Social contacts in the UK from the CoMix social contact survey
Report for survey week 47

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Data up to 16th February 2021

Summary

- Mean contacts amongst adults remain low across all age groups since the start of the third lockdown.
- Mean contacts for children aged 5 to 17 years old remain low consistent with schools still being closed for physical attendance.
- Mean contacts for children under 4 have been at consistent levels since the lockdown and are slightly higher than 5-17 years reflecting the physical attendance at early-year settings.
- Mean contacts remain low in all four nations and across the regions of England.
- Mean contacts are comparable across socio-economic groups during this period.
- The data are consistent with no changes in contacts following vaccination at this point.

Main

Mean contacts amongst adults remain low across all age groups since the beginning of the third lockdown on the 5th of January (Figure 1). As previously seen, individuals 70+ report fewer contacts than those 18-69. Changes in work contacts are the main drivers of changes in adult contacts by age group (Figure S1).

Mean contacts amongst children remain low and have been consistent for ages 5-17 (Figure 2). For children under 4, the contacts dipped during the christmas period and returned to levels seen prior to the 21st of December, consistent with early-year settings remaining open despite the closure of schools (Figure S2).

Mean contacts for adults remain low across the four nations and English regions from the period of late December up to the end of January (Figure 3). The trajectories of all regions are quite similar, with contacts decreasing towards the end of 2020 and then remaining low. There is some slight variation between regions, such as London having lower contacts in late December, though there are lower numbers when reporting contacts by regions, especially for Northern Ireland, Scotland, and Wales.

Mean contacts amongst adults do not appear to vary substantially by socio-economic status during the period end of December to late January, though individuals in class E (lower level of subsistence) appear to have consistently had fewer contacts during this period (Figure 4).

We compared all contacts and other contacts prior to and after vaccination in the same participants. There have been 745 individuals reporting that they have been vaccinated in the study with the majority of these being 60 years of age or older (Table 1). The number of contacts seen prior to and after vaccination were very similar (Table 1). This pattern was similar when stratifying by 18-59, and 60+ (Table 2 and 3). There were a small number of individuals reporting a large number of contacts and therefore we present differences in mean contacts capped at 200 (Table 2) and at 50 (Table 3). The different capping does not change the conclusions of the analysis. It should be noted that this analysis is only using two observations either side of the vaccination date, as most participants have been vaccinated very recently. Furthermore as the lockdown is currently applied, there may not be much potential for contacts to increase at present. The data are consistent with no changes in contacts following vaccination at this point.

Table 1: Comparing all and other contacts before and after vaccination. Using the closest date before and after vaccination for each participant. Capping contacts at 200

Age	Contacts	N	Decreased	Same	Increased	p-value
All	All	745	227	319	199	0.1045
18-59	All	267	87	109	71	0.119
60+	All	462	136	201	125	0.257
All	Other	745	158	423	164	0.651
18-59	Other	267	50	164	53	0.6255
60+	Other	462	105	249	108	0.611

Table 2: Comparing changes in mean all and other contacts before and after vaccination. Capping contacts at 200

Age	Contacts	Before	After	Difference	Lower	Upper	p-value
All	All	2.73	3.08	0.34	-0.69	1.41	0.532
18-59	All	4.29	5.1	0.81	-1.89	3.72	0.6
60+	All	1.85	1.89	0.03	-0.28	0.38	0.856
All	Other	0.81	0.98	0.17	-0.41	0.93	0.6715
18-59	Other	1.06	1.47	0.4	-1.07	2.3	0.6925
60+	Other	0.67	0.67	0	-0.21	0.19	1

Table 3: Comparing changes in mean all and other contacts before and after vaccination. Capping contacts at 50 max

Age	Contacts	Before	After	Difference	Lower	Upper	p-value
All	All	2.5	2.6	0.1	-0.35	0.56	0.657
18-59	All	3.65	3.88	0.23	-0.87	1.32	0.6945
60+	All	1.85	1.82	-0.03	-0.31	0.24	0.8275
All	Other	0.74	0.78	0.04	-0.22	0.29	0.7485
18-59	Other	0.86	0.91	0.05	-0.6	0.7	0.8915
60+	Other	0.67	0.67	0	-0.2	0.19	1

