Social contacts in the UK from the CoMix social contact survey
Report for survey week 77

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Report for SPI-M-O and SAGE, 21 September 2021
Data up to 13 September 2021

Summary

- Mean reported contacts for children have increased coincident with the reopening of schools.
- The overall reported contact rate for adults has remained roughly stable, though this may mask slight differences by age groups.
- The wearing of face-coverings has decreased over all age groups since the easing of restrictions in July. However, this decline appears to have halted in older adults (60+ years). The decline in the use of face- coverings appears to be continuing in younger age groups (18-59 years).
- Employed adults who are working from home continue to make significantly fewer contacts than those who are attending the workplace (roughly 2.5 contacts per day, on average, compared with 7.5 contacts per day in those attending work).
- Those who are attending the workplace are, however, reporting far fewer contacts than the equivalent individuals this time last year (when employees attending work recorded, on average, 11 contacts per day). It is not clear what the driver for this is, but is unlikely to be primarily because of changes in the sample characteristics nor is it due to differences in patterns of attendance at place of employment. The effect is large and could well account for much of the differences in reported mean contact rates for adults now compared with a comparable period in 2020.

Main

Overall mean reported contacts has increased sharply (Figure 1), though this is mainly driven by a return to school and a consequent increase in contacts made by children. Adult contacts may have also increased somewhat, though this is still within the range of fluctuations in adult mean contact rates that has been reported over the last few months and remains less than at the same time last year (Figure 1). There is no evidence of an increase in mean contact rates from middle-aged respondents (30-49 years), though reported rates of contact appear to have increased in younger and older adults since late August (Figure 2). The mean contacts in adults are slightly lower than a few weeks ago but broadly consistent with the last couple of months (Figure 1). The patterns across age are somewhat similar overall (Figure 2). The increase in younger adults (<30 years) appears to be related to an increase in work-related contacts, whereas the increase in contacts in the elderly (60+) appears to be related to other (mainly social and leisure) contacts (Figure 3).

Children's contacts have increased sharply with the return of schools (Figure 4).

The wearing of a face-covering (mask) has fallen steadily in young and middle-aged adults since the easing of restrictions in England on July 19th. Less than 70% of adults aged 18-59 who made at least one contact outside the home reported wearing a mask on the day of the survey. Wearing face coverings has also fallen amongst older adults (over 60 yeas), though this seems to have stabilised now at around 75-80% (Figure 5).

Those who attended work report consistently higher contacts compared to those whose work is open, but they did not attend (Figure 6). The difference is large, with those who attended work reporting around 7 contacts per day (on average), compared to about 2.5 for those workers who did not attend work (Figure 6). It is also noteworthy that those who attend work are recording significantly fewer contacts than the equivalent surveys during the autumn of last year. A year ago employees who attended the workplace recorded a mean of 10-12 contacts per day. There have been changes in the composition of the sample over this time period (see Table S1): more recent data having proportionately more women and Middle class employed participants. Gender appears to have no influence on recorded contact rates (not shown). However, Middle class employees do tend to record lower mean rates of contact than Lower-Middle or Working class employees (Figure S2). Hence an increase in Middle class participants might account for some of the discrepancy between the recorded contact rates this autumn compared to last. However, it seems unlikely to account for all of it as the differences in mean contact rates for those attending work now compared to last year are large (roughly 7.5 contacts per day compared with 11) and the pattern of lower contacts now compared to last year amongst those attending work is consistent across all socio-economic classes (see Figure S2). That is, it appears that there is a real and large reduction in the mean contact rates reported for those attending work now compared to a similar period this year. This difference is not due to differences in attendance patterns, which appear to be very similar: about 40% of those whose work was open attended their work on the day of the survey and this fraction has remained largely unchanged for the last year (Figure S3). Given the size of this effect, it is reasonable to

assume that the lower level of contact amongst those who are attending work is likely one of the major drivers for the overall lower rate of adult contact recorded this autumn compared to last.

