Supporting Information

for

"Pandemic Fatigue" Fueled Political Discontent During the COVID-19 Pandemic

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S1 Materials and Methods

S1.1 Data

Table S1. Data collection across countries

Country	Dates	Observations
Denmark	September 13, 2020 - July 20, 2021	6,929
Sweden	September 13, 2020 - July 20, 2021	5,943
United Kingdom	September 13, 2020 - July 20, 2021	5,971
United States	September 13, 2020 - July 20, 2021	5,969
Italy	September 13, 2020 - July 20, 2021	6,120
France	September 13, 2020 - July 20, 2021	6,075
Germany	September 13, 2020 - July 20, 2021	6,075
Hungary	September 13, 2020 - July 20, 2021	6,034

Table S2. Panel data component

Country	*Number of re-contacts:* 1	2	3	4+	Observations
Denmark	3,474	1,038	4	0	4,516
Sweden	682	156	52	5	895
United Kingdom	524	129	20	0	673
United States	262	42	0	0	304
Italy	744	177	40	10	971
France	708	153	56	25	942
Germany	758	273	100	30	1,161
Hungary	934	276	100	20	1,330
Total	8,086	2,244	372	90	10,792

Table S3. Comparison of single versus multiple wave respondents

Variable	Single wave respondents	Multiple wave	Difference
Female	0.53	0.49	-0.04***
			(0.01)
Age	46.43	50.23	3.80***
			(0.28)
High education	0.34	0.33	-0.02
			(0.01)
High income	0.37	0.40	0.02***
			(0.01)

*** $p < 0.01$.

S1.2 Population and sample characteristics

In Tables S4-S11, we compare the population and (weighted) sample characteristics of each country. Similar to most surveys based on Internet panels, our samples from some of the countries included in our study are skewed towards more educated and younger people compared to the overall population of eligible voters. We employ post-stratification weights to account for such imbalances. Note that we cannot obtain valid census data for the share of potential voters that did not vote in all countries. Instead, we impute the proportion who did not vote from the proportion in each sample and scale the remaining party choice values accordingly such that the variable sums to 1. In the tables below, we report the scaled proportions in parentheses.

Table S4. Populations and sample characteristics, Denmark

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.13	0.11	0.13
Male 35-55 years	0.19	0.18	0.19
Male 56+ years	0.17	0.22	0.17
Female 18-34 years	0.13	0.16	0.13
Female 35-55 years	0.19	0.18	0.19
Female 56+ years	0.19	0.15	0.19
Geography			
Nordjylland	0.10	0.09	0.10
Midtjylland	0.22	0.23	0.22
Syddanmark	0.21	0.19	0.21
Hovedstaden	0.32	0.34	0.31
Sjælland	0.15	0.14	0.15
Education			
ISCED Lv0-4	0.66	0.43	0.67
ISCED Lv5-8	0.34	0.57	0.33
Vote choice			
Socialdemokratiet	0.26 (0.23)	0.24	0.23
Radikale	0.09 (0.08)	0.07	0.08
Konservative	0.07 (0.06)	0.06	0.06
Nye Borgerlige	0.02 (0.02)	0.02	0.02
Socialistisk Folkeparti	0.08 (0.07)	0.08	0.07
Liberal Alliance	0.02 (0.02)	0.03	0.02
Dansk Folkeparti	0.09 (0.08)	0.07	0.08
Venstre	0.23 (0.20)	0.17	0.20
Enhedslisten	0.07 (0.06)	0.08	0.06
Alternativet	0.03 (0.03)	0.02	0.03
Other	0.04 (0.04)	0.03	0.04
Did not vote	NA (0.13)	0.13	0.13

Table S5. Populations and sample characteristics, Sweden

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.14	0.12	0.14
Male 35-55 years	0.17	0.18	0.17
Male 56+ years	0.18	0.18	0.18
Female 18-34 years	0.13	0.17	0.13
Female 35-55 years	0.17	0.19	0.17
Female 56+ years	0.20	0.15	0.20
Geography			
Ostra Sverige	0.40	0.39	0.40
Sodra Sverige	0.43	0.43	0.43
Norra Sverige	0.17	0.18	0.17
Education			
ISCED Lv0-4	0.63	0.62	0.63
ISCED Lv5-8	0.37	0.38	0.37
Vote choice			
Centerpartiet	0.09 (0.07)	0.04	0.07
Kristendemokraterna	0.06 (0.05)	0.04	0.05
Liberalerna	0.05 (0.04)	0.03	0.04
Moderaterna	0.20 (0.16)	0.13	0.16
Milj¨opartiet	0.04 (0.03)	0.04	0.03
Socialdemokraterna	0.28 (0.22)	0.24	0.22
Sverigedemokraterna	0.18 (0.14)	0.17	0.14
Vansterpartiet	0.08 (0.06)	0.08	0.06
Other	0.02 (0.01)	0.02	0.01
Did not vote	NA (0.21)	0.21	0.21

