

RESEARCH

MP Twitter Abuse in the Age of COVID-19: White Paper

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Abstract

As COVID-19 sweeps the globe, outcomes depend on effective relationships between the public and decision-makers. In the UK there were uncivil tweets to MPs about perceived UK tardiness to go into lockdown. The pandemic has led to increased attention on ministers with a role in the crisis. However, generally this surge has been civil. Prime minister Boris Johnson's severe illness with COVID-19 resulted in an unusual peak of supportive responses on Twitter. Those who receive more COVID-19 mentions in their replies tend to receive *less* abuse (significant negative correlation). Following Mr Johnson's recovery, with rising economic concerns and anger about lockdown violations by influential figures, abuse levels began to rise in May. 1,902 replies to MPs within the study period were found containing hashtags or terms that refute the existence of the virus (e.g. #coronahoax, #coronabollocks, 0.04% of a total 4.7 million replies, or 9% of the number of mentions of "stay home save lives" and variants). These have tended to be more abusive. Evidence of some members of the public believing in COVID-19 conspiracy theories was also found. Higher abuse levels were associated with hashtags blaming China for the pandemic.

Keywords: COVID-19; Twitter; politics; incivility; abuse

Introduction

A successful response to the COVID-19 pandemic depends on effective relationships between the public and decision-makers. Yet the pandemic arises in the midst of the age of misinformation [1, 2],^[1] creating a perfect storm. Polarisation and echo chambers make it harder for the right information to reach people, and for them to trust it when it does [3], and the damage can be counted in lives.^[2] Online verbal abuse is an intrinsic aspect of the misinformation picture, being both cause and consequence: the quality of information and debate is damaged as certain voices are silenced/driven out of the space,^[3] and the escalation of divisive "outrage" culture leads to angry and aggressive expressions [4].

This white paper charts Twitter abuse in replies to UK MPs, and a number of other prominent/relevant accounts, from before the start of the pandemic in the

^[1]Page 2 "infodemic": <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200202-sitrep-13-ncov-v3.pdf>, <https://www.bbc.co.uk/news/technology-51497800>

^[2]<https://www.bbc.co.uk/news/stories-52731624>, <https://www.independent.co.uk/news/world/middle-east/iran-coronavirus-methanol-drink-cure-deaths-fake-a9429956.html>, <https://thehill.com/changing-america/well-being/prevention-cures/494548-maryland-emergency-hotline-receives-more-than>, <https://www.mirror.co.uk/news/us-news/coronavirus-man-dies-after-drinking-21743881>

^[3]<https://www.bbc.co.uk/news/election-2019-50246969>

UK until late May, in order to plot the health of relationships of UK citizens with their elected representatives through the unprecedented challenges of the COVID-19 epidemic. We consider reactions to different individuals and members of different political parties, and how they interact with events relating to the virus. We review the dominant hashtags on Twitter as the country moves through different phases. The six periods considered are as follows:

- February 7th to 29th inclusive: Control: little attention to COVID-19
- March 1st to 22nd inclusive: Growing awareness of COVID-19, culminating in the week in which we were advised but not yet obliged to begin social distancing
- March 23rd to March 31st: Beginning of lockdown
- April 1st to April 16th: Middle-lockdown
- April 17th to May 9th: Emergence of global backlash against lockdown
- May 10th to May 25th: Easing of lockdown

We show trends in abuse levels, for MPs overall as well as for particular individuals and for parties. We conclude with a section that compares prevalence of conspiracy theories, and contextualises them against other popular topics/concerns on Twitter. We begin with a brief summary of related work, before outlining the methodology used and then progressing onto findings.

Related work

A raft of work has rallied to focus attention on COVID-19, as the scientific community recognises the extent to which outcomes depend on information and strategy. Research has begun to address the role of internet and social media in development of attitudes, compliance, and adoption of effective responses, and the way misinformation can derail these [5, 6, 7]. Furthermore, as the pandemic increasingly puts pressure on the divisions in society, with mortality risk much greater for some communities than others,^[4] we are forced to recognise the pandemic as a highly political issue (e.g. Motta et al [8]). Pew^[5] repeatedly find attitudes toward the disease split along partisan lines. In the age of COVID-19, polarisation can be deadly.

Twitter has become a favoured platform for politicians across the globe, providing a means by which the public can communicate directly with them. Previous work [9, 10, 11, 12] has shown rising levels of hostility towards UK politicians on Twitter in the context of divisive issues, and we also see partisan operators seeking to gain influence in the space [13]. Women and minorities have been shown to have different and potentially more threatening online experiences, raising concerns about representation [10, 14, 15]. Moving into the COVID-19 era, key questions raised therefore are about the impact of the pandemic on hostility levels towards decision-makers, the opportunities it presents for partisan operators to further damage social cohesion, and the impact on effectiveness and experience of women and minority politicians. This work focuses on the first two of these subjects.

^[4]<https://www.theguardian.com/world/2020/may/07/black-people-four-times-more-likely-to-die-from-covid-19-ops-finds>

^[5]https://www.pewresearch.org/pathways-2020/COVIDCREATE/main_source_of_election_news/us_adults

Methodology

In this work we utilize a large tweet collection on which a natural language processing has been performed in order to identify abusive language. This methodology is presented in detail by Gorrell *et al* [10] and summarised here.

A rule-based approach was used to detect abusive language. An extensive vocabulary list of slurs (e.g. “idiot”), offensive words such as the “f” word and potentially sensitive identity markers, such as “lesbian” or “Muslim”, forms the basis of the approach. The slur list contained 1081 abusive terms or short phrases in British and American English, comprising mostly an extensive collection of insults, racist and homophobic slurs, as well as terms that denigrate a person’s appearance or intelligence, gathered from sources that include <http://hatebase.org> and Farrell *et al* [16]. 131 offensive words were used, along with 451 sensitive words. “Bleeped” versions such as “f**k” are also included.

On top of these word lists, 53 rules are layered, specifying how they may be combined to form an abusive utterance as described above, and including further specifications such as how to mark quoted abuse, how to type abuse as sexist or racist, including more complex cases such as “stupid Jew hater” and what phrases to veto, for example “polish a turd” and “witch hunt”. Making the approach more precise as to target (whether the abuse is aimed at the politician being replied to or some third party) was achieved by rules based on pronoun co-occurrence. The approach is generally successful, but where people make a lot of derogatory comments about a third party in their replies to a politician, for example racist remarks about others, there may be a substantial number of false positives.

The abuse detection method underestimates by possibly as much as a factor of two, finding more obvious verbal abuse, but missing linguistically subtler examples. This is useful for comparative findings, tracking abuse trends, and for approximation of actual abuse levels.

The method for detecting COVID-19-related tweets is based on a list of related terms. This means that tweets that are implicitly about the epidemic but use no explicit Covid terms, for example, “@BorisJohnson you need to act now,” are not flagged. The methodology is useful for comparative findings such as who is receiving the most COVID-19-related tweets, but not for drawing conclusions about absolute quantities of tweets on that subject.

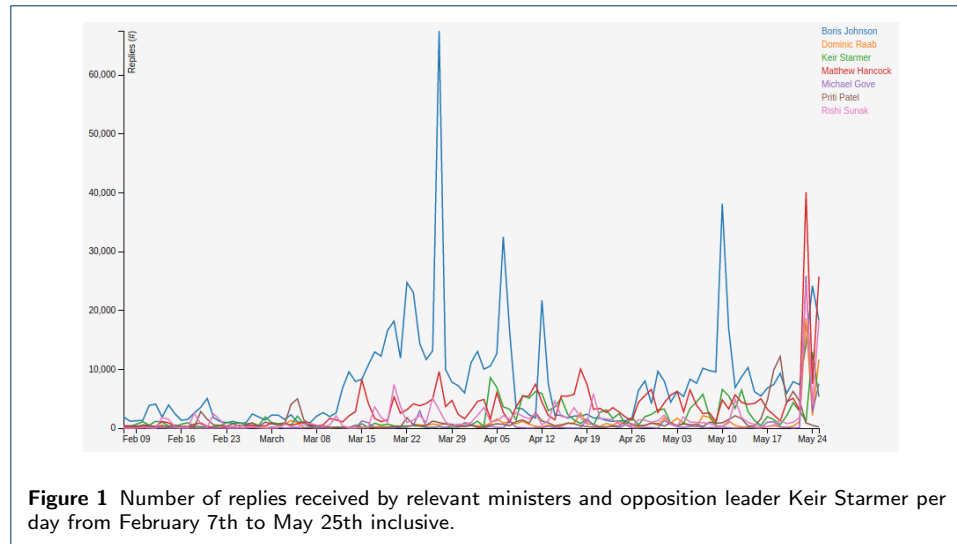
Corpus

The corpus was created by collecting tweets in real-time using Twitter’s streaming API. We used the API to follow the accounts of MPs - this means we collected all the tweets sent by each candidate, any replies to those tweets, and any retweets either made by the candidate or of the candidate’s own tweets. Note that this approach does not collect all tweets which an individual would see in their timeline, as it does not include those in which they are just mentioned. However, “direct replies” are included. We took this approach as the analysis results are more reliable due to the fact that replies are directed at the politician who authored the tweet, and thus, any abusive language is more likely to be directed at them. Data were of a low enough volume not to be constrained by Twitter rate limits.