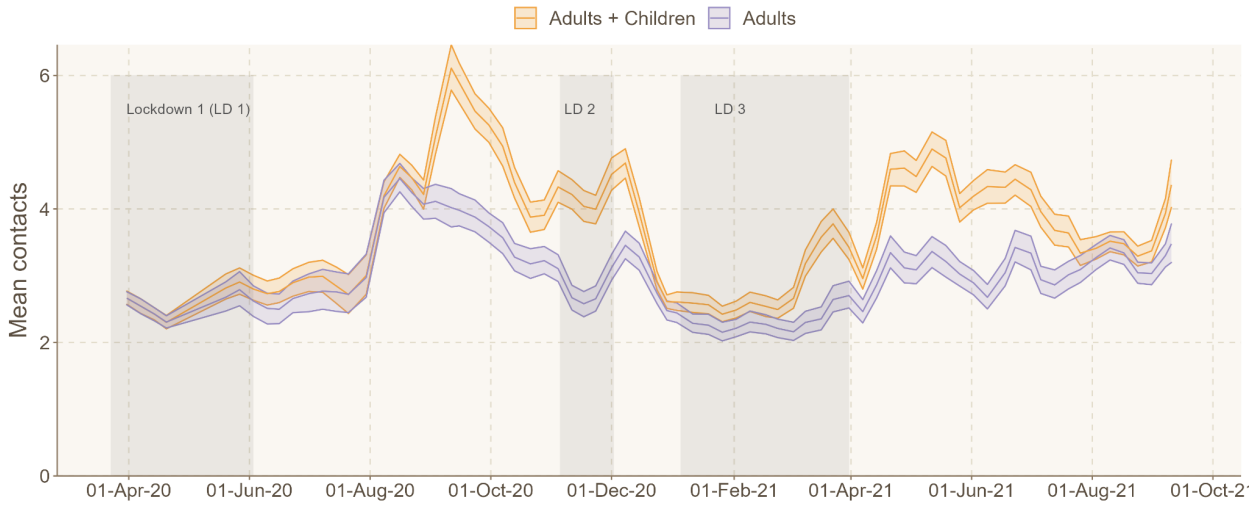

Figure 1: Mean contacts in the UK since the 23rd March 2020 for adults and children (all participants) and adults only (18 year +). Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

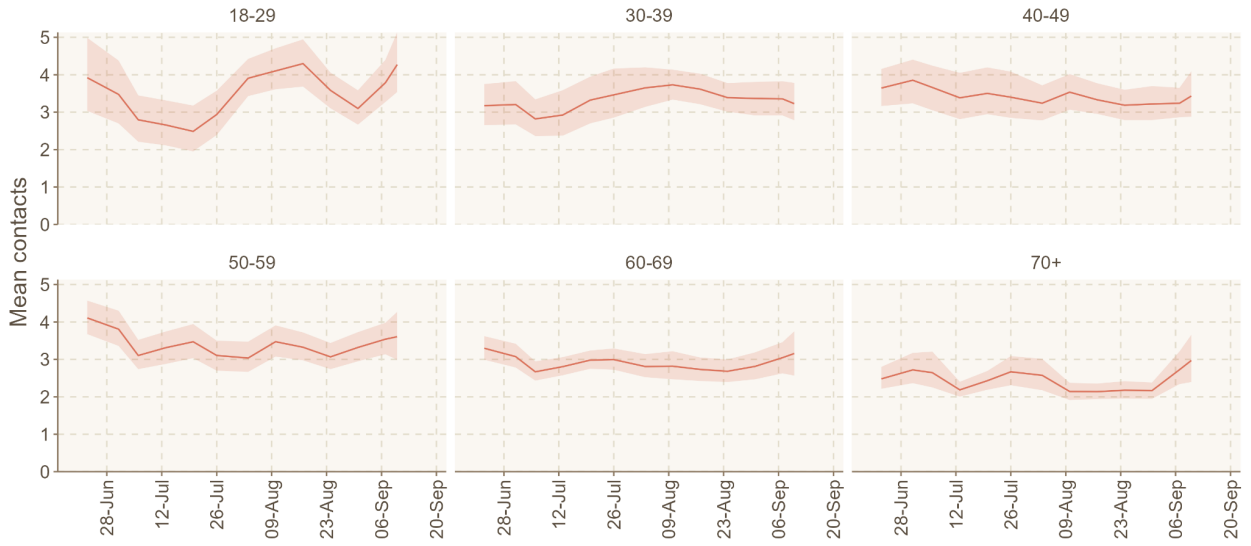

Figure 2: Mean contacts in all settings by age-group for adults over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