Table S6. Populations and sample characteristics, United Kingdom

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.14	0.13	0.14
Male 35-55 years	0.17	0.25	0.17
Male 56+ years	0.17	0.10	0.17
Female 18-34 years	0.14	0.22	0.14
Female 35-55 years	0.18	0.23	0.18
Female 56+ years	0.19	0.07	0.19
Geography			
North East	0.04	0.04	0.04
North West	0.11	0.12	0.11
Yorkshire and the Humber	0.08	0.09	0.08
East Midlands	0.07	0.07	0.07
West Midlands	0.09	0.09	0.09
East	0.09	0.08	0.09
London	0.13	0.10	0.13
South East	0.14	0.14	0.14
South West	0.08	0.09	0.08
Wales	0.05	0.05	0.05
Scotland	0.08	0.11	0.08
Northern Ireland	0.03	0.03	0.03
Education			
ISCED Lv0-4	0.61	0.53	0.61
ISCED Lv5-8	0.39	0.47	0.39
Vote choice			
Conservative	0.44 (0.36)	0.28	0.34
Labour	0.32 (0.26)	0.32	0.25
Liberal Democrats	0.12 (0.09)	0.07	0.09
SNP	0.04 (0.03)	0.04	0.03
Other	0.09 (0.07)	0.06	0.07
Did not vote	NA (0.18)	0.23	0.23

Table S7. Populations and sample characteristics, United States

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.15	0.17	0.15
Male 35-55 years	0.17	0.23	0.17
Male 56+ years	0.16	0.07	0.16
Female 18-34 years	0.15	0.20	0.15
Female 35-55 years	0.17	0.24	0.17
Female 56+ years	0.19	0.09	0.19
Geography			
Northeast	0.17	0.19	0.17
Midwest	0.21	0.24	0.21
West	0.24	0.22	0.24
South	0.38	0.35	0.38
Education			
ISCED Lv0-4	0.42	0.33	0.42
ISCED Lv5-8	0.58	0.67	0.58
Vote choice			
Republican	0.46 (0.33)	0.32	0.32
Democrats	0.48 (0.34)	0.32	0.33
Other	0.06 (0.04)	0.05	0.04
Did not vote	NA (0.29)	0.31	0.31

Table S8. Populations and sample characteristics, Italy

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.11	0.14	0.11
Male 35-55 years	0.19	0.27	0.19
Male 56+ years	0.19	0.07	0.19
Female 18-34 years	0.10	0.16	0.10
Female 35-55 years	0.19	0.29	0.19
Female 56+ years	0.23	0.07	0.23
Geography			
Nortwest Italy	0.27	0.26	0.27
Norteast Italy	0.19	0.19	0.19
Central Italy	0.20	0.20	0.20
South Italy	0.23	0.23	0.23
Insular Italy	0.11	0.12	0.11
Education			
ISCED Lv0-4	0.83	0.66	0.83
ISCED Lv5-8	0.17	0.34	0.17
Vote choice			
Centre-Right	0.37 (0.27)	0.26	0.27
Five Star Movement	0.33 (0.23)	0.24	0.24
Centre-Left	0.23 (0.16)	0.16	0.16
Free and Equal	0.03 (0.02)	0.03	0.02
Other	0.04 (0.03)	0.03	0.03
Did not vote	NA (0.27)	0.28	0.28

Table S9. Populations and sample characteristics, France

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.13	0.11	0.12
Male 35-55 years	0.17	0.17	0.17
Male 56+ years	0.18	0.20	0.18
Female 18-34 years	0.13	0.15	0.13
Female 35-55 years	0.17	0.23	0.18
Female 56+ years	0.22	0.14	0.22
Geography			
Auvergne Rhˆone Alpes	0.12	0.12	0.12
Bourgogne France-Comt´e and Grand Est	0.12	0.12	0.12
Bretagne and Normandie	0.10	0.11	0.10
Centre-Val de Loire and Pays de la Loire	0.09	0.10	0.09
Hauts-de-France	0.09	0.09	0.09
Ile-de-France	0.18	0.21	0.18
Nouvelle-Aquitaine	0.13	0.10	0.13
Occitanie	0.09	0.09	0.09
Provence-Alpes-Cˆote d'Azu	0.08	0.07	0.08
Education			
ISCED Lv0-4	0.67	0.60	0.67
ISCED Lv5-8	0.33	0.40	0.33
Vote choice			
Dupont-Aignan	0.05 (0.03)	0.03	0.03
Fillon	0.20 (0.14)	0.07	0.13
Hamon	0.06 (0.04)	0.06	0.04
Le Pen	0.21 (0.15)	0.15	0.14
Macron	0.24 (0.17)	0.19	0.16
Melenchon	0.20 (0.13)	0.11	0.13
Other	0.04 (0.03)	0.04	0.03
Did not vote	NA (0.31)	0.34	0.34

