

Statistical bulletin

# Coronavirus and contributors to subnational well-being: January to March 2021

Regression analysis of the Opinions and Lifestyle Survey to provide insight into the impact of the coronavirus (COVID-19) pandemic, to better understand which socio-demographic and economic factors were most associated with levels of happiness in England and Wales in early 2021.

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## 1 . Main points

- Over the past year, average happiness for England and Wales was lower than the pre-pandemic (February 2020) average of 7.2; London recorded lower average happiness than rural areas or other urban areas, dropping to a low of 6.5 in early 2021.
- Reported loneliness was found to have the strongest association to happiness of any other factor considered; lonely adults were likely to report lower happiness scores than less lonely adults, with London having the largest proportion of adults who felt lonely at least some of the time (29%).
- Adults in urban areas (including London) who had worked from home over the last seven days were more likely to report lower levels of happiness than those who had not worked from home.
- When compared with the baseline of respondents aged 75 years or over, all younger adults across all areas had significantly lower levels of happiness; this indicates that people over the age of 75 years are most likely to report the highest level of happiness, especially compared with those aged 35 to 44 years.

## 2 . Understanding the impact on society

This bulletin contains data and indicators from the Office for National Statistics' (ONS') Opinions and Lifestyle Survey (OPN) to understand the impact of the coronavirus (COVID-19) pandemic. The pandemic has led to personal happiness becoming a headline issue and, in this analysis, we present information to help understand the factors currently affecting changes in well-being.

This bulletin presents the results of regression analysis to show the impact of different demographic, economic and behavioural factors on happiness levels in England and Wales. Of the available metrics, happiness was chosen because it is a short-term metric with the question framed as "how happy did you feel yesterday?". This allows us to focus specifically on how people's well-being was affected within the time period, and adds to existing analysis already conducted on [Coronavirus and anxiety](#).

Results are presented for rural areas, urban areas, and London, to analyse these types of geography separately. The [2011 rural/urban classification](#) defines whether a census output area was urban if it belongs to a built-up area with more than 10,000 inhabitants, otherwise the area is defined as rural. Scottish data have been excluded from the analysis because of differing definitions between Scotland and the rest of Great Britain.

Regression analysis is used to examine associations between personal well-being and individual characteristics and circumstances. This technique can identify the strength and direction of these relationships, but it cannot conclude that one factor causes another. The data used for the regression analysis covers the period 7 January 2021 to 28 March 2021, referred to as "early 2021".

The OPN includes questions on COVID-19 specific behaviours and attitudes, which allows us to build a more relevant model on how the pandemic has affected personal well-being. Well-being regression analysis by the ONS is typically done using the Annual Population Survey (APS) using a particular modelling approach. The results presented here are using a different data source and different modelling approach so users should exercise caution in drawing direct comparisons between these results and previous publications. The article [Data collection changes due to the pandemic and their impact on estimating personal well-being](#) provides further information on differences between OPN and APS estimates.

For further explanation of the approach taken and how to interpret our findings, see the methodology section in [Measuring the data](#).