The study spans February 7th until May 25th 2020 inclusive, and discusses Twitter replies to currently serving MPs that have active Twitter accounts (568 MPs in

Time period	Original	Retweet	Reply	ReplyTo	Abusive	% Abuse
02/07-03/01	16,482	26,632	6,952	562,322	19,301	3.432
03/01-03/23	22,419	39,781	11,482	777,396	33,069	4.254
03/23-04/01	11,571	21,821	7,137	441,983	13,919	3.149
04/01-04/17	17,007	30,124	10,407	782,774	24,327	3.108
04/17-05/10	22,906	38,949	11,906	890,926	32,050	3.597
05/10-05/26	16,824	30,279	8,822	1,270,669	56,827	4.472
Total	107,209	187,586	56,706	4,726,070	179,493	3.798

Table 1 Corpus statistics. Columns give, for each time period, number of original tweets authored by MPs, number of retweets authored by them, number of replies written by them, number of replies received by them, number of abusive replies received by them, and abusive replies received as a percentage of all replies received.



total). Table 1 gives the overall statistics for the corpus. Dates in the table indicate a period from midnight to midnight at the start of the given date.

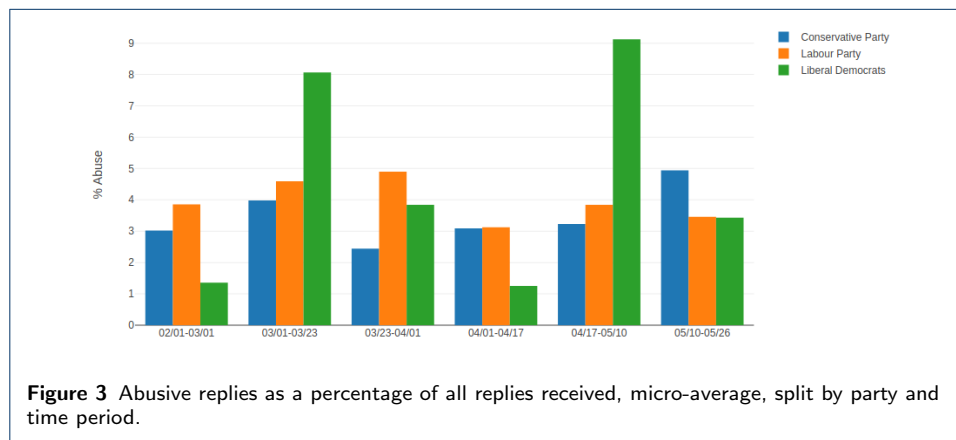
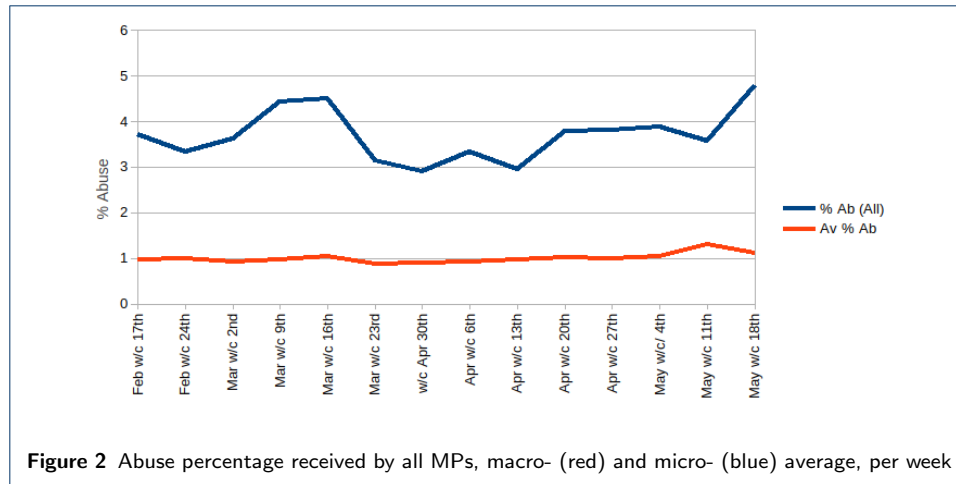
Tweets from earlier in the study have had more time to gather replies. Most replies occur in the day or two following the tweet being made, but some tweets continue to receive attention over time, and events may lead to a resurgence of focus on an earlier tweet. Reply numbers are a snapshot at the time of the study.

Findings

We begin with a review of the time period studied, namely February 7th until May 25th inclusive. After that, findings are organised into time periods with distinct characteristics with regards to the course of the pandemic in the UK, as listed in the introduction. We then include a section on conspiracy theories.

Overview

Fig 1 shows number of replies to prominent politicians since early February, and shows that for the most part, attention has focused on Boris Johnson. He received a large peak in Twitter attention on March 27th. 58,286 replies were received in response to his tweet announcing that he had COVID-19. Abuse was found in 2.3% of these replies, which is low for a prominent minister as we may discern from Fig 2, suggesting a generally supportive response to the prime minister's illness. Further peaks on Mr Johnson's timeline correspond to the dates on which he was

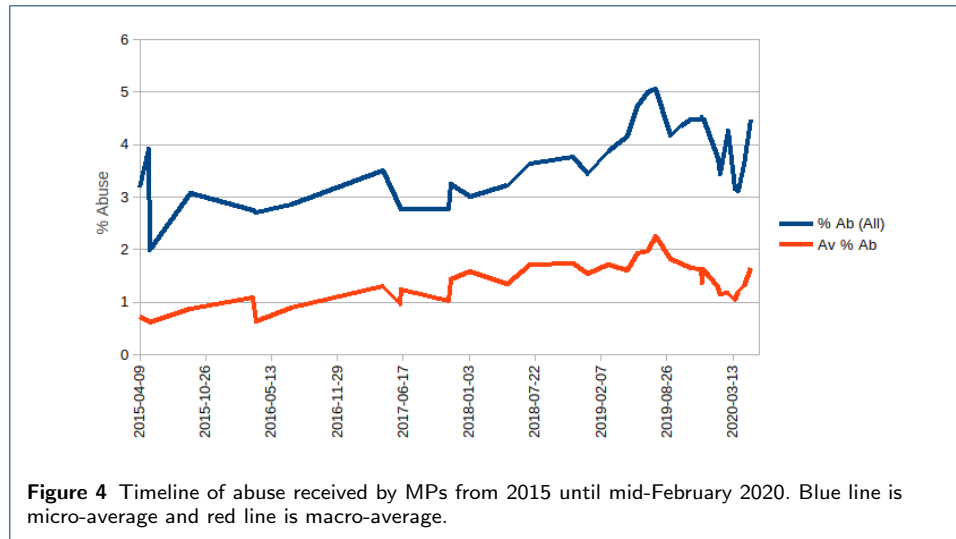


admitted to intensive care (April 6th), left hospital to recuperate at Chequers (April 12th), and more recently, began to ease the lockdown (May 10th). The late burst of attention on other politicians arises from several tweets by ministers in support of Dominic Cummings, the senior government advisor who chose to travel north to his parents' home in the early stages of his illness with COVID-19.

The timeline in Fig 2 makes it easier to see abuse levels overall, toward all MPs. It is on a per-week basis since mid-February, and shows a rise in abuse, back up to over 4% around the time of the introduction of social distancing, before dipping, and then gradually beginning to rise again in recent times. The dip may be explained, in part at least, by an unusual degree of positive attention focused on the prime minister as he faced personal adversity, depressing the abuse level as a percentage of all replies. We see that the macro-average abuse level (red line) remains relatively steady.

Difference in responses to different parties

Fig 3 shows abuse received as a percentage of all replies received by MPs, for each of the time periods studied in more detail below. We see that on the whole, response to the Conservative party has been favourable, as indicated above. The exception is after May 10th, when the negative response to Dominic Cummings'



decision to travel north with COVID-19 symptoms came to the fore. Responses to Liberal Democrat MPs are more erratic due to their lower number.^[6] In previous studies, we have found Conservatives receiving higher abuse levels, yet here we see Labour politicians receiving more abuse in most periods. This was in evidence even in February, so precedes the pandemic. Twitter has tended to be left-leaning in the UK [17] - it remains to be seen if this is the beginning of a swing to the right or if it is specific to the times, e.g. arising from a desire to trust authority during times of crisis [18].

