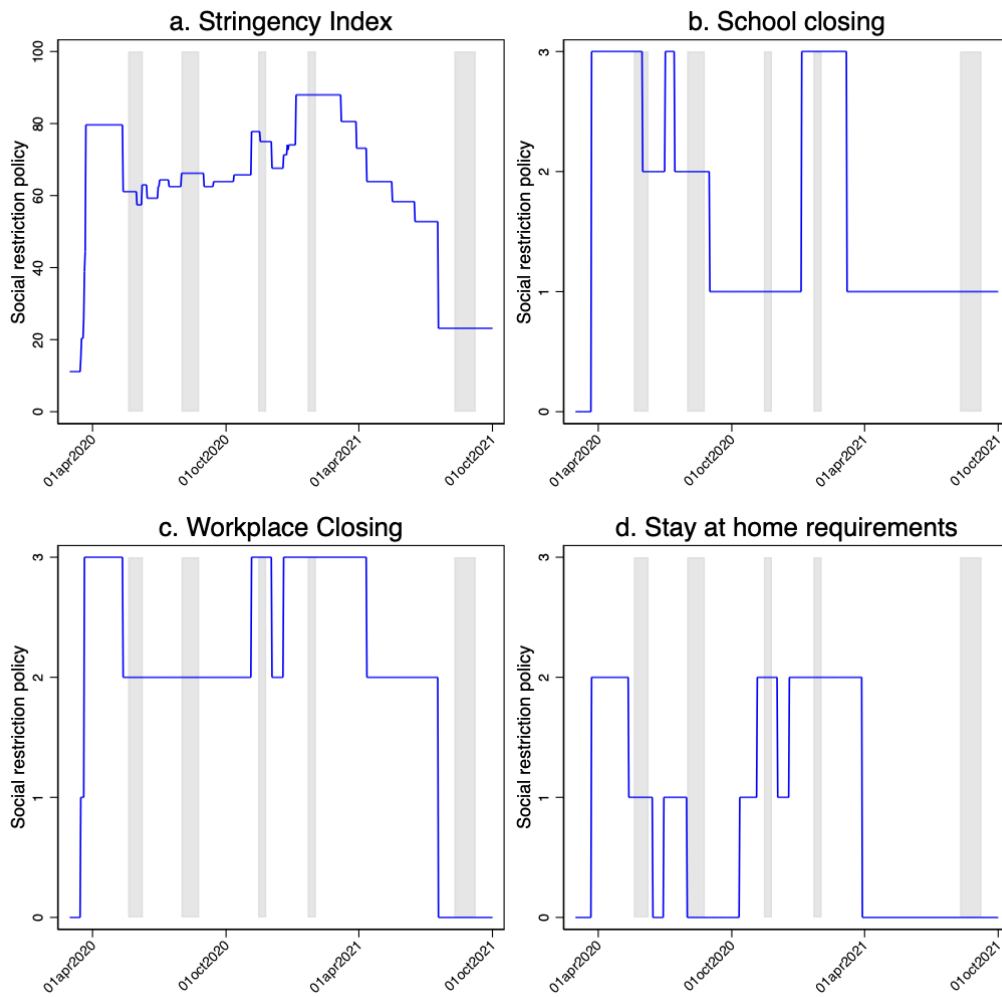
We find that the drop in well-being was larger during stricter lockdowns, and the effect survives even when we control for other confounding factors such as economic circumstances and local

pandemic levels. To put our results into context: the drop in well-being caused by the strictest lockdowns (May 2020 and January 2021) has an estimated effect on women's well-being that is double the well-being loss caused by the Boston bombing attack (Clark et al. 2020) and equivalent to seven times the impact of the radiation dose for the low-dose population 20 years after the Chernobyl disaster (Danzer and Danzer, 2016).

Combining self-reported information on satisfaction with different domains of life, on time allocation and instantaneous enjoyment associated with different activities, we show that the change in social interactions and the increase in loneliness induced by the social restrictions contributes to a significant drop in individuals' well-being, with women experiencing a greater drop than men throughout the pandemic. These greater negative changes in well-being last over time: in September 2021, when all restrictions are removed, women's well-being is still 36% of a standard deviation lower than the pre-pandemic levels while men are back to their pre-pandemic levels. Gender differences in well-being changes can be explained by preferences for leisure activities: women enjoy more than men leisure time spent with non-household members. An additional explanation, that however we cannot test directly, is that women are generally more responsive to increased uncertainty and risk perceptions than men (Croson and Gneezy, 2009) and are more likely to perceive Covid-19 as a very serious health issue (Galasso et al., 2020). As also discussed by Etheridge and Spantig (2022), women could adopt preventive behaviours that result in loneliness, even when there are no mandatory restrictions as a consequence of their risk preferences.

Lockdowns appear to have impacted well-being more through the direct loss of social interactions than through their effect on the labour market and health distress. While the Covid-19 pandemic has been characterised by unusual circumstances and an unprecedent policy response, the implications of this study can be generalised to situations when policy needs to weight up many competing objectives. This implies that future interventions put in place to counteract the total effect of macro-shocks should also consider additional dimensions such as the possible negative shifts in individual wellbeing and mental health.