Table S10. Populations and sample characteristics, Germany

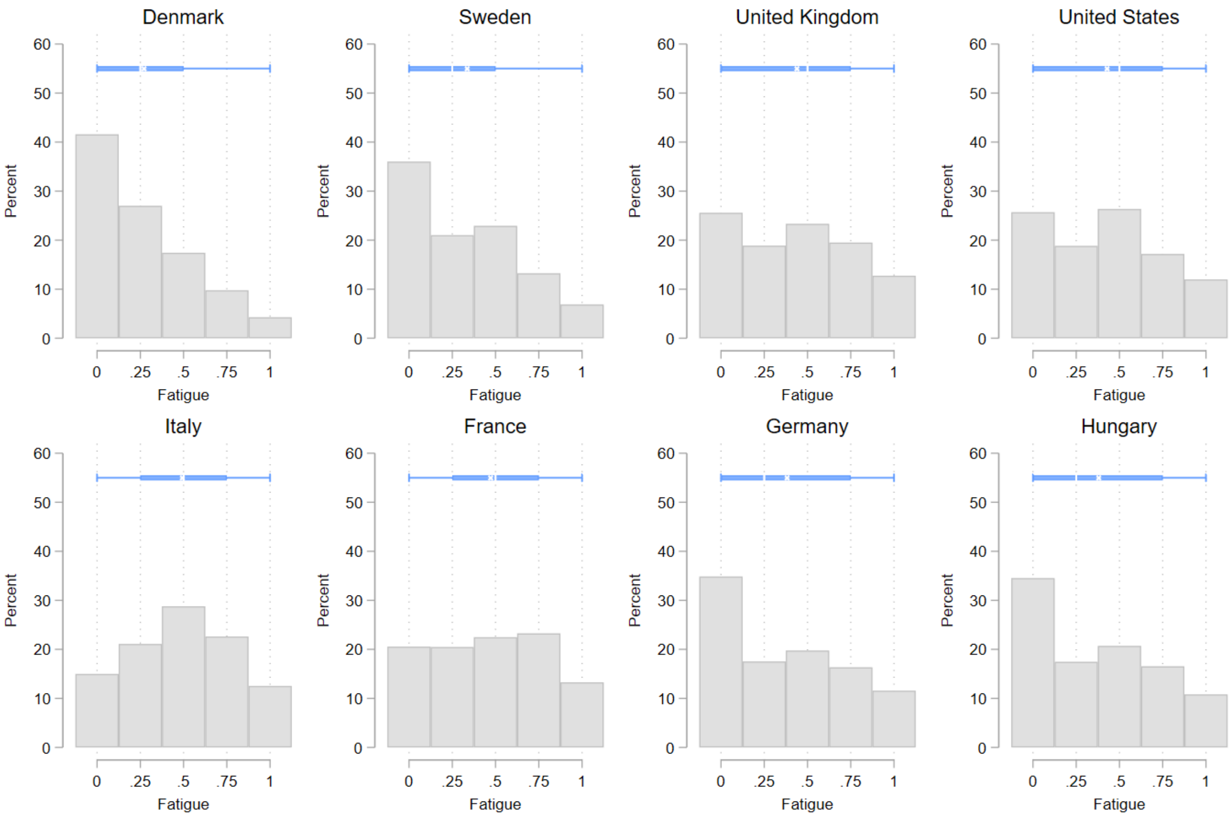
	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.13	0.12	0.13
Male 35-55 years	0.18	0.21	0.18
Male 56+ years	0.19	0.16	0.19
Female 18-34 years	0.12	0.13	0.12
Female 35-55 years	0.17	0.21	0.17
Female 56+ years	0.22	0.17	0.22
Geography			
Baden-Wu¨rttemberg	0.13	0.12	0.13
Bayern	0.16	0.15	0.16
Berlin	0.04	0.05	0.04
Brandenburg	0.03	0.03	0.03
Bremen	0.01	0.01	0.01
Hamburg	0.02	0.03	0.02
Hessen	0.08	0.07	0.08
Mecklenburg-Vorpommern	0.02	0.02	0.02
Niederscahsen	0.10	0.10	0.10
Nordrhein-Westfalen	0.22	0.23	0.22
Rheinland-Pfalz	0.05	0.04	0.05
Sachsen	0.05	0.06	0.06
Sachsen-Anhalt	0.03	0.03	0.03
Schleswig-Holstein	0.03	0.03	0.04
Saarland	0.01	0.01	0.01
Thüringen	0.03	0.02	0.03
Education			
ISCED Lv0-4	0.71	0.60	0.71
ISCED Lv5-8	0.29	0.40	0.29
Vote choice			
CDU/CSU	0.37 (0.28)	0.22	0.28
SPD	0.25 (0.19)	0.14	0.19
AfD	0.11 (0.09)	0.09	0.09
FDP	0.07 (0.05)	0.05	0.05
Die Linke	0.09 (0.06)	0.08	0.07
Grüne	0.08 (0.06)	0.12	0.06
Other	0.03 (0.02)	0.06	0.02
Did not vote	NA (0.23)	0.24	0.24

Table S11. Populations and sample characteristics, Hungary

	Census	Sample	Weighted sample
Sex and Age			
Male 18-34 years	0.13	0.12	0.13
Male 35-55 years	0.19	0.21	0.19
Male 56+ years	0.16	0.14	0.16
Female 18-34 years	0.12	0.14	0.12
Female 35-55 years	0.19	0.22	0.18
Female 56+ years	0.22	0.16	0.23
Geography			
Central Hungary	0.31	0.31	0.31
Transdanubia	0.30	0.30	0.30
Great Plain and North	0.39	0.39	0.39
Education			
ISCED Lv0-4	0.74	0.63	0.74
ISCED Lv5-8	0.26	0.37	0.26
Vote choice			
Fidesz KDNP	0.49 (0.29)	0.26	0.30
Jobbik	0.19 (0.11)	0.11	0.11
MSZP-PM	0.12 (0.07)	0.03	0.07
LMP	0.07 (0.04)	0.03	0.04
DK	0.05 (0.03)	0.08	0.03
MM	0.03 (0.02)	0.05	0.02
Other	0.04 (0.03)	0.04	0.03
Did not vote	NA (0.41)	0.40	0.40