There is a significant negative correlation between receiving a high level of Covid-related attention and receiving abuse (-0.52 , $p < 0.001$, Feb 7th to May 25th, Spearman's PMCC). We see this clearly in prominent government figures below, who are receiving the lion's share of the COVID-19 attention and lower levels of abuse than we usually see for them. However the correlation is significant across the sample of all MPs, suggesting perhaps that an association with the crisis is generally good for the image.

Long-term context

From the timeline in Fig 4, we see that aside from a blip around the 2015 general election, abuse toward MPs on Twitter has been tending to rise from a minimum of 2% of replies in 2015, peaking mid-2019 at over 5% with a smaller peak of around 4.5% around the 2019 general election. After the election, however, abuse toward MPs fell to around 3.5%.^[7] A spike followed before the beginning of lockdown, before a low, and more recently, a rise, as discussed above. However the low was not as low as in 2015, and the high is not as high as the Brexit acrimony of 2019.

^[6]The peak in early March arises with a now-deleted tweet from Layla Moran. The peak in late April/early May arises with the start of Ramadan and a supportive tweet from Ed Davey.

^[7]Due to the variable quality nature of the historical data, the time periods across which these data points are averaged varies, which may lead to shorter-term peaks being lost. We hope to improve on this in future work. Where more datapoints are available, the graph appears more spiky, as we see with the richer recent data.

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
Boris Johnson	14	48,379	1,072	1,695	3.504	2.216	37.773
David Lammy	89	47,368	73	2,308	4.872	0.154	2.572
Richard Burgon	184	30,789	18	1,556	5.054	0.058	0.634
Jeremy Corbyn	25	29,550	215	2,400	8.122	0.728	7.576
Rebecca Long-Bailey	121	27,113	17	823	3.035	0.063	0.599
Zarah Sultana	96	18,630	12	677	3.634	0.064	0.423
Debbie Abrahams	96	18,186	45	822	4.520	0.247	1.586
Keir Starmer	97	15,455	26	360	2.329	0.168	0.916
Lisa Nandy	110	15,271	9	413	2.704	0.059	0.317
Priti Patel	9	13,664	45	345	2.525	0.329	1.586
Rishi Sunak	10	12,674	19	399	3.148	0.150	0.669
Sajid Javid	26	10,945	14	362	3.307	0.128	0.493
Jacob Rees-Mogg	13	10,352	22	584	5.641	0.213	0.775
Jess Phillips	106	9,648	0	140	1.451	0.000	0.000
Dawn Butler	152	9,457	3	231	2.443	0.032	0.106

Table 2 MPs with greatest number of replies from February 7 - 29 2020 inclusive. Cell colours indicate party membership; blue for Conservative, red for Labour.

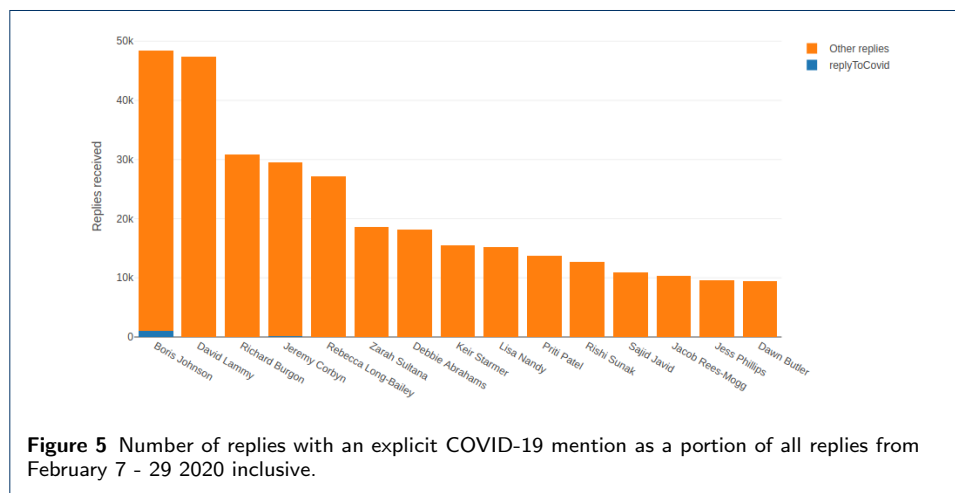
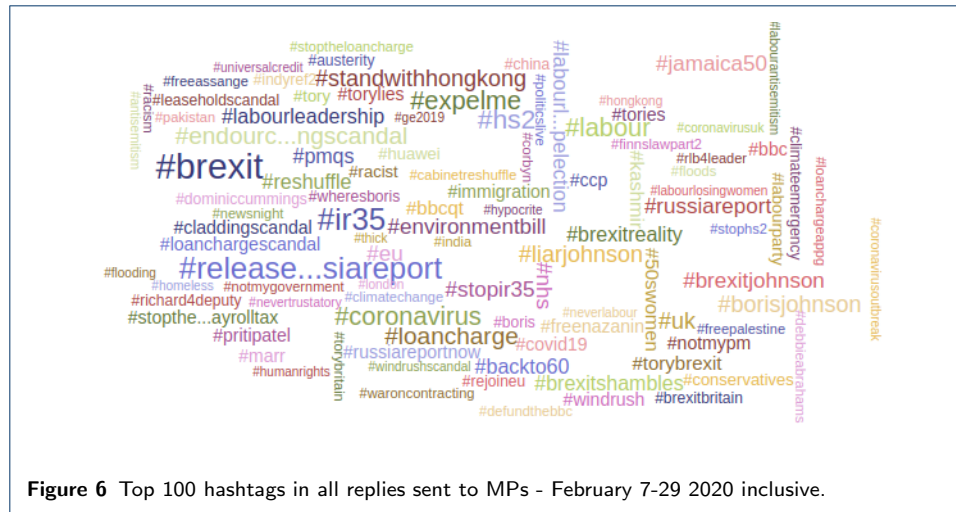


Figure 5 Number of replies with an explicit COVID-19 mention as a portion of all replies from February 7 - 29 2020 inclusive.

The blue line shows micro-averaged abuse as a percentage of replies. The red line shows macro-averaged abuse percentage (percentage is calculated per person, then averaged). Where the two lines differ, we can infer an unusual response at that time particularly to high-profile politicians.

February 7th to 29th

Table 2 provides some quick reference information for the top 20 MPs receiving the largest number of replies to their Twitter account during the February period. The column “Authored” refers to the number of tweets originally posted from that account that were not retweets or replies. “replyTo”, refers to all of the replies received to the individual’s Twitter account in that period. The next column, “Covid”, is the number of replies received to that account containing an explicit mention of COVID-19, with the following column representing the number of replies that verbal abuse was found in (“Abusive”). The last three columns present the data in a comparative fashion. Firstly, we have the percentage of replies that the individual received that were abusive. Next, we have the percentage of replies that were Covid related. The last column is the percentage of Covid-related replies to that individual, in comparison with all Covid-related replies received by all MPs. We have created a table and histogram for each period.



Hashtag	Count
#brexit	3,955
#ir35	1,964
#releasetherussiareport	1,688
#hs2	1,099
#expelme	877
#coronavirus	831
#labour	810
#endourcladdingscandal	717
#loancharge	691
#uk	613

We see from Table 2 that Boris Johnson receives the most tweets, with controversial Labour politicians not far behind. Whilst he also receives the most abuse by volume, as a percentage of replies received, the 3.5% shown here is unusually low for Mr Johnson compared with our findings in earlier work (e.g. 8.39%^[8] in the first half of 2019). The histogram in 5 shows the number of replies received related to COVID-19, in comparison with the number of replies received in general for that period. Once again, this chart indicates that attention to COVID-19 was limited at the start of the pandemic, but what attention there was to the subject was largely aimed at Mr Johnson.

Hashtags

The hashtag cloud in 6 above shows that in February, little attention was focused on COVID-19, and Brexit remained the dominant topic in Twitter political discourse. Table 3 gives the top ten hashtags in numeric terms.

Examples of tweets that attracted particularly abusive responses

In February, COVID-19 was not a major focus. The most abused tweet of the month was this one, by then-leader of the opposition Jeremy Corbyn, attracting 4% of all abusive replies to MPs.