Figure 1: Changes in social restrictions in the United Kingdom during the Covid-19 pandemic (March 2020 to October 2021)

Note: The plots report the evolution of the social containment policies implemented in the UK over the period 1st of March 2020 – 1st of October 2021. The five shaded areas represent the days when CaDDI survey diaries were collected: 20th of May to 9th of June 2020; 1st of August to 25th of August 2020; 14th of November to 25th of November 2020; 1st of January to 1st of February 2021; 13th of august to 8th of September 2021. Plot *a* shows the changes in the stringency index (Hale at al., 2021) which summarises the strictness of all 'lockdown style' policies introduced by the UK Government that restricted individuals' behaviour. Plot *b*, *c*, and *d* report changes over time in three ordinal indicators that capture the stringency of the main containment policies adopted during the pandemic: schools closure, workplace closure and stay-at-home requirements. These indicators rank policies on a scale where 0 represents no restrictions and 3 represents closure on all levels (for schools and workplaces) or strict stay-at-home requirements.

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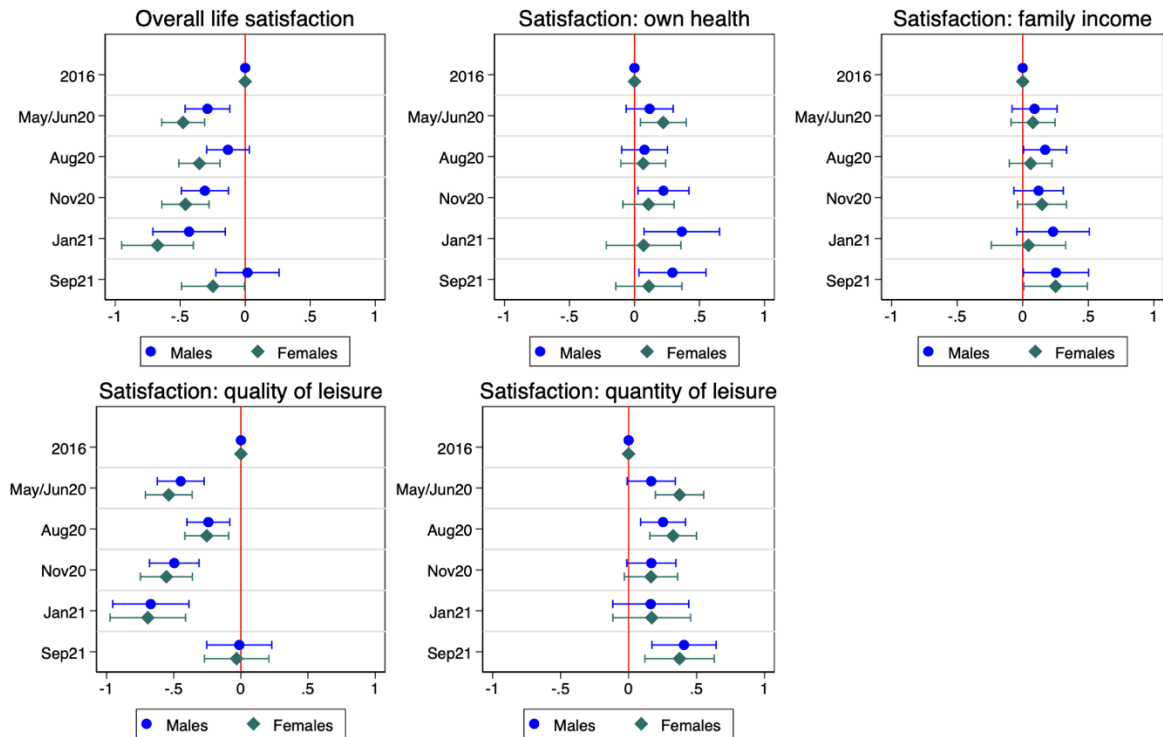## Table 1: Changes in overall satisfaction 2016-2021

	(1)	(2)	(3)	(4)	(5)	(6)
Women	0.184**	0.188**	0.189**	0.201***	0.189**	0.202***
	(0.076)	(0.074)	(0.074)	(0.071)	(0.074)	(0.071)
May 2020	-0.261***	-0.270***	-0.249***	-0.275***	-0.255***	-0.279***
	(0.089)	(0.086)	(0.086)	(0.085)	(0.089)	(0.088)
August 2020	-0.101	-0.132	-0.119	-0.133	-0.120	-0.136
	(0.087)	(0.085)	(0.085)	(0.084)	(0.085)	(0.084)
November 2020	-0.306***	-0.307***	-0.288***	-0.300***	-0.319***	-0.345***
	(0.079)	(0.077)	(0.077)	(0.075)	(0.095)	(0.092)
January 2021	-0.390***	-0.380***	-0.366***	-0.387***	-0.429***	-0.466***
	(0.082)	(0.080)	(0.080)	(0.078)	(0.146)	(0.143)
September 2021	0.003	0.000	0.023	-0.019	-0.021	-0.098
	(0.083)	(0.080)	(0.080)	(0.078)	(0.129)	(0.125)
May 2020* Women	-0.263**	-0.226*	-0.239**	-0.188	-0.239**	-0.188
	(0.122)	(0.119)	(0.119)	(0.117)	(0.119)	(0.117)
August 2020* Women	-0.247**	-0.223*	-0.246**	-0.219*	-0.246**	-0.219*
	(0.120)	(0.117)	(0.118)	(0.116)	(0.118)	(0.116)
November 2020* Women	-0.154	-0.171	-0.174	-0.147	-0.176*	-0.149
	(0.109)	(0.107)	(0.107)	(0.104)	(0.107)	(0.105)
January 2021* Women	-0.289**	-0.291***	-0.286**	-0.242**	-0.284**	-0.237**
	(0.113)	(0.112)	(0.111)	(0.109)	(0.112)	(0.110)
September 2021* Women	-0.329***	-0.328***	-0.333***	-0.265**	-0.334***	-0.267**
	(0.117)	(0.113)	(0.113)	(0.110)	(0.113)	(0.110)
Constant	0.192***	0.280***	0.252***	-0.012	0.254***	-0.014
	(0.055)	(0.073)	(0.089)	(0.104)	(0.091)	(0.106)
Controls						
Socio-dem. characteristics	No	Yes	Yes	Yes	Yes	Yes
Regional dummies	No	No	Yes	Yes	Yes	Yes
Economic characteristics	No	No	No	Yes	No	Yes
Covid cases/deaths	No	No	No	No	Yes	Yes
N. Observations	3,181	3,181	3,181	3,181	3,181	3,181
R-squared	0.037	0.081	0.090	0.121	0.090	0.122
May 2020 - Women	-0.524***	-0.496***	-0.488***	-0.464***	-0.494***	-0.467***
	(0.084)	(0.083)	(0.083)	(0.081)	(0.086)	(0.084)
August 2020 - Women	-0.349***	-0.355***	-0.365***	-0.353***	-0.366***	-0.355***
	(0.082)	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)
November 2020 - Women	-0.460***	-0.478***	-0.462***	-0.448***	-0.495***	-0.494***
	(0.076)	(0.075)	(0.075)	(0.074)	(0.094)	(0.092)
January 2021 - Women	-0.679***	-0.671***	-0.653***	-0.629***	-0.712***	-0.703***
	(0.079)	(0.078)	(0.078)	(0.077)	(0.142)	(0.140)
September 2021 - Women	-0.326***	-0.327***	-0.310***	-0.284***	-0.355***	-0.365***
	(0.083)	(0.080)	(0.080)	(0.078)	(0.125)	(0.123)