S1.3 Pandemic fatigue: Distributions across countries

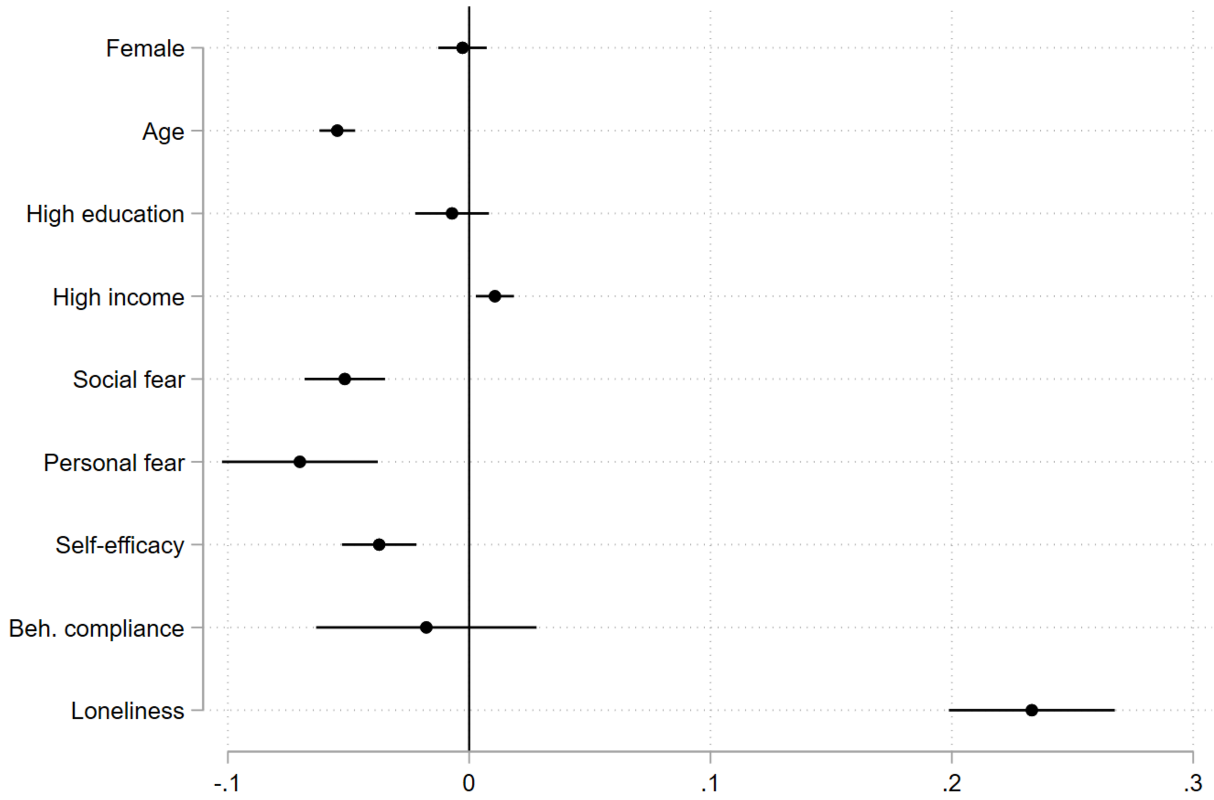
Figure S1. Distribution of pandemic fatigue across countries



Note: Histograms display the distributions of fatigue, by country. Boxplots: Boxes hold the 25th–75th percentile, white bars are median values, white crosses are mean values while whiskers are minimum and maximum values.

S1.4 Pandemic fatigue: Construct validity

Figure S2. Construct validity: What factors predict pandemic fatigue?



Note: The figure shows what individual-level factors predict pandemic fatigue. Point estimates along with 95 % confidence intervals from weighted multilevel regression (n=48,714). The model includes random country and survey round intercepts. Coefficients reflect the change in fatigue on a scale from 0-1 associated with a unit change in each of the independent variables (for the continuous independent variables a unit change corresponds to two standard deviations).

S1.5 Pandemic fatigue: Convergent validity

The results we present in this paper hinge on the validity of the single-item measure of pandemic fatigue our surveys included. This follow-up study seeks to establish whether this item shows convergent validity with validated, multi-item measures of similar concepts.

Data

We fielded a survey between March 23-28, 2022 to a representative sample of German adults (N = 1,031) quota sampled on age, gender, education and region via YouGov's web panels. Germany was selected as the country in our sample which was most reluctant to lift the restrictions against the pandemic. At the time of data collection, the federal government had announced that most national restrictions will be lifted as of April 1, yet various regional and institutional restrictions remained in place. Indeed, the Oxford COVID-19 Government Response Tracker rated Germany to have a stringency of 43 (on a 0-100 scale) at the time of data collection (which is a weighted average of the stringency for vaccinated (42) and unvaccinated (48) Germans). Accordingly, unlike a number of other societies who enjoyed considerable freedom by the spring of 2022, we could reasonably assume that many Germans still suffered from pandemic fatigue.

Measures

Our survey included four measures: 1) a validated, six-item Pandemic Fatigue Scale (PFS) developed by Lilleholt and colleagues [1], 2) a validated ten-item measure of COVID-19 burnout [2], 3) a 20-item measure of fatigue called Multidimensional Fatigue Inventory (MFI-20) popular in health psychology and psychosomatic research [3] and 4) our own pandemic fatigue item.

We consider the former two scales as the most relevant for our purposes, as they were developed explicitly in the context of the COVID-19 pandemic. Lilleholt et al's measure includes two subfactors “information fatigue” (e.g., I am sick of hearing about COVID-19.) and “behavioral fatigue” (e.g., I am losing my spirit to fight against COVID-19.). Taylor et al’s measure asks respondents to say “when [they] think about COVID-19, how often do [they] feel the following? e.g. tired, hopeless, helpless. Both scales show very good alpha reliability (alphas = 0.88 and 0.90, respectively).