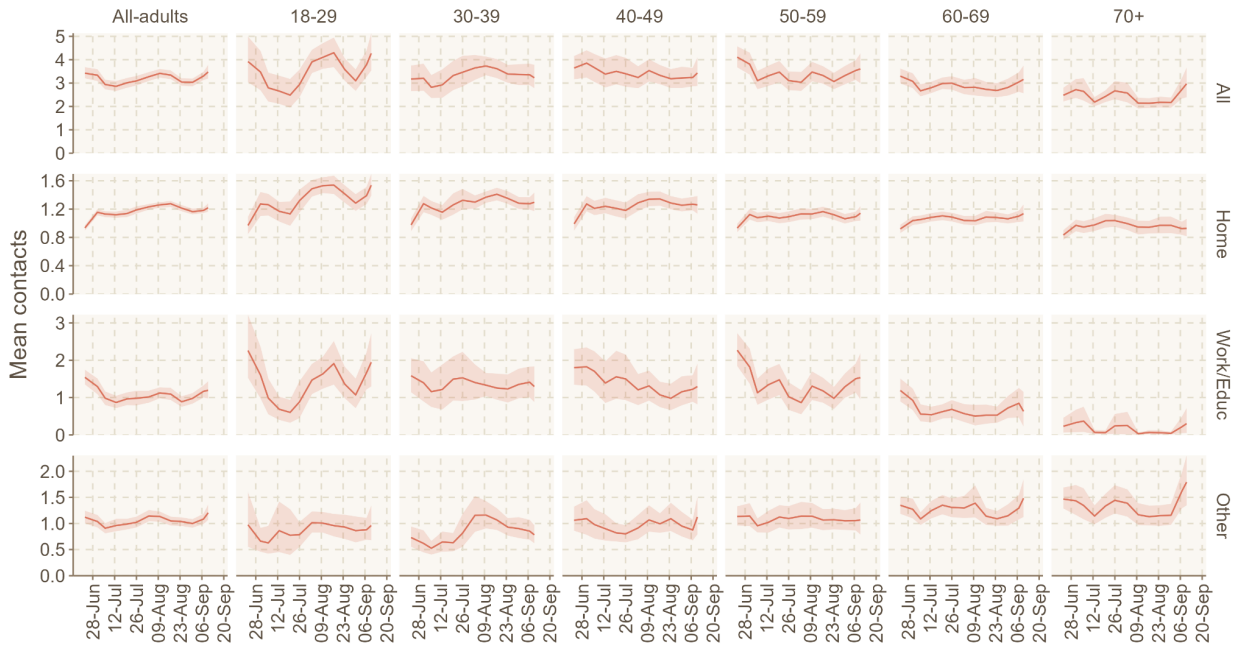

Figure 3: Mean contacts by settings and by age-group over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

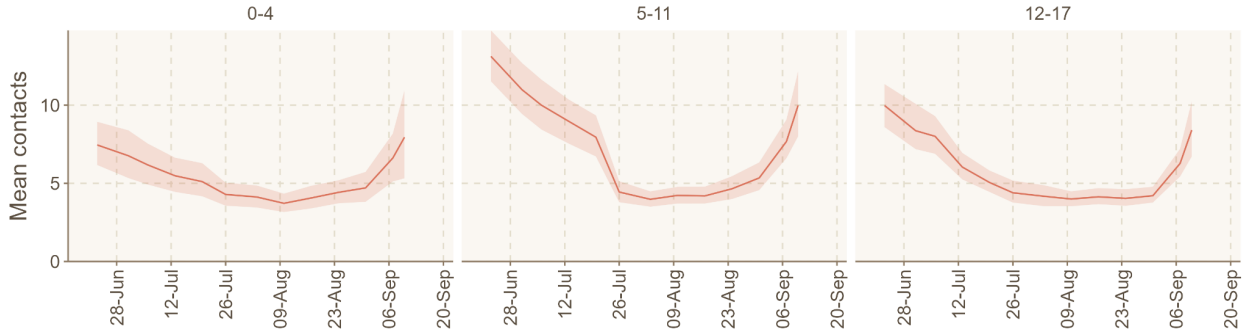

Figure 4: Mean contacts in all settings by age-group for children over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