<https://twitter.com/jeremycorbyn/status/1227589027790016514> (11% abuse, 4% of all abusive replies to MPs in February):

[8]<https://arxiv.org/pdf/1910.00920.pdf>

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
Boris Johnson	45	160,356	28,818	7,684	4.792	17.971	49.380
David Lammy	120	43,386	1,602	2,952	6.804	3.692	2.745
Matthew Hancock	100	42,520	7,167	1,800	4.233	16.856	12.281
Jeremy Corbyn	44	42,435	1,824	3,244	7.645	4.298	3.125
Rishi Sunak	47	25,534	2,225	284	1.112	8.714	3.813
Nadine Dorries	52	24,731	1,275	466	1.884	5.155	2.185
Jess Phillips	154	20,931	394	541	2.585	1.882	0.675
Lisa Nandy	74	20,355	234	925	4.544	1.150	0.401
Richard Burgon	145	20,281	446	1,222	6.025	2.199	0.764
Zarah Sultana	107	18,796	204	815	4.336	1.085	0.350
Priti Patel	12	17,233	451	378	2.193	2.617	0.773
Pauline Latham	6	12,540	204	1,049	8.365	1.627	0.350
James Cleverly	49	11,544	606	650	5.631	5.249	1.038
Layla Moran	130	11,456	479	976	8.520	4.181	0.821
Keir Starmer	39	11,217	385	299	2.666	3.432	0.660

Table 4 MPs with greatest number of replies from from March 1st - 22nd 2020 inclusive. Cell colours indicate party membership; blue for Conservative, red for Labour, yellow for Liberal Democrat.

If there was a case of a young white boy with blonde hair, who later dabbled in class A drugs and conspired with a friend to beat up a journalist, would they deport that boy?

Or is it one rule for young black boys born in the Caribbean, and another for white boys born in the US?

March 1st to 22nd

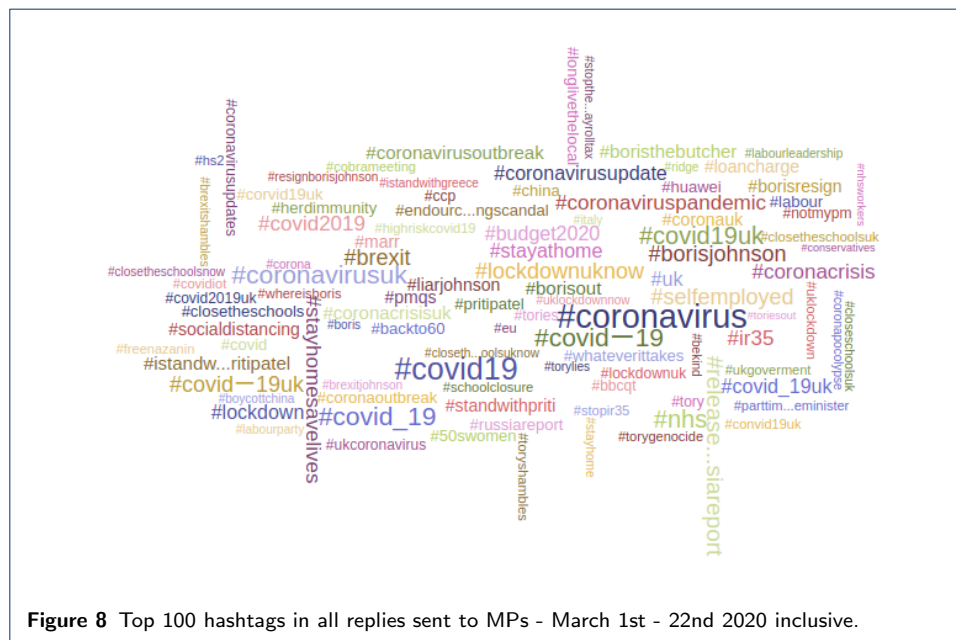
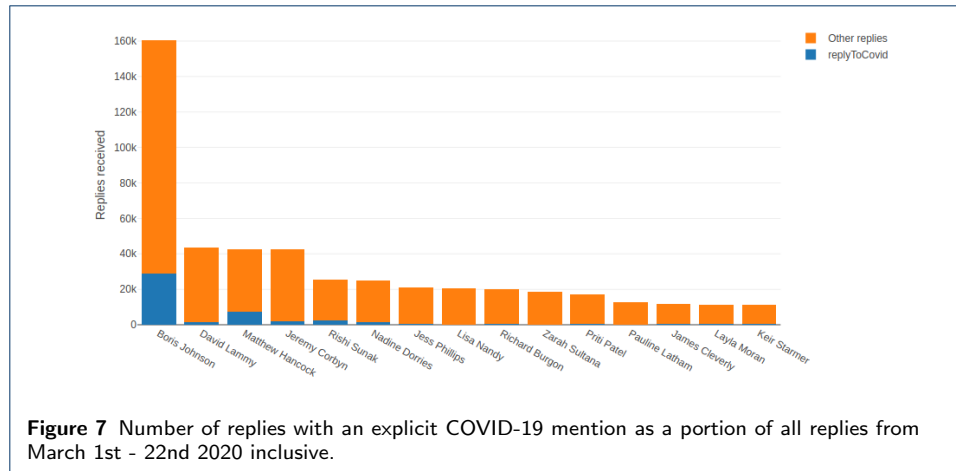
In this section we review data from March 1st to March 22nd inclusive, when Boris Johnson made the first announcement that citizens were advised to avoid non-essential contact and journeys.

In Table 4 and Fig 7, one can see how attention on particular individuals has changed in the first period in March. In the table you can see the number of replies they receive, the percentage of those replies that are related to COVID-19, and how this compares with other MP colleagues. Health secretary Matt Hancock became more prominent on Twitter at this time, though attention was not more abusive. Attention on chancellor Rishi Sunak also increased and was not abusive. We see a high level of attention on Boris Johnson, but the abuse level is lower than was seen for him in previous years (we found 8.39% in the first half of 2019 as mentioned above; in 2017 as foreign secretary Mr Johnson received similarly high abuse levels in high volumes). Negative attention on Labour politicians is high, but note that this was also the case before the start of the epidemic in the UK. A focus on COVID-19 is now in evidence (recall that counts for COVID-19 tweets only include explicit mentions; it is likely that many more replies are about COVID-19).

Hashtags

The word cloud in Fig 8 shows all hashtags in tweets to MPs in earlier part of March, and unsurprisingly shows a complete topic shift, to the subject of the epidemic, to the virtual exclusion of all else. The February word cloud shows a variety of non-Covid subjects, such as Brexit, IR35 (tax loophole legislation), the Russia report, climate change, pension age for women and the accusations against Priti Patel. Now, almost all hashtags are COVID-19-related. Table 5 gives the counts for the top ten.^[9]

^[9]A non-standard em dash was used in hashtags referring to COVID-19 for a time on Twitter - in the tables we show a standard em dash.



Examples of tweets that attracted particularly abusive responses

As discussed above, feelings ran high around the beginning of lockdown, and examples of high volume tweets with elevated abuse levels were given. Here we give tweets receiving high abuse levels.

<https://twitter.com/BorisJohnson/status/1238365263764041728> (9% of replies were abusive, tweet received 3% of all abuse to MPs in the period). It also includes a video.

This country will get through this epidemic, just as it has got through many tougher experiences before.

Another tweet that gradually rose to become the second most abused tweet by volume of the period was a now-deleted tweet by Layla Moran defending China, apropos COVID-19. 14% abuse, 3% of abuse for the period.

Hashtag	Count
#coronavirus	10,594
#covid19	7,424
#covid_19	2,739
#coronavirusuk	2,613
#covid19uk	2,098
#nhs	1,925
#releasetherussiareport	1,717
#covid—19	1,671
#brexit	1,519
#covid—19uk	1,494

Table 5 Hashtag counts in replies to MPs, March 1st - 22nd inclusive

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
Boris Johnson	22	160,750	23,091	4,267	2.654	14.365	47.657
Matthew Hancock	58	39,029	7,376	979	2.508	18.899	15.223
Jeremy Corbyn	24	23,952	1,378	1,867	7.795	5.753	2.844
Rishi Sunak	13	15,451	1,557	139	0.900	10.077	3.213
David Lammy	69	14,608	853	656	4.491	5.839	1.761
Jess Phillips	100	9,648	345	162	1.679	3.576	0.712
Nadine Dorries	40	9,041	920	315	3.484	10.176	1.899
Richard Burgon	47	8,253	569	941	11.402	6.894	1.174
John McDonnell	41	5,584	317	326	5.838	5.677	0.654
Priti Patel	9	5,566	630	90	1.617	11.319	1.300
Michael Gove	8	5,566	850	220	3.953	15.271	1.754
Angela Rayner	35	5,171	137	41	0.793	2.649	0.283
Dominic Raab	26	4,984	410	47	0.943	8.226	0.846
Yvette Cooper	12	4,407	224	311	7.057	5.083	0.462
Neil Coyle	56	4,347	82	458	10.536	1.886	0.169

Table 6 MPs with greatest number of replies from from March 23 - 31 2020 inclusive. Cell colours indicate party membership; blue for Conservative, red for Labour.

https://twitter.com/Pauline_Latham/status/1238903676934160384 (12% abuse, 2% of all abuse to MPs in the March pre-lockdown period; told constituent to “get a life” in response to tweet about statutory sick pay).