Meanwhile, the five-dimensional MFI-20 was originally developed as a broad measure of fatigue applicable both in clinical settings (e.g., among cancer patients receiving radiotherapy) and for healthy individuals (e.g., army recruits). We prompted participants to “think about how the pandemic is making [them] feel”, and they indicated their agreement with items measuring general fatigue (e.g., “I feel tired”), physical fatigue (e.g., “Physically I feel I am in a bad condition”), mental fatigue (e.g., “It takes a lot of effort to concentrate on things”), reduced motivation (e.g., “I think I do very little in a day”), and reduced activity (e.g., “I dread having to do things”). Half of the items on each subfactor were reverse coded. The MFI-20 scale shows good overall reliability (alpha = 0.94).

Recall that our item asked respondents to what extent they agree with the statement “I do not think I can keep up with the restrictions against the coronavirus for much longer.” The order of the four scales and the order of items within scales were randomized. Each scale was measured on 7-point Likert scales.

Results

First, Figure S3 displays the distributions of the 4 fatigue scales in our study. As the validity of our measurement study rests on the assumption that a certain level of pandemic fatigue is present in the German society at the time of data collection, it is reassuring to see that all 4 scales pick up considerable fatigue. The Covid-19 burnout scale appears a bit skewed (M(SD) = 0.30 (0.20), yet even here, 18% of respondents experience the emotions related to burnout at least “sometimes”.

Meanwhile, the mean values across the 3 other scales are closer to the scale midpoint: Fatigue M(SD)=0.40(0.31); MFI M(SD) = 0.43(0.18); PFS M(SD) = 0.52(25).

Figure S3. Distribution of fatigue scales

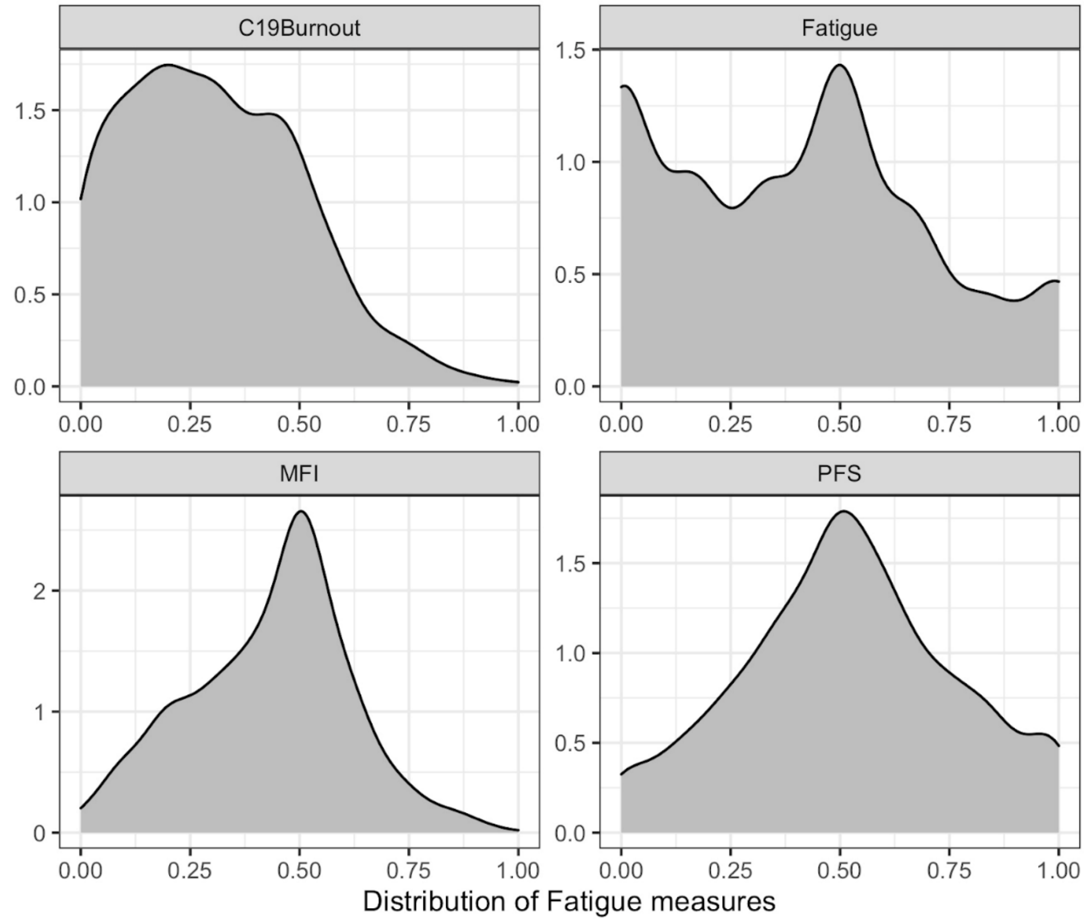
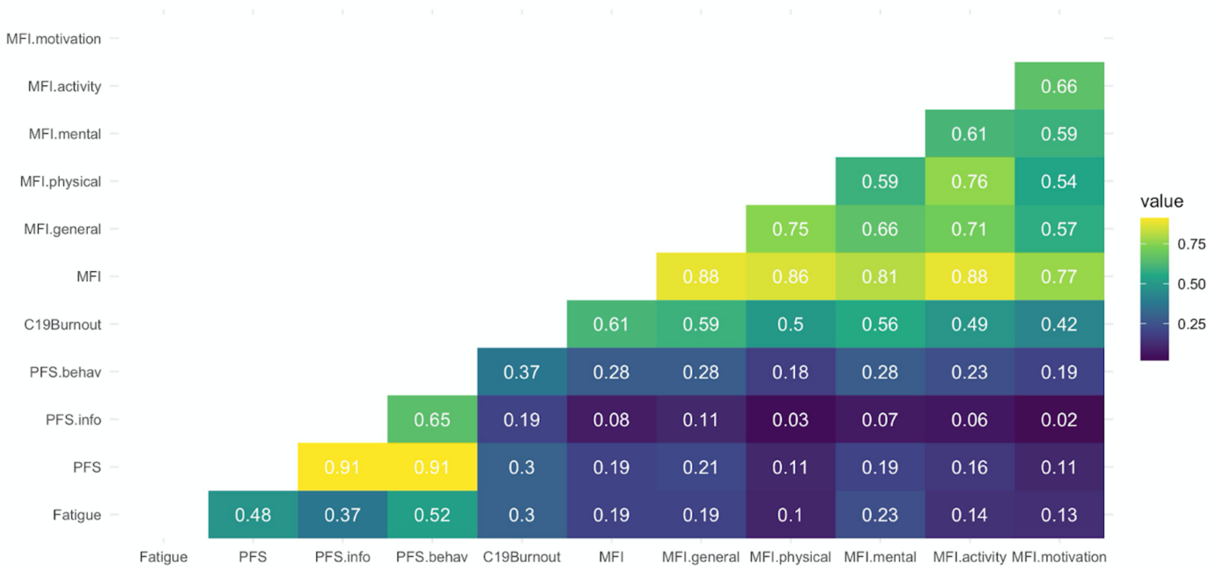