### 3 . Average happiness throughout the pandemic

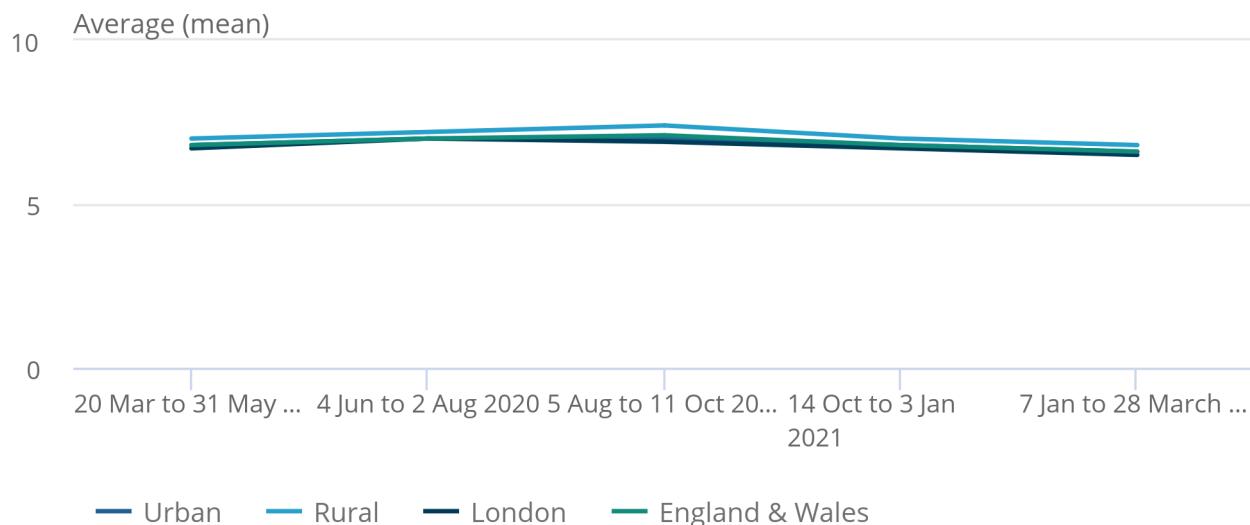
According to responses to the Opinions and Lifestyle Survey (OPN), average happiness for England and Wales in all periods analysed was lower than the [pre-coronavirus \(COVID-19\) pandemic average of 7.2](#) measured in February 2020.

**Figure 1: Average happiness was higher in rural areas than in urban areas or London in all periods, March 2020 to March 2021**

Rural and urban areas, England and Wales 20 March 2020 to 28 March 2021

Figure 1: Average happiness was higher in rural areas than in urban areas or London in all periods, March 2020 to March 2021

Rural and urban areas, England and Wales 20 March 2020 to 28 March 2021



Source: Office for National Statistics – Opinions and Lifestyle Survey

Notes:

1. Question asked: "How happy did you feel yesterday where 0 is not at all happy and 10 is completely happy?"
2. Cases in which respondents did not answer the question have been excluded from the analysis.
3. Confidence intervals are provided in the datasets associated with this bulletin. As a general rule, if the confidence interval around one estimate overlaps with the interval around another, we cannot say with certainty that there is more than a chance difference between the two estimates.
4. The 2011 rural/urban classification was used to create the rural and urban breakdowns. (to be linked as with footnote in other figures).

Over the past year, average happiness was highest in rural areas, peaking in autumn 2020 at 7.4 out of 10. Adults living in London reported the lowest level of happiness in every period, compared with urban areas and rural areas in the rest of the country, with London reaching its lowest level (6.5) in early 2021. Happiness levels in urban areas were similar to the England and Wales national average across all periods analysed, with no variation greater than 0.1 in average happiness. This is driven by the fact that the majority of adults were living in urban areas in early 2021 (65%), compared with rural areas (20%) and London (15%).

## 4 . Factors affecting happiness in London, rural and urban areas

The five factors most strongly associated with happiness across all areas analysed included:

- how lonely a respondent feels (this variable showed the strongest correlation with happiness)
- ability to save money over the next 12 months
- age group
- how much people feel that they have enough information to protect themselves from the coronavirus (COVID-19) pandemic
- level of comfort in leaving home

### Behavioural characteristics

**Figure 2: How often a person reported feeling lonely was associated to the biggest change in happiness of any factor**

#### Rural and urban areas, 7 January to 28 March 2021

[Download the data](#)

### Notes

1. Question: "And how often do you feel lonely?"
2. Question: "At this time, how comfortable or uncomfortable do you feel about leaving your home due to the coronavirus (COVID-19) pandemic?"
3. Question: "Is there anyone living with you who is sick, disabled, or over 70 whom you look after or give special help to?"
4. Question: "Do you feel like you have enough information about how to protect yourself from the Coronavirus (COVID-19)?"
5. The 2011 Rural/Urban classification was used to create the rural and urban classes, more information on this can be found here: [2011 rural/urban classification - Office for National Statistics](#).
6. The results shown in Figure 2 are statistically significant at the 5% level unless mentioned.