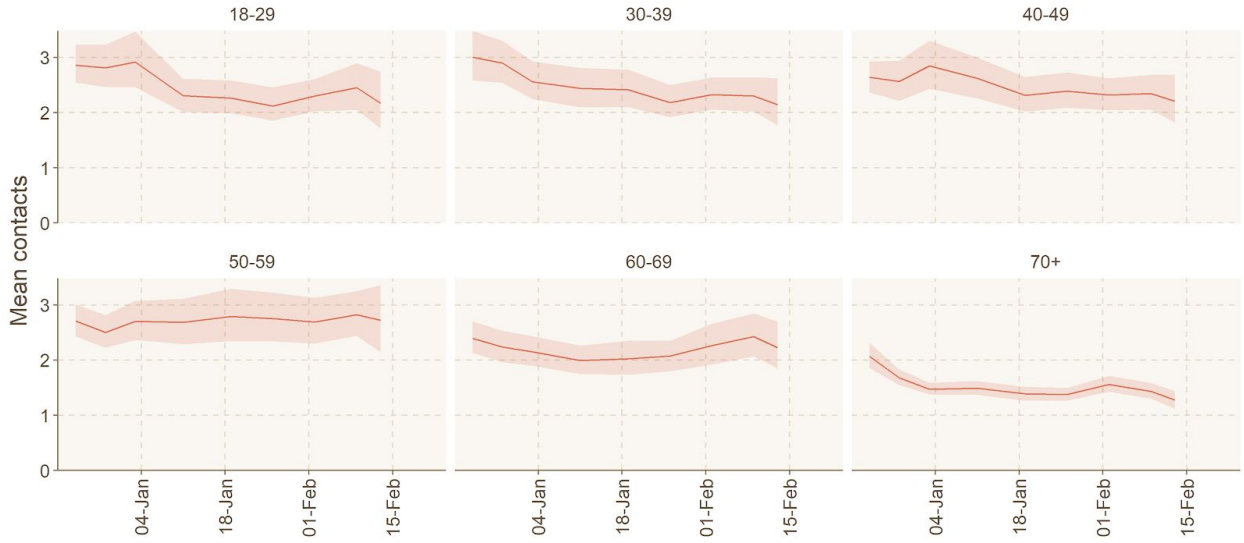

Figure 1: Mean contacts in all settings by age-group for adults over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

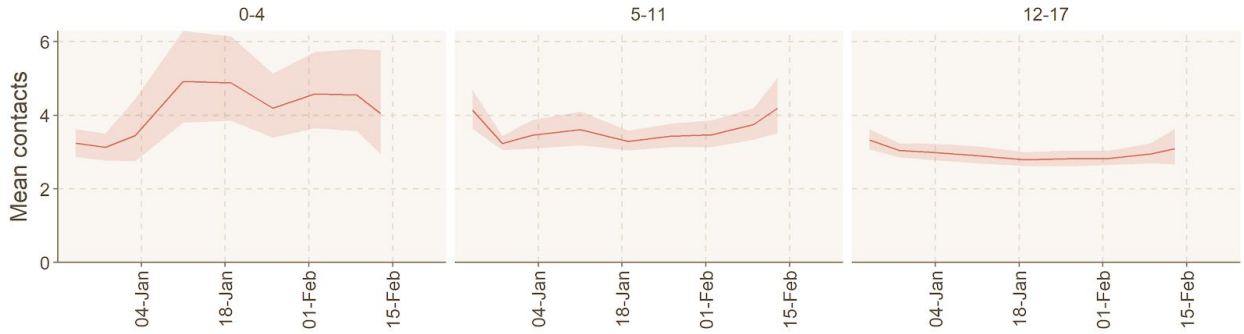

Figure 2: Mean contacts in all settings by age-group for children over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Educ = educational setting. Date on x axis refers to the midpoint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