Notes: Data come from the 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Observations are working age (18-69 years old) individuals interviewed in the six waves of the CaDDI surveys. The dependent variable is the standardised (mean 0 and standard deviation 1) measure of overall life satisfaction (subjective well-being). The raw well-being variable is measured on a seven-point scale from "completely dissatisfied" to "completely satisfied". The table reports OLS estimates of changes in well-being during the Covid-19 pandemic (with respect to the pre-

pandemic period, i.e. (2016 May and October) while controlling for different sets of covariates. Socio-demographic characteristics include age, marital status, family composition (number of children aged 16 or under), employment status and highest qualification. Regional dummies are indicators for the following 12 regions: North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East London, South East, South West, Wales, Scotland, Northern Ireland. Economic variables include household income and indicators for whether the occupation is high, mid or low-skilled. Covid cases and deaths by region per 100k habitants were obtained from
https://coronavirus.data.gov.uk/details/download and they are measured as moving averages over three days centred in the first day of the interview. Standard errors are clustered at region level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. ***.

Figure 2: Changes in satisfaction with different aspects of life

Notes: Data come from the 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Observations are working age (18-69 years old) individuals interviewed in the six waves of the CaDDI surveys. Key variables measure satisfaction in five domains: overall life satisfaction (subjective well-being), with own health, with family income, with quality of leisure and with quantity of leisure. The dependent variable is the standardised (mean 0 and standard deviation 1) measure of overall life satisfaction (subjective well-being). The raw well-being variable is measured on a seven-point scale from "completely dissatisfied" to "completely satisfied". The table reports OLS estimates of changes in well-being during the Covid-19 pandemic (with respect to the pre-pandemic period, i.e. 2016 May and October) while controlling for the same set of covariates as in Column 6 of Table 1.

Figure 3: Instantaneous enjoyment by type of activities

Notes: Data come from 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Observations are episodes of activities reported in diaries by individuals aged 18-69 years old and interviewed in the six waves of the CaDDI surveys. The dependent variable is defined as the standardised measure of instantaneous enjoyment, with mean 0 and standard deviation 1, reported by respondents for each of these episodes in their diary. Appendix B lists the activities included in the definition of leisure, personal care, housework and work time. Figures (a) and (b) report results when leisure is classified by copresence and by location, respectively. Results are obtained from OLS analysis, while controlling for age, marital status, family composition (number of children aged 16 or under), employment status, highest qualification, regional dummies, household income and indicators for whether the occupation is high, mid or low-skilled; total number of minutes spent in leisure during the day and day of the week.