Figure S4 displays Spearman's rank-order correlations between our measure of pandemic fatigue (dubbed "Fatigue"), and the three validated scales, COVID-19 Burnout, PSF, and MFI, as well as the subfactors of the latter two scales. These correlations indicate that our measure is closest to what Lilleholt and colleagues call behavioral fatigue (rho = 0.52), although the correlation with the overall PFS is still high (rho = 0.48). Indeed, a confirmatory factor analysis shows that a two-factor model, where our fatigue item is added to the behavior PFS subfactor fits the data just as well as the original scale (RMSEA = 0.08, SRMR = 0.03, TLI =0.03) with the Fatigue item loading highly significantly on the latent subfactor (beta = 0.70, p<0.001). Similarly, the moderate correlation with COVID-19 Burnout scale still indicates convergent validity (rho = 0.30). At the same time, these correlations indicate that the MFI-20 measures a different concept than our pandemic fatigue item (rho = 0.19).

Figure S4. Correlations between "pandemic fatigue" and validated scales

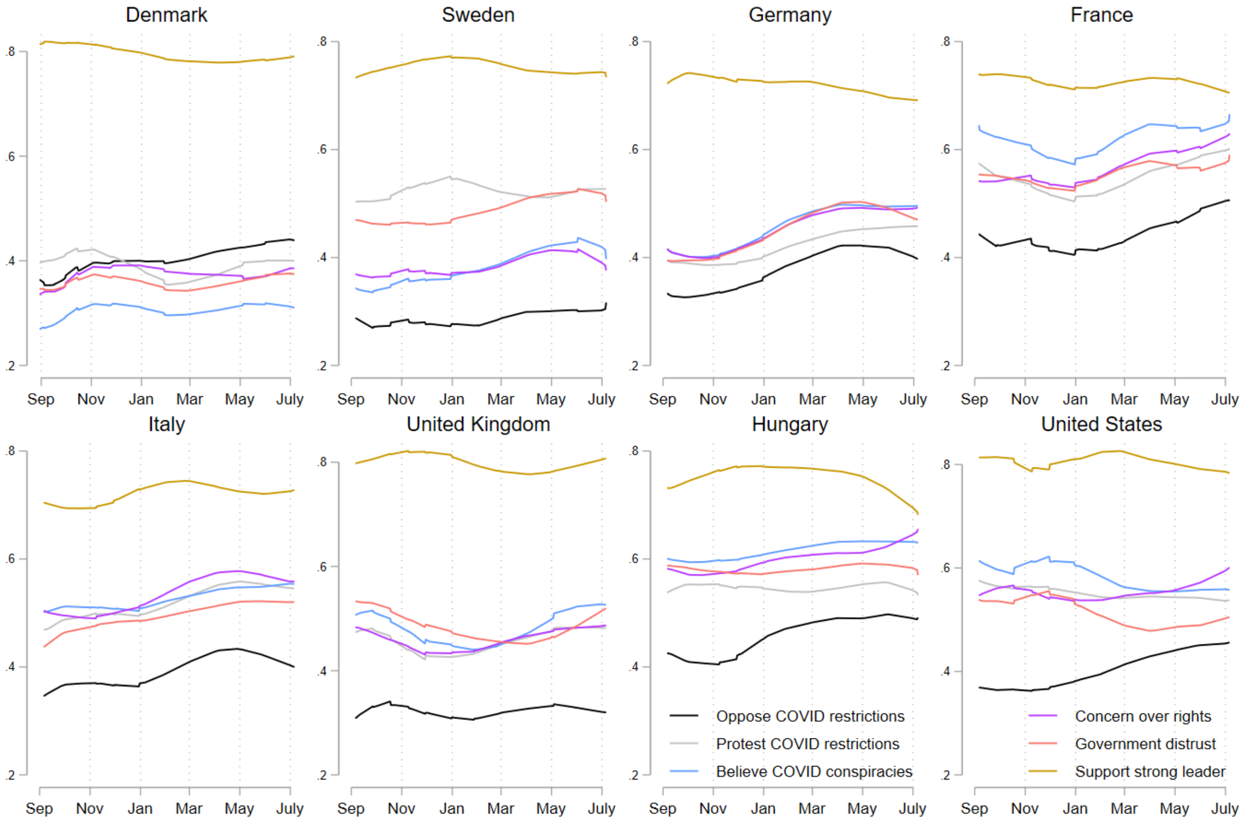


Discussion

Our results indicate that while those who agreed with our measure were also substantially more likely to "feeling demotivated and strained from fighting COVID-19" [1], they are neither more nor less likely to feel generally or physically fatigued. Nor does pandemic fatigue manifest itself in a generally reduced activity or motivation. These results underscore the unique nature of pandemic fatigue, which is induced by an external force, the pandemic and the government's restrictions. As evidenced by the happy crowds celebrating the lifting of pandemic restrictions, many people who suffer from pandemic fatigue yearn for social interactions. This is markedly different from conventional forms of fatigue, induced by illness or intensive training, which often can undermine people's motivation more generally. As a consequence, we suspect that unlike fatigue induced by illness or training, pandemic fatigue is unique in contributing to political discontent.

S1.6 Political discontent: Development over time

Figure S5. Development in political discontent across countries



Note: The displayed over time developments are based on lowess smoothers.

S1.7 Individual-level control variables