<https://twitter.com/MattHancock/status/1238960146342084609> (11% abuse, 3% of all abuse to MPs in the March pre-lockdown period, inspiring critical responses):

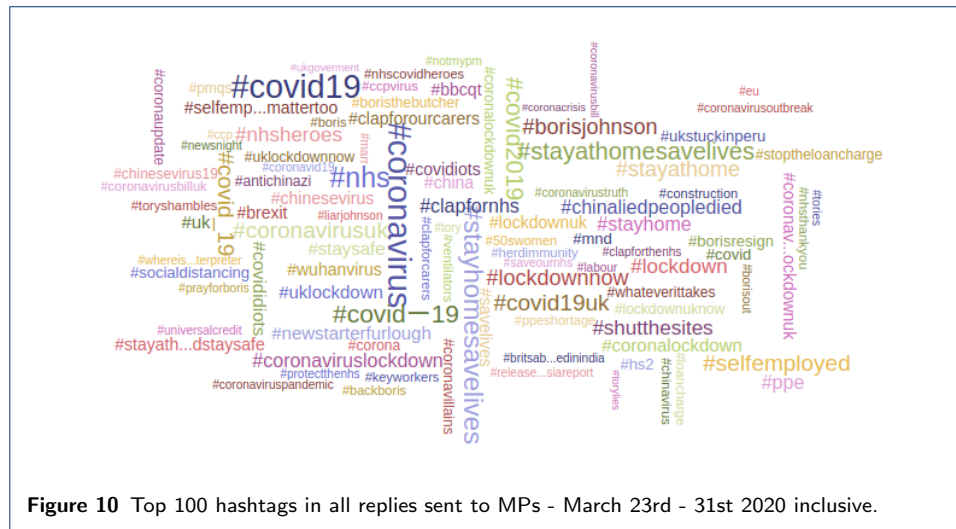
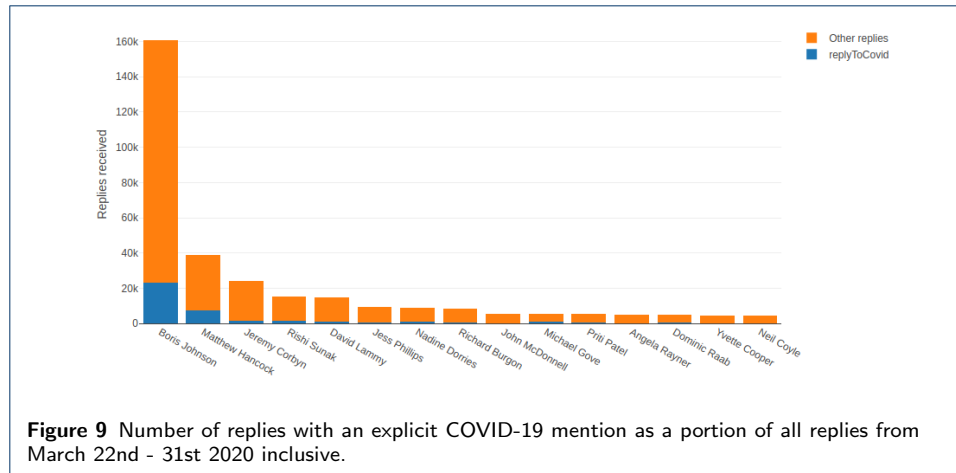
NEWS: My Telegraph article on the next stage of our #coronavirus plan:
We must all do everything in our power to protect lives

<https://twitter.com/DavidLammy/status/1239835712444391424> (16% abuse, 1% of all abuse sent to MPs in the March pre-lockdown period):

No more government time, energy or resources should be wasted on Brexit this year. Boris Johnson must ask for an extension to the transition period immediately. #COVID19 is a global emergency.

March 23rd to 31st

For the second period in March from the 23rd - 31st, attention on individual MPs was reshuffled relative to the number of replies they received. From Table 6 and Fig 9 we can see that attention continues to focus on Boris Johnson, and is even less abusive than previously, largely due to a surge in non-abusive attention in conjunction with his being diagnosed with COVID-19. Matt Hancock becomes more prominent, though attracting less abuse than previously.



Hashtags

The rise of the hashtag “#stayhomesavelives” shows a shift toward comment on the practical details (see Fig 10). Support for the lockdown appears to be high at this stage. Table 7 gives counts for the top ten.

Examples of tweets that attracted particularly abusive responses

By volume, the most abused tweet was Boris Johnson’s illness announcement, but as a percentage this was remarkably un-abusive, as discussed above, with 2.3% abuse, and the abuse count follows only from the very high level of attention this tweet drew. The most striking tweet in terms of receiving a high percentage of abuse as well as a notable degree of attention was the one below from Richard Burgon.

<https://twitter.com/RichardBurgon/status/1244043022297370626> (17% abuse, or 6% of all abuse sent to MPs in March post-lockdown):

This is a Trump-style attempt to divert blame from the UK government's failures.

A World Health Organization report says China “rolled out perhaps the most ambitious, agile & aggressive disease containment effort in history”

Hashtag	Count
#coronavirus	7,593
#covid19	7,527
#stayhomesavelives	3,324
#nhs	3,006
#covid—19	2,917
#lockdownuknow	1,676
#stayathomesavelives	1,663
#stayathome	1,645
#coronavirusk	1,473
#covid_19	1,463

Table 7 Hashtag counts in replies to MPs, March 23rd - 31st.

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
Boris Johnson	16	152,238	19,374	2,942	1.933	12.726	19.596
Matthew Hancock	77	64,584	16,957	2,714	4.202	26.256	17.151
Keir Starmer	44	62,589	6,802	1,939	3.098	10.868	6.880
Nadine Dorries	62	42,521	3,663	2,056	4.835	8.615	3.705
Rishi Sunak	28	31,700	14,724	241	0.760	46.448	14.893
Jeremy Corbyn	29	29,548	1,085	1,445	4.890	3.672	1.097
David Lammy	73	24,254	1,203	713	2.940	4.960	1.217
Richard Burdon	73	21,084	776	1,291	6.123	3.681	0.785
Zarah Sultana	79	16,789	957	1,005	5.986	5.700	0.968
Jess Phillips	113	13,337	542	256	1.919	4.064	0.548
Priti Patel	22	13,063	1,785	252	1.929	13.665	1.805
Lucy Allan	78	12,117	1,358	612	5.051	11.207	1.374
Dominic Raab	41	10,701	1,823	203	1.897	17.036	1.844
Jack Lopresti	14	9,736	1,385	1,655	16.999	14.226	1.401
Diane Abbott	66	9,486	513	221	2.330	5.408	0.519

Table 8 MPs with greatest number of replies from from April 1 - 16 2020 inclusive. Cell colours indicate party membership; blue for Conservative, red for Labour.

We haven't even sorted out enough tests for NHS staff

April 1st to 16th

This section reviews April 1 up to and including April 16th 2020, before Trump issued his liberation tweets to Virginia, Michigan and Minnesota and a backlash against lockdown measures became apparent.