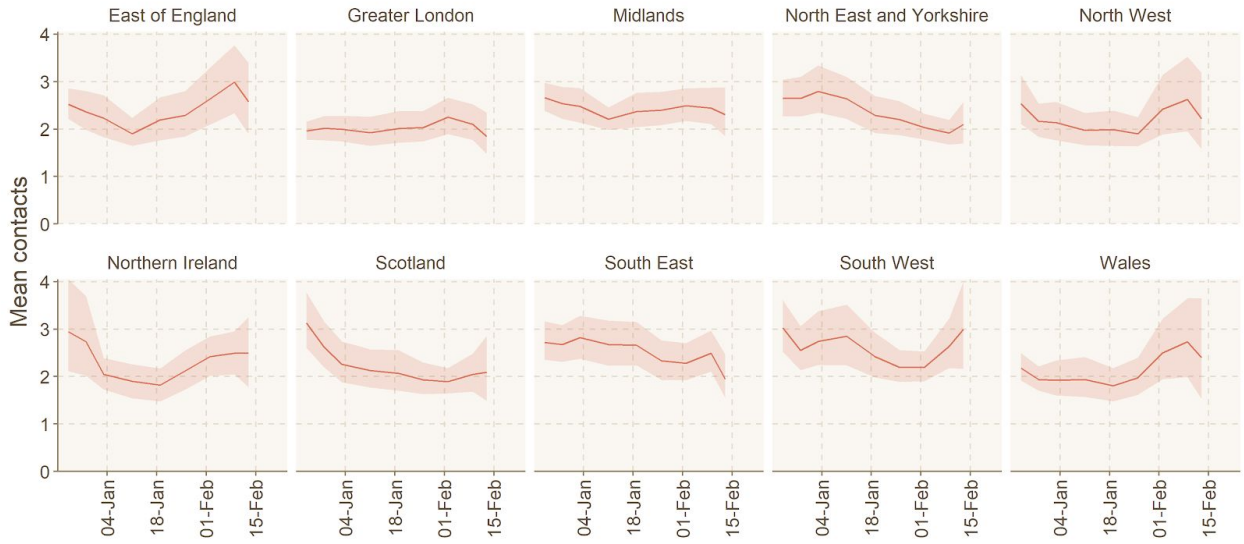

Figure 3: Mean contacts in all settings in adults for UK nations and English regions over time. Uncertainty calculated using Bootstrapped accounting. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Date on x axis refers to the midpoint of the survey period.

Figure 4: Mean contacts in all settings in adults by socio-economic status in the UK. Uncertainty calculated using Bootstrapped accounting. 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 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.

Note that graphs present data smoothed over two weeks where mean contacts are aligned to the middle time point of each survey round and therefore include data up to one week before and after date stated in graphs.

To investigate the change in contacts following vaccination, we compared individuals' reported contacts for the closest dates prior to and after their date of vaccination. We then stratified by ages 18-50 and 60+ and performed Paired permutation tests were conducted on the differences. We performed two tests, first on the proportion of people who reduced contacts following vaccination, second on the paired mean difference. Contacts were capped at 200 and 50 to assess the impact of individuals who reported a large number of contacts.

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.