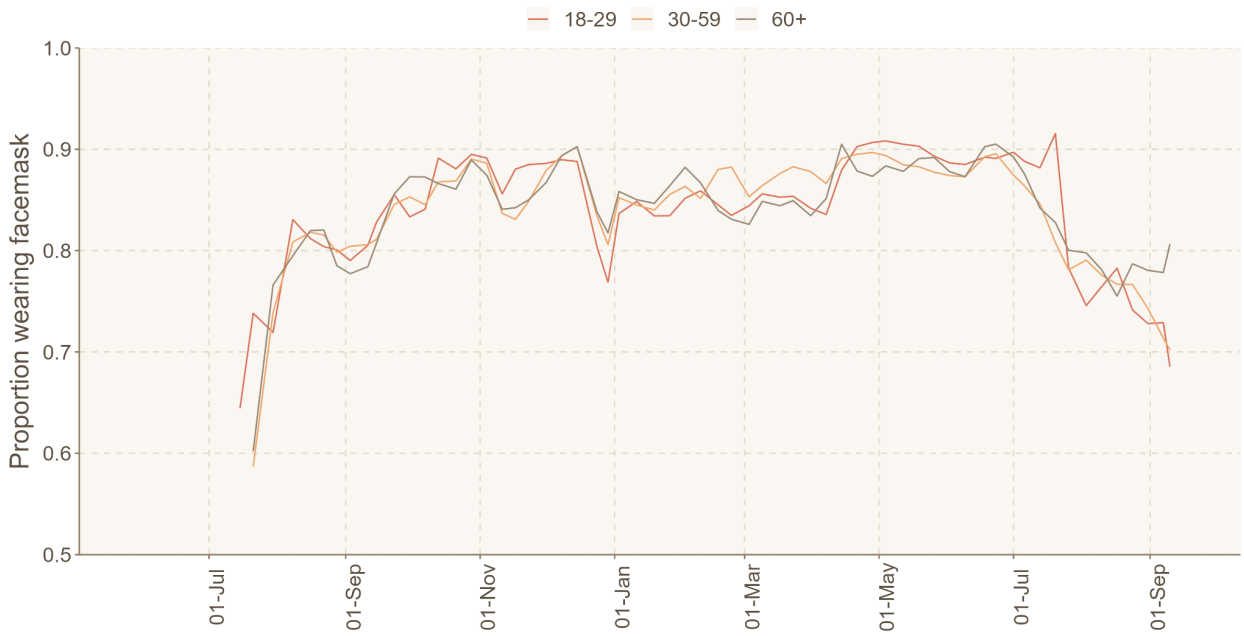

Figure 5: Proportion of adults wearing a face mask over time (with at least one contact outside of the home). Observations are smoothed over two weeks to account for panel effects with all dates representing two rounds of data collection except for the final week, which only contains the latest survey round. Date on x axis refers to the midpoint of the survey period.