## Loneliness

A respondent who reported feeling lonely often, always or some of the time, was found to have the strongest association to happiness of any factor considered in these models, as was the case in [analysis of well-being during the first lockdown in 2020](#). The model found that adults feeling lonely at least some of the time can affect their happiness score by around double the impact of any other behavioural factor analysed.

Holding all other factors constant, loneliness had the greatest impact on levels of happiness of adults in rural areas. This would have affected the 24% of adults in rural areas who responded to the survey saying they felt lonely at least some of the time. Although the effect of loneliness in urban areas and London was estimated to be slightly lower (affecting happiness by negative 1.5 points and negative 1.3 points respectively compared with rural areas where loneliness affected happiness levels by negative 1.6 points), a higher percentage of adults in urban areas (27%) and London (29%) reported feeling lonely.

This may be partly explained by demographic differences, as recent research showed that [16- to 29-year-olds were the most likely age group to report feeling lonely during lockdowns](#), and urban areas had slightly younger demographic profiles than rural areas.

## Comfort leaving home

In all areas, respondents who were uncomfortable leaving home (because of the coronavirus pandemic) were strongly associated with lower levels of happiness when compared with those who were comfortable leaving home. This association was strongest in urban areas, and the percentage of people who felt uncomfortable leaving home was broadly similar across the areas analysed, with all values falling in the range of 37% to 40%.

## Providing special help

In all areas, living with someone who was sick, disabled, or over 70 years old to whom the respondent gives special help, was associated with lower levels of happiness compared with those who did not. The biggest difference in expected happiness was seen in London but this area had the lowest proportion of adults who reported providing special help: 6% compared with rural and urban areas (8% and 9% respectively). Compared with the average for England and Wales, a lower percentage of London residents reported having a disability (17% compared with 23%), which likely drives the lower proportion of carers.

## Enough information

People who felt they did not have enough information to protect themselves from the pandemic were associated with lower levels of happiness than those who answered that they did. Overall, a low percentage of adults in England and Wales did not feel they had enough information to protect themselves (3%) with the highest proportion found in London (4%).

## Work and financial variables

**Figure 3: Adults in London and urban areas who had worked from home over the last 7 days were likely to report lower levels of happiness than those who had not worked from home**

Rural and urban areas, 7 January to 28 March 2021

[Download the data](#)

## Notes

1. Question: "In the past seven days, have you worked from home because of the Coronavirus (COVID-19) pandemic?"
2. Question: "Could your household afford to pay an unexpected, but necessary, expense of £850?"
3. Question: "In view of the general economic situation, do you think you will be able to save any money in the next twelve months?"
4. For this survey, a person is said to be working if last week: they had a paid job, either as an employee or self-employed; or they did any casual work for payment; or they did any unpaid or voluntary work.
5. The definitions of employment, unemployment, and economic inactivity are based upon International Labour Organisation (ILO) definitions. Further information about labour market definitions can be found at: [A guide to labour market statistics - Office for National Statistics](#).
6. The 2011 Rural/Urban classification was used to create the rural and urban classes, more information on this can be found here: [2011 rural/urban classification - Office for National Statistics](#).
7. The results shown in Figure 3 are statistically significant at the 5% level unless mentioned.

## Working status

Compared with the reference group of workers who did not work from home, adults who worked from home over the seven days before responding to the survey reported lower happiness in urban areas and London, but there was no significant trend in rural areas. As the ability of someone to work from home is linked to the occupation they work in, this trend may indicate that people who work in occupations where they have the option not to work from home may be happier.

Respondents who were unable to work from home were more likely to report lower levels of happiness in urban areas and London, but not in rural areas. Overall, these results indicate that whether someone works from home or not does have an impact on people's happiness in urban areas, but not in rural areas.