Table 2: Changes in leisure time allocation

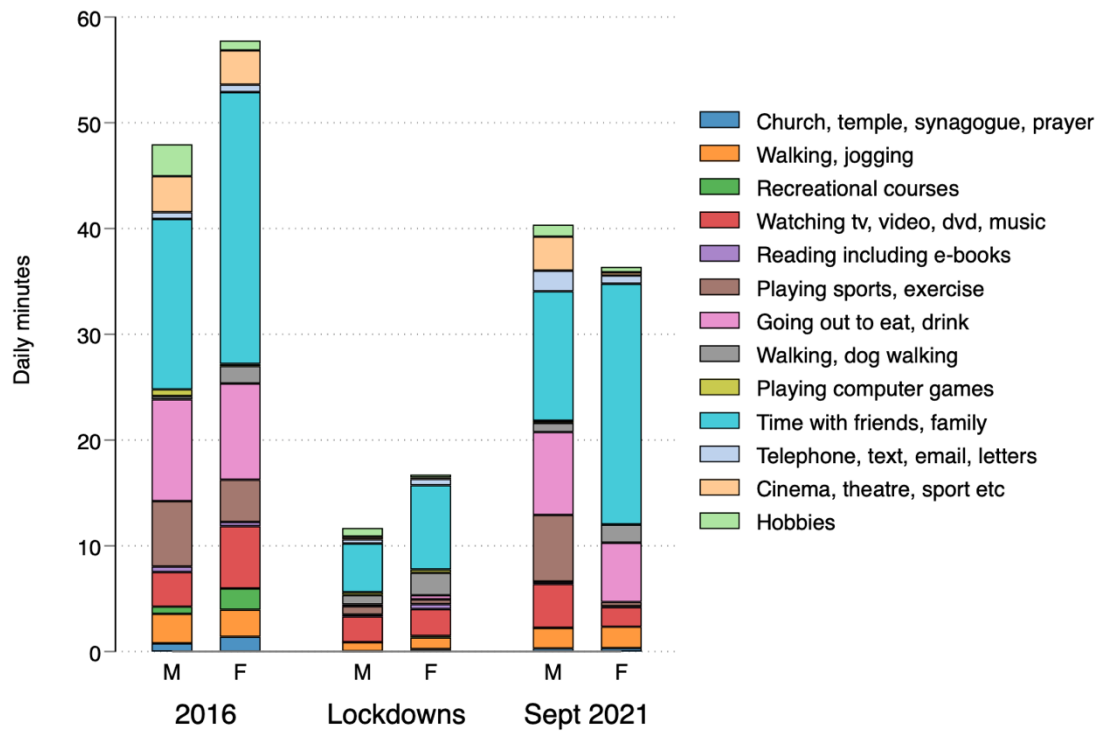|	(1) Alone or with household members	(2) With non-household members	(3) At home	(4) Away from home
Women	-30.983**	11.938*	-29.750**	2.675
	(15.056)	(7.192)	(12.341)	(8.930)
May 2020	94.231***	-31.046***	76.073***	-37.239***
	(17.413)	(6.045)	(13.233)	(7.550)
August 2020	47.621***	-15.452**	47.972***	-15.903*
	(16.807)	(6.917)	(13.876)	(8.551)
November 2020	107.824***	-27.832***	92.523***	-34.388***
	(19.262)	(6.556)	(15.156)	(7.928)
January 2021	129.468***	-29.898***	118.422***	-25.419**
	(27.761)	(7.873)	(22.532)	(10.351)
September 2021	61.365***	-2.144	26.517	-0.371
	(22.592)	(8.279)	(18.387)	(11.086)
May 2020* Women	5.077	-9.782	24.702	4.898
	(23.188)	(8.366)	(17.992)	(10.658)
August 2020* Women	9.534	-1.170	-7.801	10.993
	(23.694)	(9.733)	(18.492)	(11.907)
November 2020* Women	-22.046	-3.343	2.853	5.648
	(21.432)	(8.381)	(17.241)	(10.023)
January 2021* Women	-25.351	-4.712	-13.154	-2.903
	(21.953)	(7.894)	(17.578)	(9.946)
September 2021* Women	-3.379	-12.890	-12.395	3.559
	(21.808)	(9.288)	(17.523)	(11.952)
Constant	372.788***	37.864***	311.081***	64.387***
	(20.788)	(8.294)	(17.204)	(10.137)
N. Diaries	6,432	6,432	6,432	6,432
N. Individuals	3,181	3,181	3,181	3,181
R-squared	0.066	0.046	0.118	0.049
May 2020 - Women	99.31***	-40.83***	100.8***	-32.34***
	(16.69)	(5.947)	(13.16)	(7.676)
August 2020 - Women	57.15***	-16.62**	40.17***	-4.910
	(16.94)	(6.806)	(12.41)	(8.309)
November 2020 - Women	85.78***	-31.17***	95.38***	-28.74***
	(18.21)	(6.467)	(14.64)	(7.916)
January 2021 - Women	104.1***	-34.61***	105.3***	-28.32***
	(27.21)	(7.947)	(21.35)	(9.856)
September 2021 - Women	57.99**	-15.03*	14.12	3.189
	(22.64)	(8.433)	(18.50)	(10.83)

Notes: Data come from the 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Observations are working age (18-69 years old) individuals interviewed in the six waves of the CaDDI surveys. The dependent variables measure minutes spent in a day in leisure activities by copresence (alone or with household members and with non-household members) and location (at home and away from home). Appendix B lists the activities included in the definition of leisure. The table reports OLS estimates of changes in time allocation during the Covid-19 pandemic (with respect to the pre-pandemic period, i.e. 2016 May and October) while controlling for the same set of covariates as in Column 6 of Table 1. Robust standard error in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. ***.

Figure 4: Mean daily time in leisure with non-household members by activity in 2016, during national lockdowns and in September 2021

Notes: The plot is based on 936 diaries for 2016; 3414 diaries for May 2020, November 2020 and January 2021; 1096 diaries for September 2021. Each element of the stacked bars represents the mean daily minutes spent in each type of leisure activity with non-household members.