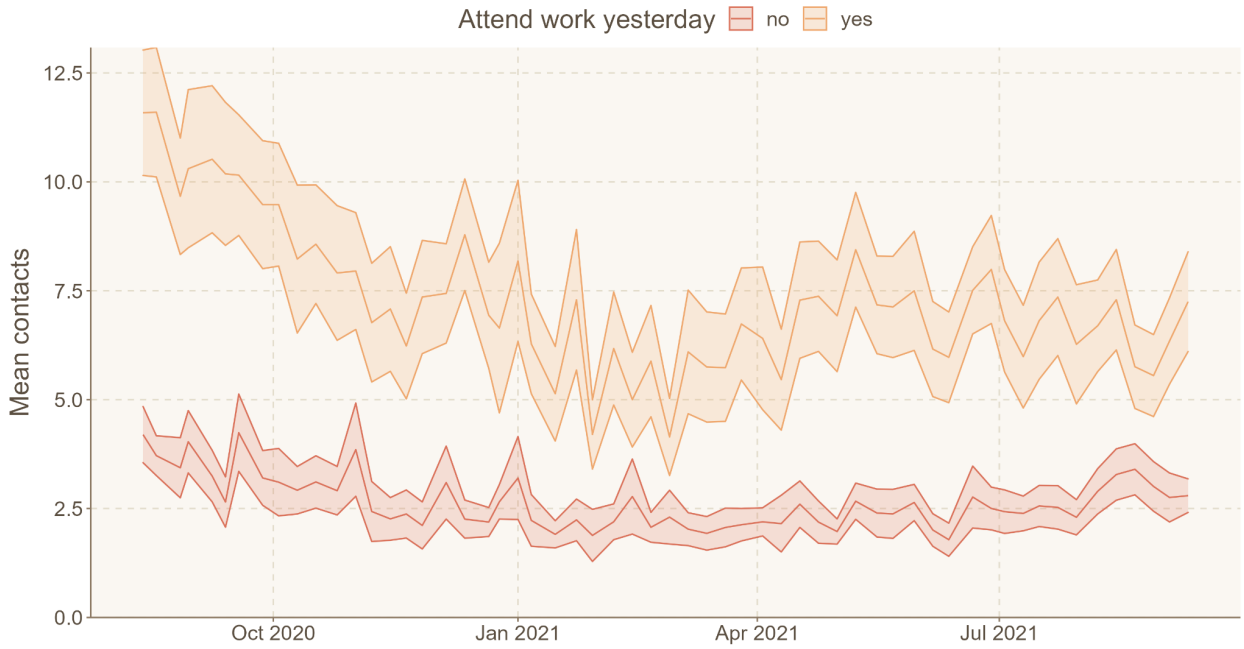

Figure 6: Mean contacts in the UK since August 2020 for individuals attending or not attending work on the day of the survey for people that are employed and their work is open. 95% Uncertainty interval calculated assuming a standard normal mean of two times the standard error of the mean. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

Methods

CoMix is a behavioural survey, launched on 24th of March 2020. The sample is broadly representative of the UK adult population. Participant's are invited to respond to the survey once every two weeks. We collect weekly data by running two alternating panels. Parents complete the survey on behalf of children (17 years old or younger). Participants record direct, face-to-face contacts made on the previous day, specifying certain characteristics for each contact including the age and sex of the contact, whether contact was physical (skin-to-skin contact), and where contact occurred (e.g. at home, work, while undertaking leisure activities, etc). Further details have been published elsewhere [1]. The contact survey is based on the POLYMOD contact survey [2].

We calculated the mean contacts using 1000 bootstrap samples. Bootstrap samples were calculated at the participant level, then all observations for those participants are included in a sample to respect the correlation structure of the data. We collect data in two panels which

alternate weekly, therefore we calculated the mean smoothed over the 2 week intervals to give a larger number of participants per estimate and account for panel effects. We used a post-stratification method to assign weights, based on the World Population Prospect population estimates for the UK by age and gender, when calculating the mean number of contacts. We calculated the mean number of contacts in the settings home, work and school (including all educational establishments, including childcare, nurseries and universities and colleges), and "other" (mostly leisure and social contacts, but includes shopping). We look at the mean contacts by age, country, and region of England. The mean number of contacts is influenced by a few individuals who report very high numbers of contacts (often in a work context). The means shown here are calculated based on truncating the maximum number of contacts recorded at 50 per individual per day. We compared the mean reported contacts for the most recent data of the survey to the mean contacts reported during ten time periods over the previous year which represent different levels of restrictions.

Participants were asked whether they were in isolation or quarantine on the day they reported contacts. They were also asked whether they wore a facemask on the day of reported contacts, we filtered to participants who had at least one contact outside of the home. We calculated the proportion who said yes for both these categories over those who responded.

Funding
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References

1. Jarvis CI, Van Zandvoort K, Gimma A, Prem K, CMMID COVID-19 working group, Klepac P, et al. Quantifying the impact of physical distance measures on the transmission of COVID-19 in the UK. BMC Med. 2020;18: 124.

2. Mossong J, Hens N, Jit M, Beutels P, Auranen K, Mikolajczyk R, et al. Social contacts and mixing patterns relevant to the spread of infectious diseases. PLoS Med. 2008;5: e74.