We measure social fear with a four-item battery where respondents were asked: “To what degree are you concerned about the consequences of the Corona virus?” They then provided their (dis)agreement—on four-point scales running from “To a high degree” to “Not at all”—with the following four statements: (1) “… for hospitals' ability to help the sick?”, (2) “… for society's ability to help the disadvantaged?”, (3) “… on social unrest and crime?” and (4) ”… on the country’s economy?”. We add together the four items to form a reliable scale ($\alpha = 0.77$) that is re-scaled with mean 0 and a unit of 2 standard deviations where higher values imply higher social fear.

Personal fear is measured using respondents’ (dis)agreement with the statement “To what degree are you concerned about the consequences of the Coronavirus for you and your family?”. Responses were reported on a four-point scale from “To a high degree” to “Not at all” and re-scaled with mean 0 and a unit of 2 standard deviations where higher values imply higher personal fear.

Self-efficacy is measured using respondents’ (dis)agreement with the statement “To what degree do you feel that you know enough about what you as a citizen should do in relation to the Coronavirus?”. Responses were reported on a four-point scale from “To a high degree” to “Not at all” and re-scaled with mean 0 and a unit of 2 standard deviations where higher values imply higher self-efficacy.

Behavioral compliance is measured using respondents’ (dis)agreement with the statement “To what degree do you feel that the current situation with the Corona virus has made you change your behavior to avoid spreading infection?”. Responses were reported on a four-point scale from “To a high degree” to “Not at all” and re-scaled with mean 0 and a unit of 2 standard deviations where higher values imply a higher degree of compliance.

Finally, we measured respondents' loneliness using their (dis)agreement with the statement “To what extent do you agree or disagree with the following statements? … I feel lonely?”. Responses were reported on a five-point scale from “Agree completely” to “Disagree completely and re-scaled with mean 0 and a unit of 2 standard deviations where higher values imply a higher degree of loneliness.

Table S12 reports descriptive statistics for these five individual-level controls along with the demographic controls discussed in the main text. Note that the statistics are based on the weighted sample.

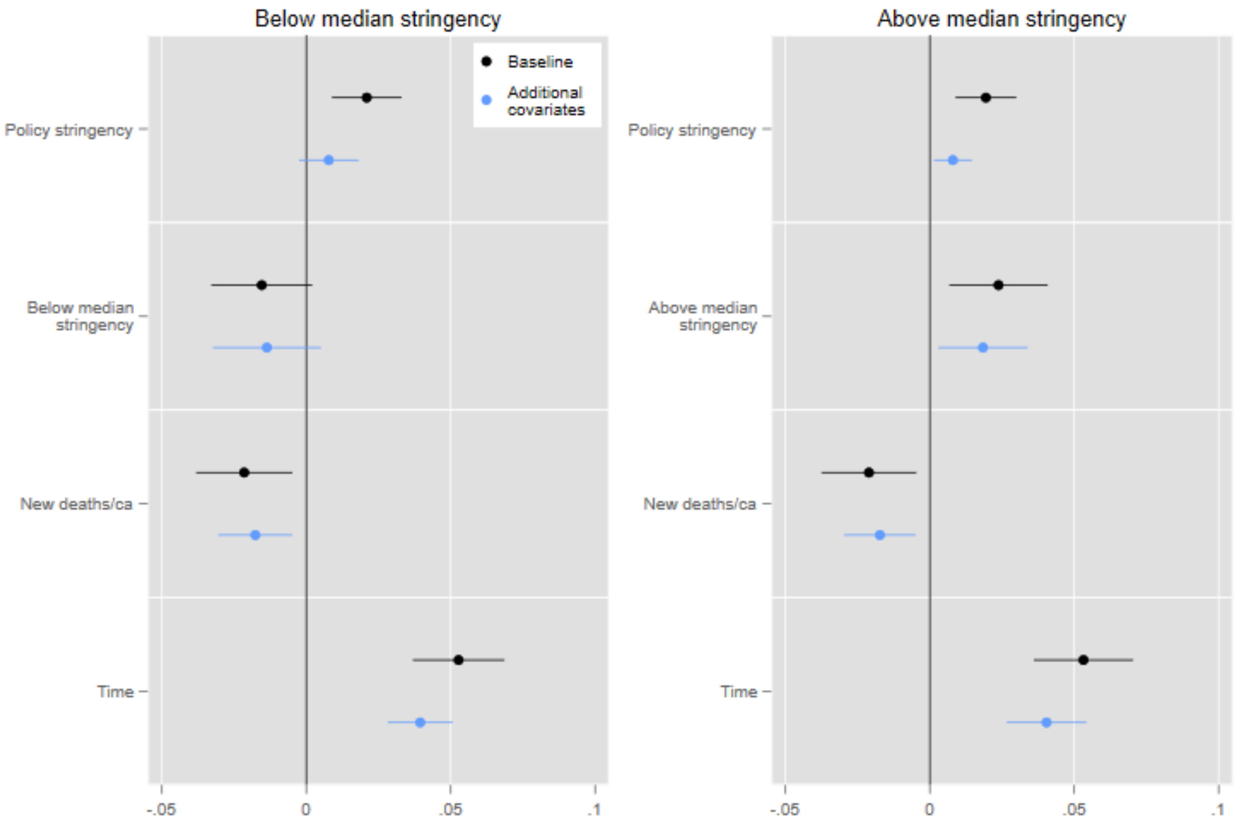
Table S12. Descriptive statistics for control variables