Unemployed respondents reported lower levels of happiness than employed respondents. The effect was slightly more pronounced in London and urban areas than in rural areas.

## Financial variables

Adults living in households that reported they would be unable to afford an unexpected, but necessary, payment of £850 were likely to report lower levels of happiness in urban areas and London when compared with those who could afford such an expense. This association was not seen in rural areas, suggesting that being able to afford an unexpected payment has a lower impact on happiness there.

Adults who do not expect to be able to save any money over the next 12 months were significantly linked to lower levels of happiness than those who could, in all areas. This trend was strongest in urban areas and the percentage of people who expect not to be able to save was even across each area (31%).

More information about the impact of the coronavirus pandemic on household finances and well-being can be found in [Personal and economic well-being in Great Britain: May 2021](#).

## Demographic variables

## **Figure 4: When compared to adults over the age of 75, all other age groups were linked to lower levels of happiness**

**Rural and urban areas, 7 January to 28 March 2021**

[Download the data](#)

### **Notes**

1. The 2011 Rural/Urban classification was used to create the rural and urban classes, more information on this can be found here: [2011 rural/urban classification - Office for National Statistics](#).
2. The results shown in Figure 4 are statistically significant at the 5% level unless mentioned.

### **Age group**

When compared with the reference group of respondents aged 75 years or over, all younger adults across all areas had significantly lower levels of happiness, with the effect being greater in urban areas than rural areas. This indicates that people over the age of 75 years are most likely to report the highest level of happiness, especially compared with those aged 35 to 44 years. This trend is visible in [previous publications on well-being](#), which reported higher well-being in both young adults and older respondents, and lower well-being at peak working age. This may be partly explained by demographic differences where London had the fewest adults aged 75 years or over (7%), compared with 10% in urban areas, and 14% in rural areas.

## **5 . Happiness in local authorities**

### **Figure 5: Personal happiness scores and factors linked to lower happiness by local authority, January to March 2021**

**Local authorities, 7 January to 28 March 2021**

[Download the data](#)

### **Notes**

1. Question: "Overall, how happy did you feel yesterday, where 0 is 'not at all happy' and 10 is 'completely happy'?"
2. Question: "And how often do you feel lonely?"
3. Question: "At this time, how comfortable or uncomfortable do you feel about leaving your home due to the coronavirus (COVID-19) pandemic?"
4. Question: "In view of the general economic situation, do you think you will be able to save any money in the next twelve months?"
5. Confidence intervals are provided in the datasets associated with this bulletin. As a general rule, if the confidence interval around one estimate overlaps with the interval around another, we cannot say with certainty that there is more than a chance difference between the two estimates.
6. Because of small sample sizes and large confidence intervals, local authorities should not be ranked against each other.

## 6 . Coronavirus and subnational well-being data

### [Coronavirus and contributors to subnational well-being by local authority](#)

Dataset | Released 26 May 2021

Indicators from the Opinions and Lifestyle Survey (OPN) on factors related to well-being by local authority.

### [Coronavirus and contributors to subnational well-being, mean happiness](#)

Dataset | Released 26 May 2021

Mean happiness indicators from the Opinions and Lifestyle Survey (OPN) on factors related to well-being in rural areas, urban areas and London.

### [Coronavirus and contributors to subnational well-being, percentage estimates](#)

Dataset | Released 26 May 2021

Indicators from the Opinions and Lifestyle Survey (OPN) on factors related to well-being in rural areas, urban areas and London.

## 7 . Glossary

### Happiness

Our personal happiness measure asks people to evaluate how happy they felt yesterday on a scale of 0 to 10. Happiness is one of four Office for National Statistics (ONS) well-being measures, with more information available in [personal well-being user guidance](#).

### Early 2021 lockdown

On 5 January 2021, the UK government announced a national lockdown for England. Similar rules applied for Scotland and Wales, particularly the message to "stay at home" meaning that adults in Great Britain were under a national lockdown at the start of the year in 2021.