Additional graphs and tables

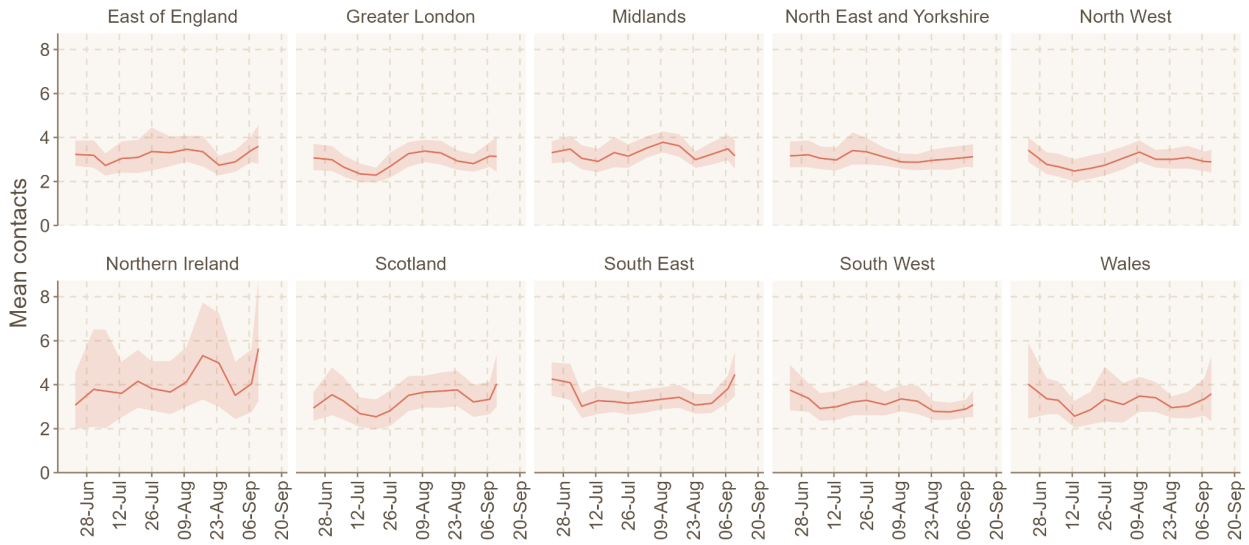

Figure S1: Mean contacts in all settings in adults for UK nations and English regions over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

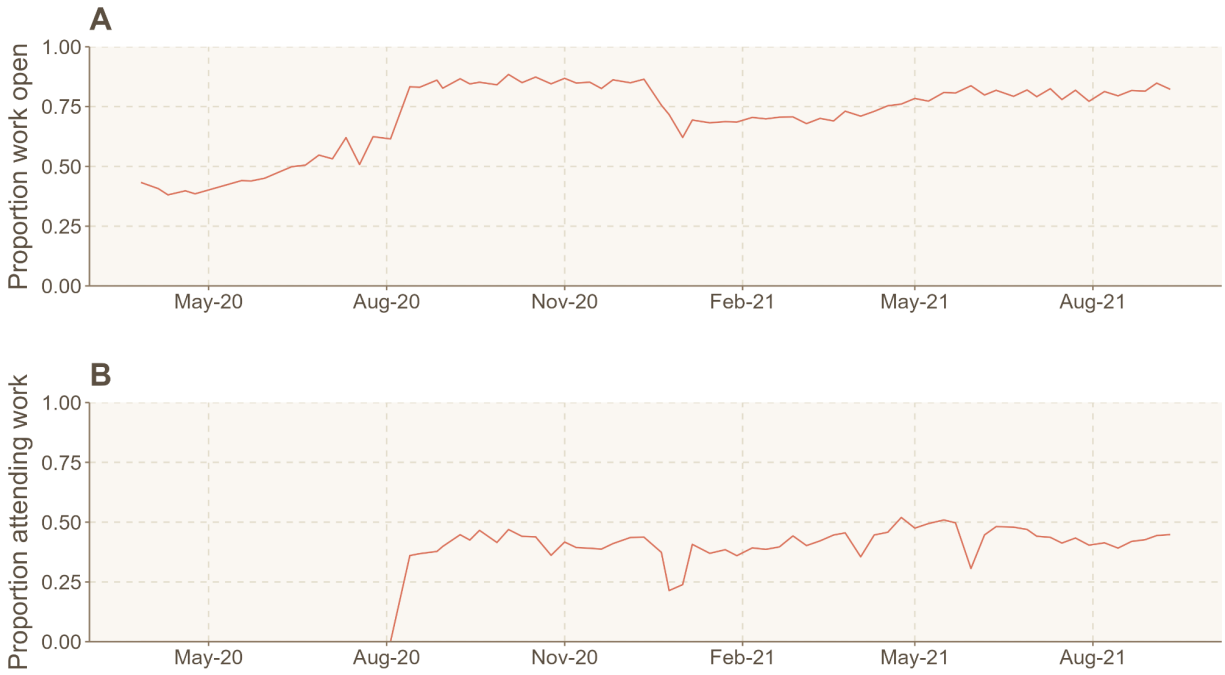

Figure S2: A Proportion of employed participants with their work open. B proportion of participants attending work when their work is open. Date on x axis refers to the midpoint of the survey period. Note: Data for B was not collected prior to August.