Data Availability

The anonymized 6-wave data are available from the core collection of the UK Data Archive, Study no. 8741 (DOI: 10.5255/UKDA-SN-8741-1)

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Appendix A

Table A1: Summary Statistics of Covariates

	2016	May 2020	Aug 2020	Nov 2020	Jan 2021	Sep 2021
Female	0.493	0.494	0.519	0.507	0.523	0.463
Age						
Less than 30 years	0.220	0.233	0.170	0.141	0.236	0.135
30 to 40 years	0.206	0.233	0.279	0.291	0.227	0.185
40 to 50 years	0.173	0.226	0.221	0.228	0.207	0.193
50 to 69 years	0.401	0.309	0.330	0.340	0.329	0.488
Employed						
High skill occupation	0.303	0.411	0.430	0.403	0.383	0.336
Mid-skill occupation	0.282	0.264	0.247	0.280	0.229	0.247
Low-skill occupation	0.088	0.059	0.077	0.065	0.047	0.037
Occupation missing	0.026	0.018	0.040	0.011	0.044	0.023
Student	0.054	0.060	0.040	0.023	0.052	0.025
Retired	0.147	0.072	0.051	0.093	0.089	0.180
Unemployed or inactive	0.100	0.111	0.116	0.125	0.157	0.151
Higher Education	0.457	0.545	0.579	0.577	0.515	0.508
Single/divorced/widowed	0.354	0.395	0.340	0.350	0.388	0.367
At least 1 child <=16 y.o.	0.321	0.368	0.426	0.348	0.351	0.334
Income						
<=£20k	0.223	0.167	0.147	0.154	0.176	0.199
£20k-30k	0.230	0.194	0.160	0.193	0.186	0.176
£30k-60k	0.165	0.167	0.137	0.156	0.166	0.158
£60k-90k	0.188	0.196	0.242	0.228	0.222	0.195
>=£90k	0.194	0.275	0.314	0.268	0.251	0.272
Missing	0	0.045	0.049	0.033	0.051	0.033
Regions						
London	0.073	0.097	0.084	0.172	0.145	0.137
Yorkshire & Humberside	0.083	0.090	0.074	0.088	0.079	0.064
East Midlands	0.085	0.106	0.093	0.055	0.070	0.068
East Anglia	0.095	0.079	0.088	0.088	0.087	0.081
South East	0.117	0.113	0.086	0.148	0.132	0.137
South West	0.077	0.083	0.093	0.081	0.084	0.099
West Midlands	0.140	0.090	0.151	0.085	0.082	0.079
North West	0.095	0.090	0.100	0.089	0.115	0.129
Scotland	0.016	0.020	0.012	0.092	0.075	0.085
Wales	0.054	0.045	0.037	0.049	0.053	0.044
Northern Ireland	0.049	0.041	0.053	0.015	0.025	0.023
North East	0.116	0.144	0.128	0.037	0.052	0.054
N. Individuals	613	443	430	615	598	482

Notes: Data come from 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Covid cases and deaths by region per 100k habitants were obtained from: https://coronavirus.data.gov.uk/details/download and they are measured as moving averages over three days centred in the first day of the interview. Numbers represent proportions of the sample.

Table A2: Summary Statistics of Dependent Variables

	2016	May 2020	Aug 2020	Nov 2020	Jan 2021	Sep 2021
Panel A - Satisfaction with						
Life Overall	5.106	4.567	4.795	4.579	4.366	4.892
	(1.301)	(1.399)	(1.326)	(1.349)	(1.425)	(1.350)
Health	4.713	4.926	4.872	4.872	4.803	4.969
	(1.473)	(1.303)	(1.283)	(1.328)	(1.337)	(1.359)
Income	4.488	4.571	4.705	4.633	4.472	4.824
	(1.555)	(1.533)	(1.475)	(1.466)	(1.559)	(1.553)
Quantity of leisure	4.760	5.000	5.077	4.876	4.771	5.398
	(1.520)	(1.400)	(1.319)	(1.358)	(1.474)	(1.302)
Quality of leisure	4.693	3.865	4.312	3.865	3.602	4.680
	(1.494)	(1.631)	(1.452)	(1.569)	(1.620)	(1.465)
N. Individuals	613	443	430	615	598	482
Panel B: Leisure Time						
Alone or w household member	367.9	447.7	404.9	426.7	433.4	394.2
	(230.1)	(287.5)	(297.6)	(286.2)	(277.0)	(270.2)
With non-household member	51.33	14.39	34.42	16.41	9.047	35.89
	(111.6)	(65.63)	(102.3)	(72.59)	(53.06)	(94.41)
At home	282.5	348.4	302.3	345.4	354.9	296.9
	(194.2)	(214.5)	(228.7)	(225.7)	(226.7)	(220.4)
Away from home	84.81	45.01	71.49	41.76	33.73	75.34
	(136.2)	(91.09)	(125.8)	(81.98)	(76.22)	(131.6)
N. Diaries	935	983	987	1277	1154	1096
N. Individuals	613	443	430	615	598	482
Panel C: Instantaneous Enjoyment in Leisure Activities						
Enjoyment	5.258	5.368	5.320	5.295	5.228	5.414
	(1.439)	(1.344)	(1.393)	(1.338)	(1.396)	(1.442)
N. Episodes	3,527	3,697	3,561	4,622	3,966	3,848
N. Diaries	908	927	906	1,212	1,073	1,020
N. Individuals	602	438	419	599	575	468