On 22 February 2021, the UK government published a four-step roadmap for easing lockdown restrictions in England. On 23 February, the Scottish government published an update to the strategic framework for easing lockdown restrictions in Scotland.

In England, per the first step of easing outlined in the roadmap, people could meet outdoors in a group of six from 29 March (among other changes to restrictions). In Wales, from 13 March, "stay at home" restrictions were replaced with "stay local" restrictions. In Scotland, "stay local" replaced "stay at home" from 2 April.

Further easing of lockdown restrictions were applied from 12 April in England, Wales and Scotland. The data presented in this release were collected prior to this.

## Rural versus urban

The [2011 rural-urban classification](#) is used to classify areas based upon whether they are predominantly urban, or rural, in composition. In this analysis, we made use of the RUC2011, a suite of classifications produced based upon the 2011 Census at the output area geographic level.

Code Detail	Broad category
A1 Urban major conurbation	Urban
B1 Urban minor conurbation	Urban
C1 Urban city and town	Urban
C2 Urban city and town in a sparse setting	Urban
D1 Rural town and fringe	Rural
D2 Rural town and fringe in a sparse setting	Rural
E1 Rural village	Rural
E2 Rural village in a sparse setting	Rural
F1 Rural hamlet and isolated dwellings	Rural
F2 Rural hamlet and isolated dwellings in a sparse setting	Rural

Given that virtually the whole of London is classified as an urban area, and that London produces different results in comparison to other urban areas, we separated London as a distinct geography. The results for rural areas for the entire country would include a very small amount of London's value, and the results for urban areas for the entire country would include almost the entirety of London's value.

## 8 . Measuring the data

The Opinions and Lifestyle Survey (OPN) is a monthly omnibus survey. In response to the coronavirus (COVID-19) pandemic, we have adapted the OPN to become a weekly survey used to collect data on the impact of the coronavirus on day-to-day life in Great Britain.

A sample of households was randomly selected from those that had previously completed the Labour Force Survey (LFS) or the Labour Market Survey (LMS), and from each household one adult was selected to complete the survey. This table provides information on collection dates, sample sizes and response rates of the data used for the analysis in this bulletin.

Pooled Dataset	Collection start	Collection End	Responses Received	Sample Size	Response Rate
<b>Spring 2020 lockdown</b>	20/03/2020	31/05/2020	14,049	23,299	60.3
<b>Summer 2020</b>	04/06/2020	02/08/2020	15,660	23,838	65.7
<b>Autumn 2020 restrictions</b>	05/08/2020	11/10/2020	12,807	19,611	65.3
<b>Winter 2020 lockdowns</b>	14/10/2020	03/01/2021	41,245	63,158	65.3
<b>Early 2021 lockdown</b>	07/01/2021	28/03/2021	52,331	72,439	72.2

To enable more detailed analysis, such as the breakdowns included in this bulletin, waves of the weekly OPN data have been pooled together to create larger datasets. By pooling data, we improve the sample size available to create smaller breakdowns of individual questions at the expense of having to report on a wider time period. Survey weights were applied to responses in each pooled dataset such that the weighted estimates are representative of the adult population of Great Britain.

Further information on the survey design and quality can be found in the [Opinions and Lifestyle Survey Quality and Methodology Information](#).

Where differences between groups or geographies are presented in this bulletin, the significance of this difference is indicated, and associated [confidence intervals](#) are included in the datasets associated with this bulletin.

## Methodology

We used regression analysis as it can measure the size and strength of a relationship between two variables, while holding all other factors in the model constant. This is important when analysing the difference between rural areas, urban areas and London as there are differences in the populations in each area which may be causing the differences in average well-being.

While regression analysis provides information on the strength, size and direction of a relationship between two variables, it cannot prove that there is causation. Our regression models explained between 16% and 22% of the differences in happiness. This is to be expected as research has suggested that [genetic and personality factors account for around half of the differences in personal well-being](#). The model has been presented to highlight associations between predictor variables and well-being, but is not suitable for predictive purposes.