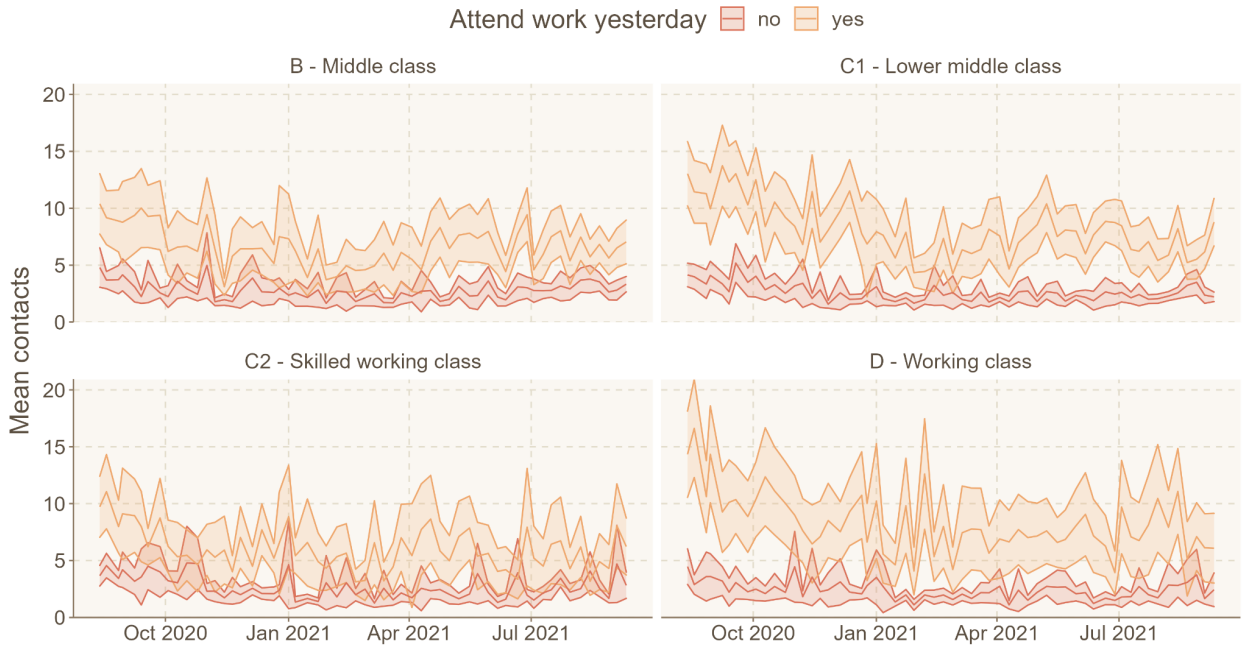

Figure S3: Mean contacts by social class in the UK since August 2020 for individuals attending or not attending work on the day of the survey for people that are employed and their work is open. 95% Uncertainty interval calculated assuming a standard normal mean of two times the standard error of the mean. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

Table S1: Participant characteristics for those who attended and did not attend their work when their workplace was open in August 2020 and September 2021 for individuals that are employed.

	August 2020		September 2021	
Attended work	no, N = 763[1]	yes, N = 853[1]	no, N = 900[1]	yes, N = 940[1]
Age				
18-29	168 (22%)	165 (19%)	110 (12%)	203 (22%)
30-39	156 (20%)	210 (25%)	231 (26%)	201 (21%)
40-49	172 (23%)	181 (21%)	238 (26%)	207 (22%)
50-59	194 (25%)	196 (23%)	195 (22%)	236 (25%)
60-69	70 (9.2%)	87 (10%)	114 (13%)	79 (8.4%)
70-120	3 (0.4%)	14 (1.6%)	12 (1.3%)	14 (1.5%)
Social group				
A - Upper middle class	31 (4.1%)	46 (5.4%)	28 (3.1%)	28 (3.0%)
B - Middle class	203 (27%)	241 (28%)	366 (41%)	328 (35%)
C1 - Lower middle class	221 (29%)	241 (28%)	324 (36%)	361 (38%)
C2 - Skilled working class	135 (18%)	156 (18%)	75 (8.3%)	93 (9.9%)
D - Working class	162 (21%)	164 (19%)	101 (11%)	124 (13%)
E - Lower level of subsistence	11 (1.4%)	5 (0.6%)	6 (0.7%)	6 (0.6%)
Gender				
Female	389 (51%)	372 (44%)	542 (60%)	529 (57%)
Male	372 (49%)	480 (56%)	354 (40%)	404 (43%)
Unknown	2	1	4	7

[1] n (%)