Notes: Data come from 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Panels A and B include CaDDI respondents aged 18-69, while in Panel C the sample is restricted to those individuals who reports at least one episode of leisure activities reported in their time diaries. Appendix B lists the activities included in the definition of leisure. Values represent average satisfaction (Panel A), time spent in leisure activities, as defined in Appendix B (Panel B) and instantaneous enjoyment (Panel C). Standard deviations are reported in parenthesis.
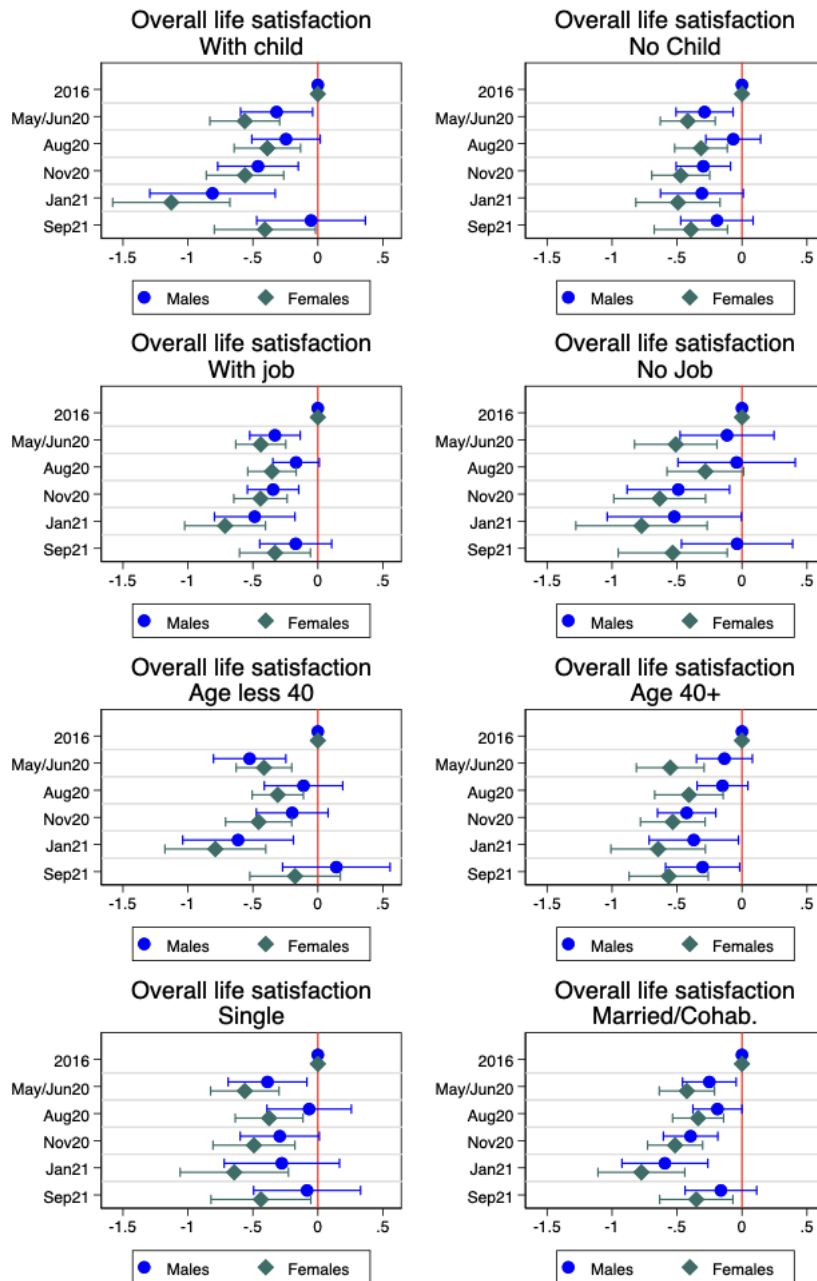
A3: Changes in overall satisfaction 2016-2021 with weights

	(1)	(2)	(3)	(4)	(5)	(6)
Women	0.221**	0.183**	0.172**	0.179**	0.172**	0.179**
	(0.089)	(0.087)	(0.086)	(0.083)	(0.086)	(0.083)
May 2020	-0.251**	-0.251**	-0.232**	-0.260**	-0.224*	-0.244**
	(0.123)	(0.114)	(0.111)	(0.107)	(0.115)	(0.111)
August 2020	-0.038	-0.051	-0.034	-0.041	-0.035	-0.043
	(0.112)	(0.115)	(0.117)	(0.120)	(0.117)	(0.120)
November 2020	-0.326***	-0.324***	-0.314***	-0.322***	-0.324***	-0.345***
	(0.093)	(0.091)	(0.092)	(0.088)	(0.117)	(0.113)
January 2021	-0.392***	-0.370***	-0.372***	-0.402***	-0.372**	-0.407**
	(0.102)	(0.102)	(0.102)	(0.096)	(0.184)	(0.177)
September 2021	-0.127	-0.126	-0.104	-0.136	-0.160	-0.244
	(0.114)	(0.109)	(0.107)	(0.099)	(0.178)	(0.167)
May 2020* Women	-0.282*	-0.262*	-0.269*	-0.198	-0.270*	-0.198
	(0.156)	(0.150)	(0.147)	(0.143)	(0.147)	(0.143)
August 2020* Women	-0.292*	-0.266*	-0.291*	-0.257*	-0.292*	-0.258*
	(0.150)	(0.154)	(0.154)	(0.156)	(0.154)	(0.156)
November 2020* Women	-0.175	-0.157	-0.151	-0.113	-0.152	-0.114
	(0.131)	(0.129)	(0.129)	(0.128)	(0.129)	(0.129)
January 2021* Women	-0.306**	-0.309**	-0.281**	-0.223*	-0.278**	-0.217
	(0.140)	(0.138)	(0.138)	(0.134)	(0.138)	(0.134)
September 2021* Women	-0.139	-0.120	-0.131	-0.077	-0.132	-0.079
	(0.146)	(0.141)	(0.138)	(0.132)	(0.138)	(0.132)
Constant	0.156**	0.250***	0.221*	0.026	0.214*	0.013
	(0.064)	(0.091)	(0.114)	(0.127)	(0.117)	(0.130)
Controls						
Socio-dem. characteristics	No	Yes	Yes	Yes	Yes	Yes
Regional dummies	No	No	Yes	Yes	Yes	Yes
Economic characteristics	No	No	No	Yes	No	Yes
Covid cases/deaths	No	No	No	No	Yes	Yes
N. Observations	3,181	3,181	3,181	3,181	3,181	3,181
R-squared	0.039	0.080	0.090	0.122	0.090	0.122
May 2020 - Women	-0.533***	-0.513***	-0.502***	-0.458***	-0.494***	-0.443***
	0.0973	0.0976	0.0968	0.0958	0.101	0.100
August 2020 - Women	-0.329***	-0.317***	-0.326***	-0.298***	-0.327***	-0.301***
	0.101	0.102	0.101	0.103	0.101	0.103
November 2020 - Women	-0.500***	-0.481***	-0.465***	-0.436***	-0.476***	-0.459***
	0.0921	0.0919	0.0922	0.0943	0.125	0.127
January 2021 - Women	-0.698***	-0.679***	-0.654***	-0.625***	-0.650***	-0.625***
	0.0957	0.0928	0.0930	0.0928	0.181	0.178
September 2021 - Women	-0.267***	-0.246***	-0.235***	-0.212**	-0.292*	-0.323**
	0.0904	0.0892	0.0882	0.0885	0.154	0.151