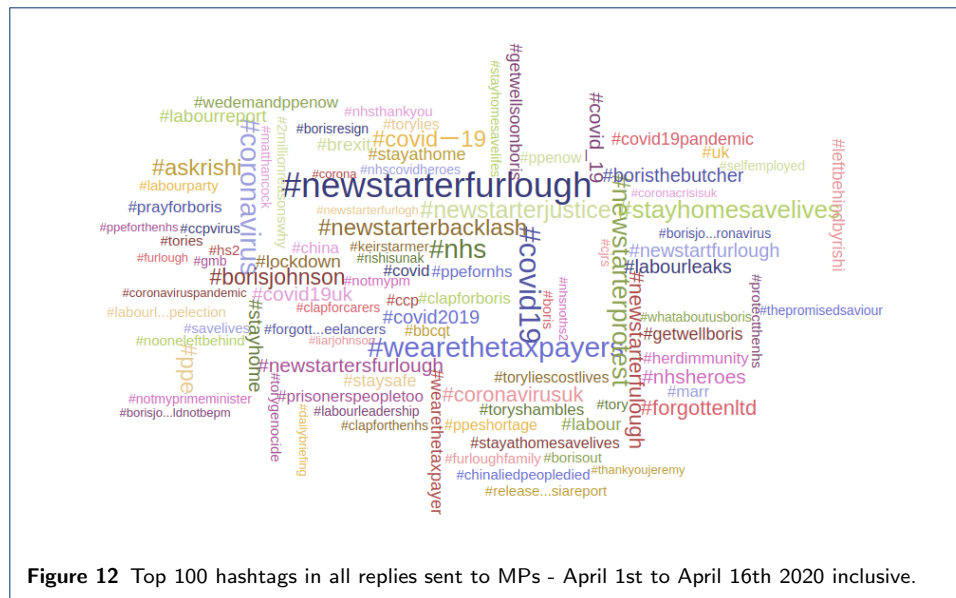
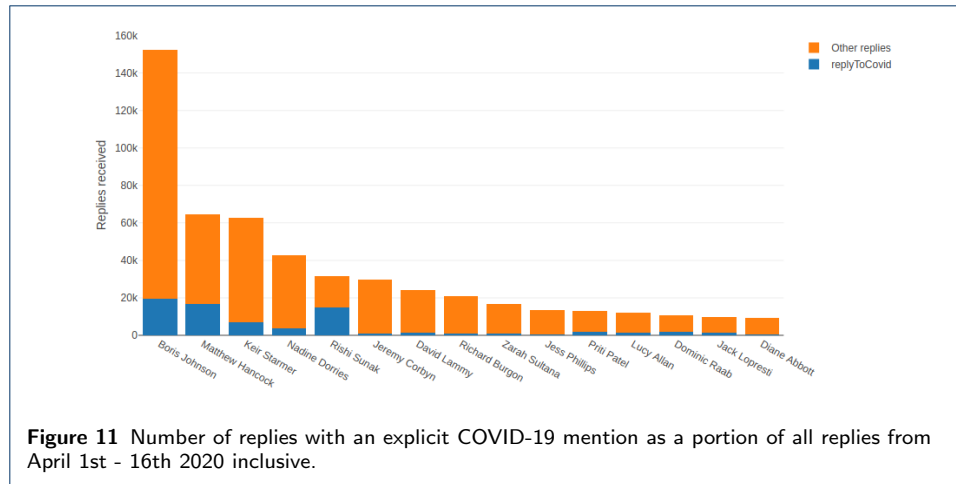
As indicated by the table and the histogram depicted in Table 8 and Fig 11 respectively, Boris Johnson's abuse level is extremely low as his illness takes a serious turn. Keir Starmer begins to attract attention in his new role as Labour leader, and the attention is much less abusive than Jeremy Corbyn tended to receive in the same role (10% in the first half of 2019,^[10] but the tables shown here also show consistently high abuse levels for Mr Corbyn). Jeremy Corbyn begins to attract less attention by volume of replies on Twitter compared to others. Nadine Dorries attracts a higher abuse level than Matthew Hancock and Rishi Sunak for a tweet given below.

The high abuse level toward Jack Lopresti during this period relates to his controversial opinion that churches should open for Easter. Example tweets are given below.

Hashtags

The hashtag cloud in Fig 12 shows that attention has begun to focus on the economic cost of the lockdown, as illustrated by the prominence of hashtags such as #newstarterfurlough and #wearethetaxpayers. Table 9 gives counts for the top ten.

^[10]<https://arxiv.org/pdf/1910.00920.pdf>



Examples of tweets that attracted particularly abusive responses

<https://twitter.com/JackLopresti/status/1247508135029411841> (18% abuse, 6% of all abuse sent to MPs between April 1st and 16th inclusive):

Open the churches for Easter – and give people hope https://telegraph.co.uk/news/2020/04/06/open-churches-easter-give-people-hope/?WT.mc_id=tmg_share_tw via @telegraphnews

<https://twitter.com/JackLopresti/status/1247894726486798342> (17% abuse, 3% of all abuse sent to MPs between April 1st and 16th inclusive):

Today I wrote to The Secretary of State @mhclg and also sent a copy of this letter to Secretary of State @DCMS to ask the Government to consider opening church doors on Easter Sunday for private prayer.

Hashtag	Count
#newstarterfurlough	30,511
#covid19	8,923
#wearethetaxpayers	8,483
#coronavirus	6,849
#nhs	5,032
#newstarterprotest	4,282
#stayhomesavelives	3,619
#newstarterjustice	2,898
#newstarterbacklash	2,259
#askrishi	2,243

Table 9 Hashtag counts in replies to MPs, April 1st - 16th.

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
Boris Johnson	40	114,506	17,419	3,744	3.270	15.212	17.646
Matthew Hancock	104	96,712	17,017	4,175	4.317	17.596	17.238
Keir Starmer	55	46,202	4,668	1,286	2.783	10.103	4.729
Rishi Sunak	50	32,702	11,042	421	1.287	33.766	11.186
Nadine Dorries	79	30,093	2,499	1,006	3.343	8.304	2.532
Richard Burgon	105	27,760	1,445	2,536	9.135	5.205	1.464
Jeremy Corbyn	51	27,534	1,422	1,960	7.118	5.165	1.440
David Lammy	81	26,432	1,286	1,267	4.793	4.865	1.303
Rosena Allin-Khan	69	22,553	1,443	656	2.909	6.398	1.462
Dominic Raab	63	20,988	2,344	584	2.783	11.168	2.374
Diane Abbott	136	20,966	1,307	574	2.738	6.234	1.324
Layla Moran	131	14,466	356	1,195	8.261	2.461	0.361
Priti Patel	23	12,764	976	207	1.622	7.647	0.989
Ed Davey	84	12,425	472	1,618	13.022	3.799	0.478
James Cleverly	61	12,210	780	467	3.825	6.388	0.790

Table 10 MPs with greatest number of replies from from April 17 - May 9 2020 inclusive. Cell colours indicate party membership; blue for Conservative, red for Labour, yellow for Liberal Democrat.

<https://twitter.com/NadineDorries/status/1248329497897775105> (11% abuse, 5% of all abuse sent to MPs between April 1st and 16th inclusive - given that many people were dying, of a respiratory virus, it seemed tactless)

The boss is in a better place. Such a relief. The country can breathe again

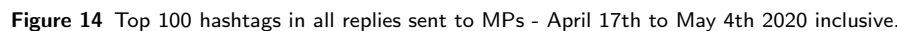
<https://twitter.com/RichardBurgon/status/1247248198932062208> (17% abuse, 2% of all abuse sent to MPs between April 1st and 16th inclusive - regarding his work as shadow justice secretary, regarded by some as mistimed considering the prime minister's health at the time).

April 17th to May 9th

The histogram and table in Fig 13 and Table 10 respectively reflect the unusual circumstances of this period. Boris Johnson did not return to work until April 26th, so the greater prominence of Matt Hancock on Twitter during this period, while the prime minister recuperated at Chequers, perhaps reflects this. Dominic Raab, in his role as acting prime minister, did not attract high attention levels on Twitter. Keir Starmer is now the most replied-to Labour politician on Twitter, but continues to attract low abuse levels.

Hashtags

Later in the month, the economic focus continues, as shown by the hashtag cloud in Fig 14. The majority of hashtags now appear to be critical, often economically focused but also including accusations of lying against China, Boris Johnson and Conservatives, and references to the shortage of personal protective equipment for



Examples of tweets that attracted particularly abusive responses

<https://twitter.com/EdwardJDavey/status/1253882262715842560> (19% abuse, 5% of all abuse toward MPs for the period):

Two tweets by Richard Burgon also received a high level of abuse by volume and as a percentage:

^[11]E.g. <https://www.theguardian.com/global/video/2020/apr/16/armed-protesters-demand-an-end-to-michigans-coronavirus-lockdown-orders-video>

Hashtag	Count
#newstarterjustice	22,833
#newstarterfurlough	18,760
#covid19	9,114
#jobrejectionscheme	6,351
#coronavirus	6,168
#forgottenltd	5,307
#nhs	3,535
#iamnotatradeoff	2,679
#ppe	2,553
#leftbehind	2,402

Table 11 Hashtag counts in replies to MPs, April 17th - May 9th.

<https://twitter.com/RichardBurgon/status/1252168331618123776> (16% abuse, 4% of all abuse for the period):

So many countries are doing much better than we are at tackling Coronavirus
 Failure after failure is costing lives. We must speak out.
 UK - 228 deaths per million people
 Ireland - 116
 Portugal - 67
 Germany - 51
 Canada - 39
 South Korea - 5
 China - 3
 Australia - 3
 New Zealand - 2

<https://twitter.com/RichardBurgon/status/1256184006741241857> (13% abuse, 2% of all abuse for the period):

The UK has had more Coronavirus deaths than the following countries COM-
 BINED
 Belgium
 Germany
 Netherlands
 Switzerland
 Ireland
 Portugal
 Romania
 Poland
 Austria
 Denmark
 Ukraine
 Finland
 Norway
 Greece
 The UK has 67m people. The others around 270m people.