The predictor variables here are categorical, so the regression outputs show the expected difference in well-being for a person being in the reference category compared with each other category with other factors held constant. The reference categories for each variable in these models were chosen to highlight the more relevant direction of association.

Separate regressions were run on subsets of the dataset to understand the expected differences in happiness for each variable in rural areas, urban areas and London so we can investigate which factors may be affecting happiness in these areas.

## **Ordinary Least Squares versus Logistic regression**

Ordinary Least Squares (OLS) was the chosen regression model over logistic regression for ease of interpretation and because it preserves the detail of the results. Logistic regression would require the well-being responses to be grouped, into "high" and "low" categories, for instance, this would remove some of the detail from the result as any regression would only estimate somebody moving from the high to low category or vice versa.

An important assumption in OLS regression is that the dependent variable is continuous. The personal well-being survey responses, however, are discrete on a 1 to 10 scale. OLS regression also assumes that the values of the dependent variable (for example, personal well-being ratings) are cardinal (that is, the interval between any pair of categories such as between 2 and 3 is of the same magnitude as the interval between any other similar pair such as between 6 and 7), which we cannot be certain of.

However, OLS may still be implemented when there are more than five levels of the ordered categorical responses, particularly when there is a clear ordering of the categories as is the case for the happiness variable.

## **Controlling for variables**

This bulletin has focused on the factors that were most relevant to the Coronavirus (COVID-19) pandemic. The following list of variables were also controlled for in the model to ensure accuracy:

- sex
- household type
- ethnicity
- education status
- tenure
- marital status
- disability status
- city region (urban regression)
- NUTS2 region (London regression)
- NUTS1 region (rural regression)
- health condition

## **9 . Strengths and limitations**

The main strengths of the Opinions and Lifestyle Survey (OPN) include:

- it allows for timely production of data and statistics that can respond quickly to changing needs.
- it meets data needs: the questionnaire is developed with customer consultation, and design expertise is applied in the development stages.
- robust methods are adopted for the survey's sampling and weighting strategies to limit the impact of bias.
- quality assurance procedures are undertaken throughout the analysis stages to minimise the risk of error.

The main limitations of the OPN include:

- analysis of estimates in Wales and Scotland are based on low sample sizes, and therefore caution should be used with these estimates.
- comparisons between periods and groups must be done with caution as estimates are provided from a sample survey; as such, confidence intervals are included in the datasets to present the sampling variability, which should be taken into account when assessing differences between periods, as true differences may not exist.

## 10 . Related links

### [Well-being latest data and analysis](#)

Web page | Updated as data become available

Latest data and analysis on societal and personal well-being in the UK looking beyond what we produce, to areas such as health, relationships, education and skills, what we do, where we live, our finances and the environment.

### [Coronavirus \(COVID-19\) latest data and analysis](#)

Web page | Updated as data become available

Latest data and analysis on the coronavirus (COVID-19) pandemic in the UK and its effects on the economy and society.

### [Coronavirus and social impacts on households in subnational areas in Great Britain: 2020 and 2021](#)

Bulletin | Released 27 April 2021

Indicators from the Office for National Statistics (ONS) Opinions and Lifestyle Survey to understand the impacts of the coronavirus (COVID-19) pandemic on different households in subnational areas in Great Britain.

### [Coronavirus and the social impacts on NUTS2 areas in Great Britain](#)

Dataset| Released 27 November 2020

Indicators from the Opinions and Lifestyle Survey (OPN) on the impact of the coronavirus (COVID-19) on people, households and communities, by NUTS2 area.

### [Coronavirus and the social impacts on the countries and regions of Britain: April 2020](#)

Bulletin | Released 26 May 2020

Indicators from the OPN to understand the impact of the coronavirus pandemic on people, households and communities in the countries and regions of Great Britain. This release uses four waves of survey results covering April 2020 to present results for Wales, Scotland and the nine English regions.