Notes: Data come from the 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Observations are working age (18-69 years old) individuals interviewed in the six waves of the CaDDI surveys. The dependent variable is the standardised (mean 0 and standard deviation 1) measure of overall life satisfaction (subjective well-being). The raw well-being variable is measured on a seven-point scale from "completely dissatisfied" to "completely satisfied". The table reports OLS estimates of changes in well-being during the Covid-19 pandemic (with respect to the pre-

pandemic period, i.e. 2016 May and October) while controlling for different sets of covariates. Socio-demographic characteristics include age, marital status, family composition (number of children aged 16 or under), employment status and highest qualification. Regional dummies are indicators for the following 12 regions: North East, North West, Yorkshire and the Humber, East Midlands, West Midlands, East London, South East, South West, Wales, Scotland, Northern Ireland. Economic variables include household income and indicators for whether the occupation is high, mid or low-skilled. Covid cases and deaths by region per 100k habitants were obtained from https://coronavirus.data.gov.uk/details/download and they are measured as moving averages over three days centred in the first day of the interview. Sample was re-weighted to ensure that the joint density of gender, education, and age in our samples matches that of the population aged 18-69 in the 2016 Annual Population Survey. Standard errors are clustered at region level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. ***.

Figure A1: Heterogeneity in changes in overall satisfaction 2016-2021

Notes: Data come from the 2016, May 2020, August 2020, November 2020, January 2021 and September 2021 CaDDI time diary surveys. Observations are working age (18-69 years old) individuals interviewed in the six waves of the CaDDI surveys.. The dependent variable is the standardised (mean 0 and standard deviation 1) measure of overall life satisfaction (subjective well-being). The raw well-being variable is measured on a seven-point scale from "completely dissatisfied" to "completely satisfied". The table reports OLS estimates of changes in well-being during the Covid-19 pandemic (with respect to the pre-pandemic period, i.e. 2016 May and October) while controlling for the same set of covariates as in Column 6 of Table 1. Standard errors are clustered at region level. *** Significant at the 1 percent level. ** Significant at the 5 percent level. * Significant at the 10 percent level.

Appendix B: Activities included in the definition of personal care, leisure, unpaid work and paid work

Personal care	Leisure	Housework	Paid work
Sleeping	Going to church, temple, synagogue, prayer	Preparing food, cooking etc	Paid work including at home
Resting	Walking, jogging	Cleaning tidying housework	Work break
Washing, dressing	Recreational courses	Clothes washing, mending	
Eating, drinking,home or work	Watching tv, video, dvd, listening to music	Maintenance diy, etc	
travel: cycle	Reading including e-books	Consuming services	
Travel by car	Playing sports, exercise	Voluntary work for organisation	
Travel by bus,tram	Going out to eat, drink	Caring for own child	
Travel by train,tube	Walking, dog walking	Caring for other children	
Travel other	Playing computer games	Help,caring for cores adult	
	Time with friends, family	Help,caring for noncoresidents	
	Telephone, text, email, letters	Shopping,bank etc incl internet	
	Cinema, theatre, sport		
	Hobbies		

Appendix C: Data Validation

C1: Comparison of Annual Population Survey and CaDDI

	APS 2016	CaDDI						
		All	2016	May 2020	August 2020	Nov. 2020	Jan. 2021	Sept. 2021
Higher education qual.	0.384	0.528	0.457	0.544	0.579	0.577	0.515	0.508
	(0.486)	(0.499)	(0.499)	(0.499)	(0.494)	(0.494)	(0.500)	(0.500)
Employed	0.711	0.723	0.700	0.752	0.793	0.759	0.702	0.643
	(0.453)	(0.448)	(0.459)	(0.433)	(0.406)	(0.428)	(0.458)	(0.480)
Age								
Less than 30 years	0.256	0.190	0.220	0.233	0.170	0.141	0.236	0.135
30 to 40 years	0.196	0.237	0.206	0.233	0.279	0.291	0.227	0.185
40 to 50 years	0.204	0.207	0.173	0.226	0.221	0.228	0.207	0.193
50 to 69 years	0.344	0.367	0.401	0.309	0.330	0.340	0.329	0.488
Single	0.359	0.365	0.354	0.395	0.340	0.350	0.388	0.367
	(0.480)	(0.482)	(0.479)	(0.489)	(0.474)	(0.477)	(0.488)	(0.483)
N. Individuals	184,046	3,181	613	443	430	615	598	482