The following tweets also attracted high levels of abuse by volume:

<https://twitter.com/jeremycorbyn/status/1253341601599852544> (11% abusive replies, 2% of abuse for the period - this was also St George's Day, so perceived

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
10 Downing Street	208	39,348	5,852	933	2.371	14.872	42.526
DHSC Gov UK	288	17,071	2,188	216	1.265	12.817	15.900
Royal Family	66	12,076	261	67	0.555	2.161	1.897
GOV UK	66	6,703	879	176	2.626	13.114	6.388
CMO Eng. (Whitty)	6	2,943	734	33	1.121	24.941	5.334
NHS UK	97	2,458	588	21	0.854	23.922	4.273
Neil Ferguson	1	2,394	266	266	11.111	11.111	1.933
HM Treasury	48	1,981	503	13	0.656	25.391	3.655
UK Home Office	55	1,894	89	38	2.006	4.699	0.647
Defence HQ	146	1,862	88	8	0.430	4.726	0.639
UK Sci C. (Vallance)	8	1,587	294	13	0.819	18.526	2.136
Commons Treasury	34	1,511	680	8	0.529	45.003	4.942
PHE UK	58	1,373	349	7	0.510	25.419	2.536
Foreign Office	72	963	41	14	1.454	4.258	0.298
UK Parliament	25	743	137	8	1.077	18.439	0.996

Table 12 Statistics for other accounts from from April 17th - May 9th 2020 inclusive.

as evidence of anti-English sentiment, as in the following paraphrased replies for example: “@jeremycorbyn So nothing about St George’s day then? Ah, that’s because we are English, the country you wanted to run but hate with a vengeance. And you wonder why you suffered such a huge defeat at the election” and “@jeremycorbyn So no mention of St. George’s day then? You utter cretin.”):

Ramadan Mubarak to all Muslims in Islington North, all across the UK and all over the world.

<https://twitter.com/Simon4NDorset/status/1255043717045596160> (7% abusive replies, 2% of abuse for the period):

I’m afraid @piersmorgan is not acting as a journalist. As a barrack room lawyer? Yes. As a saloon bar bore? Yes. As a bully? Yes. As a show off? Undoubtedly. He is not a seeker after truth: he’s a male chicken

Non-MP accounts

From this time period, we began also to collect data for a set of government accounts and other accounts relevant to the epidemic. In this period, as shown in Table 12 and Fig 15, Neil Ferguson, a medical expert formerly included in the Scientific Advisory Group for Emergencies (SAGE), who advise the UK government, received more attention than he goes on to receive in the following period, and a high level of abuse. Mr Ferguson resigned from SAGE during this period, following publicity surrounding his lockdown violation. Note that Neil Ferguson was also targeted by conspiracy theorists.^[12] Chief medical officer of England Chris Whitty (“CMO_England”) and chief scientific advisor Patrick Vallance (“uksciencechief”) both appear in the table, but receive only a fraction of the total and Covid-related attention that 10 Downing Street receives.

May 10th to 25th

In Table 13 and Fig 16 we see a return to a high level of focus on Boris Johnson, with other senior ministers also prominent. Of Labour politicians, only Keir Starmer attracts notable attention, with others much further down the list. Higher levels

^[12]<https://thefederalist.com/2020/03/26/the-scientist-whose-doomsday-pandemic-model-predicted-armageddon-just-walked-back-the-apocalyptic-predictions/>

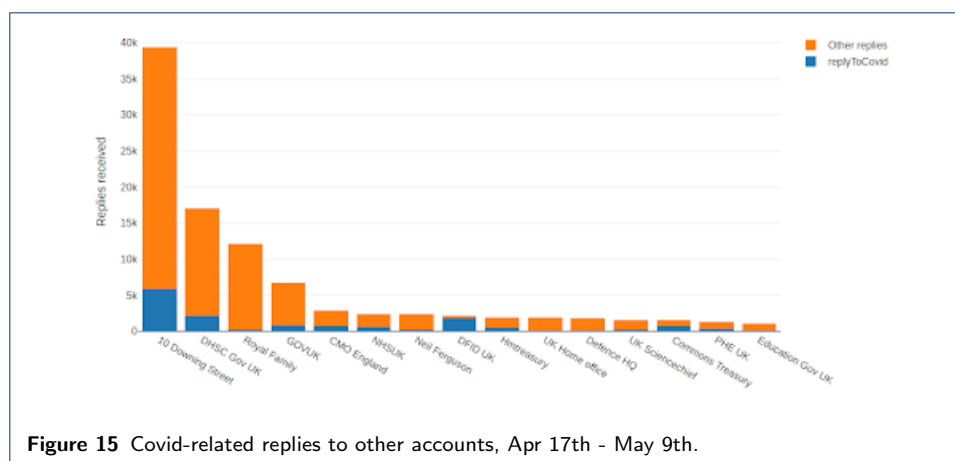


Figure 15 Covid-related replies to other accounts, Apr 17th - May 9th.

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
Boris Johnson	42	194,083	20,109	9,543	4.917	10.361	27.014
Matthew Hancock	59	124,070	10,031	7,905	6.371	8.085	13.475
Rishi Sunak	21	62,304	5,001	2,292	3.679	8.027	6.718
Keir Starmer	47	59,239	2,501	2,063	3.483	4.222	3.360
Priti Patel	23	51,989	1,364	2,184	4.201	2.624	1.832
Michael Gove	9	39,171	2,660	2,791	7.125	6.791	3.573
Dominic Raab	32	37,433	2,318	2,135	5.704	6.192	3.114
Oliver Dowden	21	29,929	1,015	2,446	8.173	3.391	1.364
Jeremy Corbyn	29	22,167	731	1,513	6.825	3.298	0.982
Jess Phillips	102	21,449	545	541	2.522	2.541	0.732
Richard Burdon	74	20,483	588	1,466	7.157	2.871	0.790
David Lammy	59	20,363	599	837	4.110	2.942	0.805
Suella Braverman	5	20,199	1,019	716	3.545	5.045	1.369
Nadine Dorries	29	20,014	511	740	3.697	2.553	0.686
Jacob Rees-Mogg	7	19,151	1,011	1,439	7.514	5.279	1.358

Table 13 MPs with greatest number of replies from from May 10 - May 25 2020 inclusive. Cell colours indicate party membership; blue for Conservative, red for Labour.

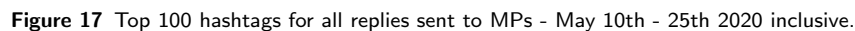
of abuse are received by ministers who defended Dominic Cummings on Twitter; Matthew Hancock, Oliver Dowden and Michael Gove. Boris Johnson also receives more abuse than he did in the previous period. Example tweets are given below of ministers defending Mr Cummings.

Hashtags

Hashtags in Fig 17 show a high degree of negative attention focused on Dominic Cummings, whilst continued attention on the economic plight of new starters is also in evidence. Table 14 gives counts for the top ten.

Hashtag	Count
#covid19	7,352
#sackcummins	6,054
#newstarterjustice	5,446
#dominiccummings	5,004
#coronavirus	4,412
#cummins	4,093
#stayaalert	3,327
#dominiccummings	2,727
#borishasfailed	2,265
#standwithhongkong	2,229

Table 14 Hashtag counts in replies to MPs, May 10th - 25th inclusive.



The four tweets to attract the highest volumes of abuse were all by cabinet members defending Dominic Cummings. Abuse levels are high but not the highest we have seen. There was clearly a high level of attention on the issue however.

I know how ill coronavirus makes you. It was entirely right for Dom Cummings to find childcare for his toddler, when both he and his wife were getting ill.

Dom Cummings followed the guidelines and looked after his family. End of story.

Caring for your wife and child is not a crime

Name	Authored	replyTo	Covid	Abusive	% Ab	% Covid	Total Covid
10 Downing Street	146	66,266	5,190	2,486	3.752	7.832	50.536
Cabinet Office UK	36	24,239	297	627	2.587	1.225	2.892
DHSC Gov UK	182	11,714	1,208	149	1.272	10.312	11.762
GOVUK	35	10,767	777	432	4.012	7.216	7.566
Education Gov UK	102	7,232	561	71	0.982	7.757	5.463
Royal Family	32	4,515	192	25	0.554	4.252	1.870
UK Civil Service	91	3,535	49	39	1.103	1.386	0.477
UK Home Office	50	2,947	133	74	2.511	4.513	1.295
NHS UK	94	1,985	286	26	1.310	14.408	2.785
PHE UK	53	1,460	222	10	0.685	15.205	2.162
CMO Eng. (Whitty)	2	1,450	277	18	1.241	19.103	2.697
HM Treasury	49	1,069	243	6	0.561	22.732	2.366
MHCLG	45	895	49	15	1.676	5.475	0.477
Foreign Office	50	838	46	4	0.477	5.489	0.448
House of Commons	71	818	101	4	0.489	12.347	0.983

Table 15 Statistics for other accounts from from May 10th - 25th 2020 inclusive.