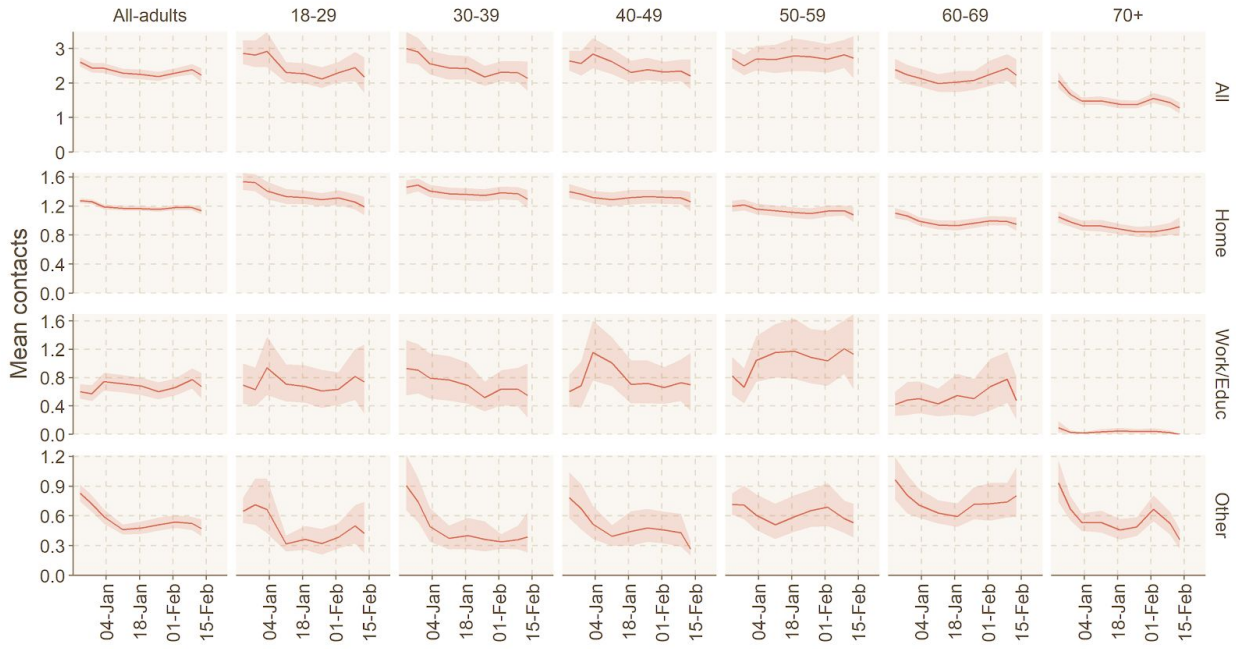

Figure S1: Setting-specific mean contacts by age-group for adults over time. Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Educ = educational setting. Date on x axis refers to the midpoint of the survey period.

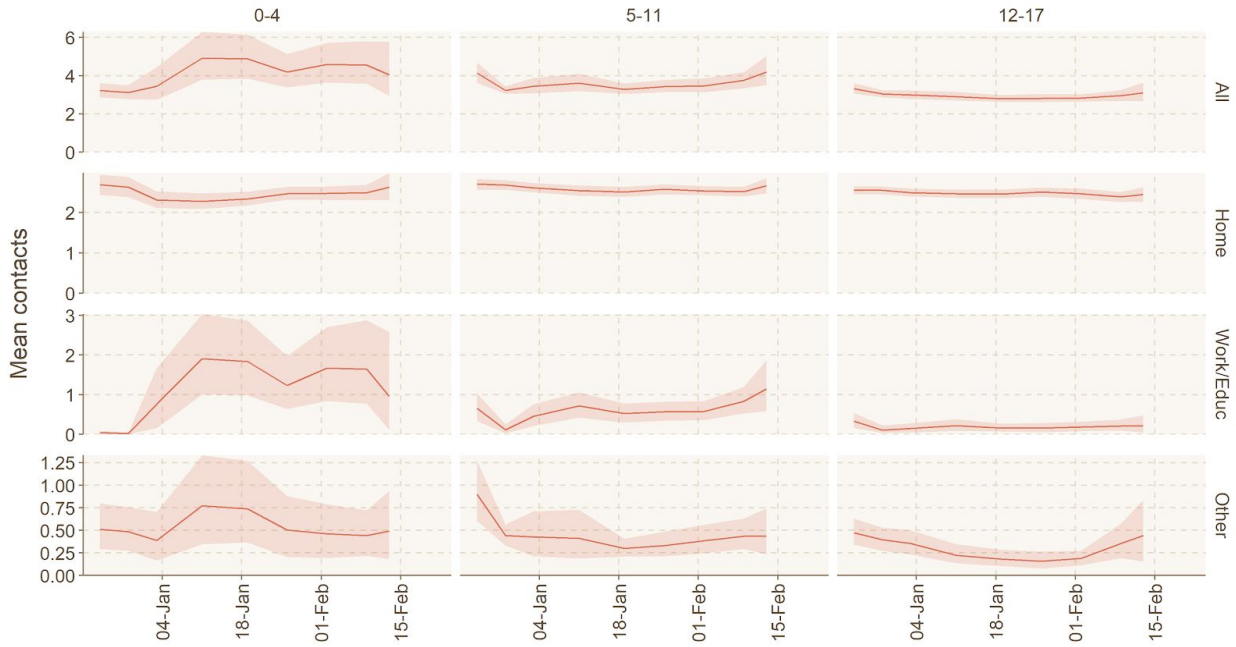

Figure S2: Setting-specific mean contacts by age-group for children over time.
Uncertainty calculated using bootstrapping. Contacts truncated to 50 contacts per participant. Observations are smoothed over two weeks to account for panel effects. Educ = educational setting. Date on x axis refers to the midpoint of the survey period.