Notes: The table shows the average demographic characteristics of individuals aged 18-69 interviewed in 2016 for the Annual Population Survey in 2016 and in CaDDI. These means are calculated using the frequency weights provides in the APS 2016, while the unweighted averages of these demographic variables are presented for the CaDDI surveys. Standard deviations are reported in parenthesis.
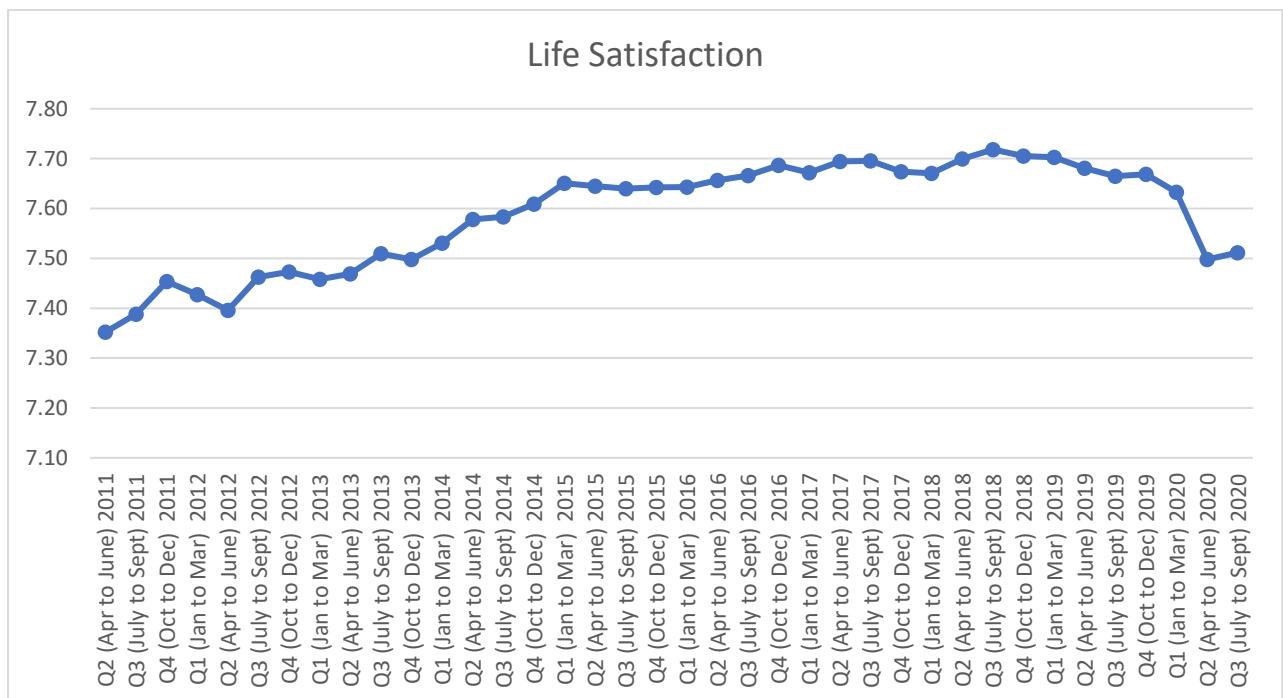
C2: Comparison UK Time Use Survey (UKTUS) and CaDDI

	CaDDI 2016	UK-TUS 2014-15
Leisure time alone/with household members	367.9	288.3
	(230.1)	(182.3)
Leisure time with non-household members	51.33	43.21
	(111.6)	(95.69)
Leisure time at home	282.5	242.3
	(194.2)	(179.8)
Leisure time not at home	84.81	89.22
	(136.2)	(128.8)
N. Diaries	935	16510
N. Individuals	613	8274

Notes: The table shows the weighted average number of minutes spent in leisure activities by location (home or away from home) and copresence (alone or with household members, or with non-household members) for individuals aged 18-69 in the UK Time Use survey. Similar unweighted statistics are reported for the CaDDI 2016 respondents. Standard deviations are reported in parenthesis.

Appendix D: Trends in Life Satisfaction

The data employed in this study includes only one survey collected before the start of the pandemic (2016). One may argue that there would have been a decrease in life satisfaction in 2020-2021 regardless of the pandemic, in other words, one may question the existence of a decreasing trend in Britons' life satisfaction over time. To explore the pre-pandemic trends of life satisfaction and make sure the changes we observe between May 2020 and January 2021 are driven by the Covid-19 pandemic, we report in the figure here below the time series data on life satisfaction covering the period 2012-2020, derived from the Annual Population Survey. While the scale is slightly different (10-point scale) from the one employed in this paper (7-point scale), the presence of a structural break in the first and second quarters of 2020 (i.e. when the pandemic started worldwide and when in the UK respectively) is undisputable.

Figure D1: Changes in life satisfaction using data from the Annual Population Survey

Notes. Seasonally adjusted quarterly estimates of personal well-being from the Annual Population Survey (APS): UK, Quarter 2 (Apr to June) 2011 to Quarter 3 (July to Sept) 2020.