<https://twitter.com/MattHancock/status/1264975804208947208> (9% abuse, 4% of abuse for the period):

Dom Cummings was right today to set out in full detail how he made his decisions in very difficult circumstances. Now we must move on, fight this dreadful disease and get our country back on her feet

As a percentage of replies, the most notable tweet was the following:

<https://twitter.com/HenrySmithUK/status/1263394101002674176> (13% abuse, 2% of abuse for the period):

Not that I should be surprised by the lazy left but interesting how workshy socialist and nationalist MPs tried to keep the remote Parliament going beyond 2 June.

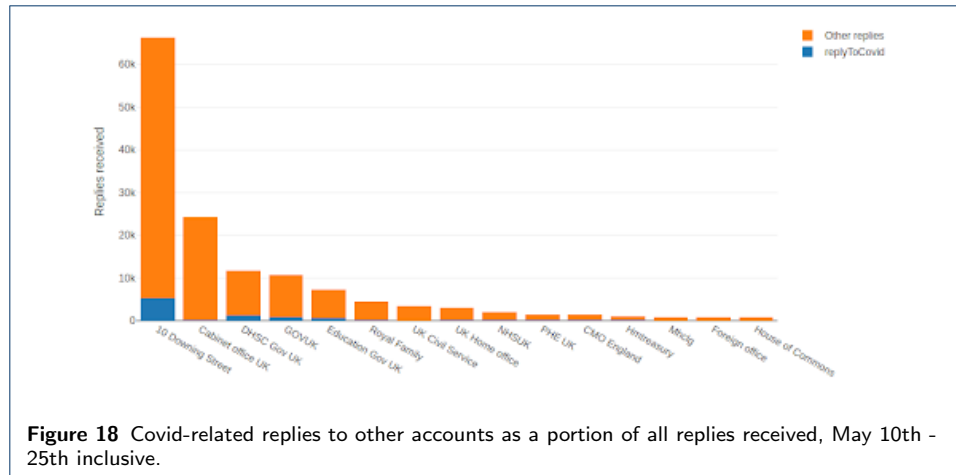
Non-MP accounts

Dominic Cummings does not have a clearly labelled and verified Twitter account, though the account “OdysseanProject”, rumoured to be his, does show elevated attention in this period, and some abuse, though not sufficient to appear in the top 15 non-MP accounts shown in Fig 18 and Table 15. It is unlikely that many Twitter users are aware of this anonymous account (and indeed, our information may be incorrect!) However the extent of the controversy around Mr Cummings’ lockdown violation shows itself better in responses to MPs defending his actions, and in the use of hashtags, as shown above.

Conspiracy theories

This report^[13] from Moonshot CVE was used as a guide to the overall conspiracy landscape within COVID-19. The areas they highlight are anti-Chinese feeling/conspiracy theory, theories that link the virus to a Jewish plot, theories that link the virus to an American plot, generic “deep state” and 5g-based theories and general theories that the virus is a plot or hoax. Further search areas were then added as controls. The three controls appear at the bottom of Table 16; “#endthelockdown” and close variants, “#newstarterfurlough” and variants, and “#stay-homesavelives”, in order to contrast volumes with anti-lockdown feeling, the leading economy-related campaign and pro-lockdown feeling respectively.

^[13]<http://moonshotcve.com/covid-19-conspiracy-theories-hate-speech-twitter/>



The table shows substantial evidence of ill-feeling toward China. Classic conspiracy theories are in evidence but numbers of mentions are low (though note that most of the 183 mentions of “NWO” (“new world order”) are now COVID-19-related, suggesting opportunistic incorporation of COVID-19 into existing mythologies). There is considerable evidence of some Twitter users not believing in the virus, and that numbers of mentions to this effect are within one order of magnitude of the popular “stay home save lives”. Yet all are surpassed by the theme of economic support for those not in established employment.

Conclusion

The crisis has led to elevated engagement with UK politicians by the public, and we have seen that this may be more positive and less abusive than the dialogue at other times. The leading hashtag campaign of the period, “#newstarterfurlough”, is associated with a remarkably low level of abuse (<0.5% of replies) despite being a complaint hashtag. The surge of attention on Boris Johnson during his illness was substantially lower in abuse than his previous levels. Receiving more tweets mentioning the virus is associated with receiving lower levels of abuse. It may be that the crisis is leading to different people engaging with politicians than usually do, who are less inclined to verbally abuse them than those that usually occupy the space.

Yet the usual, more uncivil contingent remains active on Twitter, with politicians receiving abuse for particular topics, that may or may not be COVID-19-related, in much the same manner as they did before. Tweets from MPs expressing positive engagement with the Muslim community have been met with hostile and abusive responses, and hashtags associating the virus with China have an elevated likelihood of abuse, continuing an already noted pattern [9, 10] that racism and xenophobia are associated with particularly abusive tweets. Previous work has also described a substantial presence of overt Islamophobia in dialogue with MPs [10]. Xenophobia has not gone away, and indeed has found new fuel in the crisis.

In terms of responses to the handling of the crisis, feelings run high on both sides. Elevated levels of abuse are associated with hashtags supporting lockdown as well as those opposing it. Labour politicians in favour of stricter measures have received

Search terms (in all replies to MPs, not case-sensitive)	# tweets	# abusive	% abusive
"NukeChina" OR "BombChina" OR "DeathtoChina" OR "DestroyChina" OR "Nuke China" OR "Bomb China" OR "Death to China" OR "Destroy China" OR "#nukechina" OR "#bombchina" OR "#deathtochina" OR "#destroychina"	31	2	6.452
"ccpvirus" OR "chinaliedpeopleplied" OR "ccp virus" OR "china lied people died" OR "#ccpvirus" OR "#chinaliedpeopleplied"	2,463	38	1.543
"#chinesevirus" OR "chinesevirus" OR "chinese virus"	2,208	119	5.389
"Soros Virus" OR "Israel Virus" OR " NWO Virus" OR "SorosVirus" OR "IsraelVirus" OR " NWOVirus" OR "#sorosvirus" OR "#israelvirus" OR "#nwovirus"	3 (all "NWO virus")	0	0
"#nwo"	183	8	4.372
"Gates Virus" OR "CIA Virus" OR "America Virus" OR "GatesVirus" OR "CIAVirus" OR "AmericaVirus" OR "#gatesvirus" OR "#ciavirus" OR "#americavirus"	69	2	2.899
"deepstatevirus" OR "deep state virus" OR "#deepstatevirus"	2	0	0
"#5gcoronavirus"	53	1	1.877
"#5gkills"	70	0	0
"coronahoax" OR "corona hoax" OR "hoax virus" OR "fake virus" OR "hoaxvirus" OR "fakevirus" OR "#coronahoax" OR "#hoaxvirus" OR "#virushoax" OR "#fakevirus"	415	61	14.699
"corona bollocks" OR "coronabollocks" OR "corona bollox" OR "coronabollox" OR "#coronabollocks" OR "#coronabollox"	250	19	7.600
"plandemic" OR "scamdemic" OR "#plandemic" OR "#scamdemic" OR "#fakepandemic" OR "#whereisthepandemic" OR "#plandemic2020"	1,178	64	5.433
"#filmyourhospital" OR "#emptyhospitals"	59	5	8.475
"end the lockdown" OR "endthelockdown" OR "end lockdown" OR "endlockdown" OR "end lock down" OR "#endlockdown" OR "#endthelockdown" OR "#lockdownend" OR "#endthislockdown" OR "#endthelockdownuk" OR "#endthelockdownnow"	5,506	272	4.940
"newstarterfurlough" OR "new starter furlough" OR "new starter justice" OR OR "newstarterjustice" OR hashtag.string:"#newstarterfurlough" OR "newstarterjustice" OR "#newstarterfurlough" OR "#newstarterjustice"	55,593	243	0.437
"stayhomesavelives" OR "stay home save lives" OR "#stayhomesavelives" OR "#stayathomesavelives" OR "#stayathomeandsavelives" OR "#stayhomestaysafe" OR "#stayhomeandstaysafe" OR "#stayathomestaysafe" OR "#stayathomeandstaysafe" OR "#stayathome" OR "#stayhome"	20,538	1222	5.950

Table 16 Mention count of conspiracy-related strings, alongside controls (last three rows), in all replies to MPs, Feb 7th to May 25th inclusive

abusive responses, as have Conservative politicians defending Dominic Cummings' lockdown violation. New Labour leader Keir Starmer receives less abuse than his predecessor Jeremy Corbyn.

1,902 replies to MPs were found containing hashtags or terms that refute the existence of the virus (e.g. #coronahoax, #coronabollocks, 0.04% of a total 4.7 million replies, or 9% of the number of mentions of "stay home save lives" and variants). Evidence of some members of the public believing in COVID-19 conspiracy theories was also found. The high prevalence of disbelieving the existence of the virus is a cause for concern.

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