Variable	Mean	SD	Min	Max
Female	0.52	0.50	0	1
Age	47.24	15.62	18	99
High education	0.34	0.47	0	1
High income	0.38	0.49	0	1
Income missing	0.09	0.28	0	1
Social fear	7.68	2.70	4	16
Personal fear	2.06	0.88	1	4
Self-efficacy	1.64	0.69	1	4
Behavioral compliance	1.89	0.86	1	4
Loneliness	3.39	1.41	1	5

S2 Supporting Results

S2.1 Cumulative effects

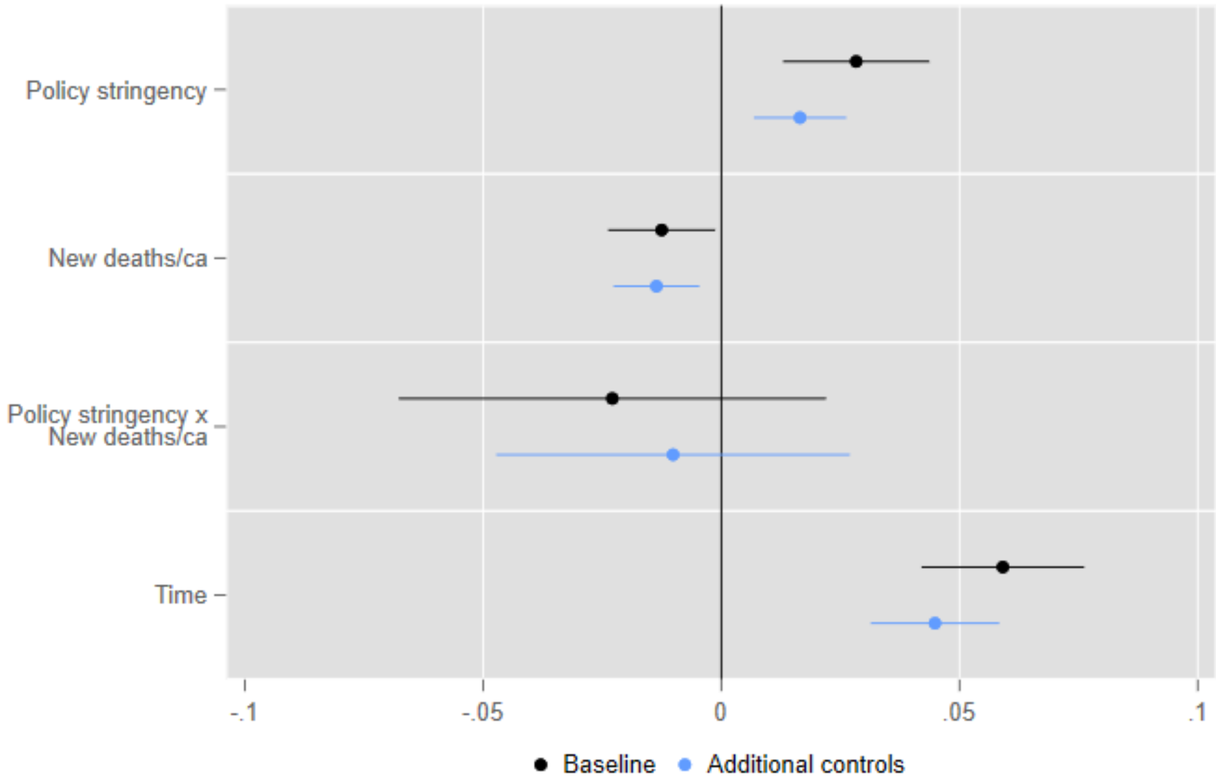
Figure S6. Cumulative effects



Note: Cumulative effects are captured by variables that measure time (days) since policy stringency have been below (left panel) or above (right panel) the respective country-specific policy stringency medians in the period between March 2020 to the end of the analysis period. In accordance with the remaining measures in the model, these cumulative measures are standardized with a unit of 2 standard deviations. The figure shows point estimates along with 95 % confidence intervals from weighted multilevel regression models (*n*=49,116). Baseline multilevel regression models (black) represent estimates from specifications that regress fatigue on policy stringency, cost accumulation, new deaths and time while also including random intercepts. Models with additional controls (blue) represent estimates from models that include for social and personal fear, efficacy, behavioral change and feelings of loneliness as additional controls.

S2.2 Interaction between policy stringency and deaths

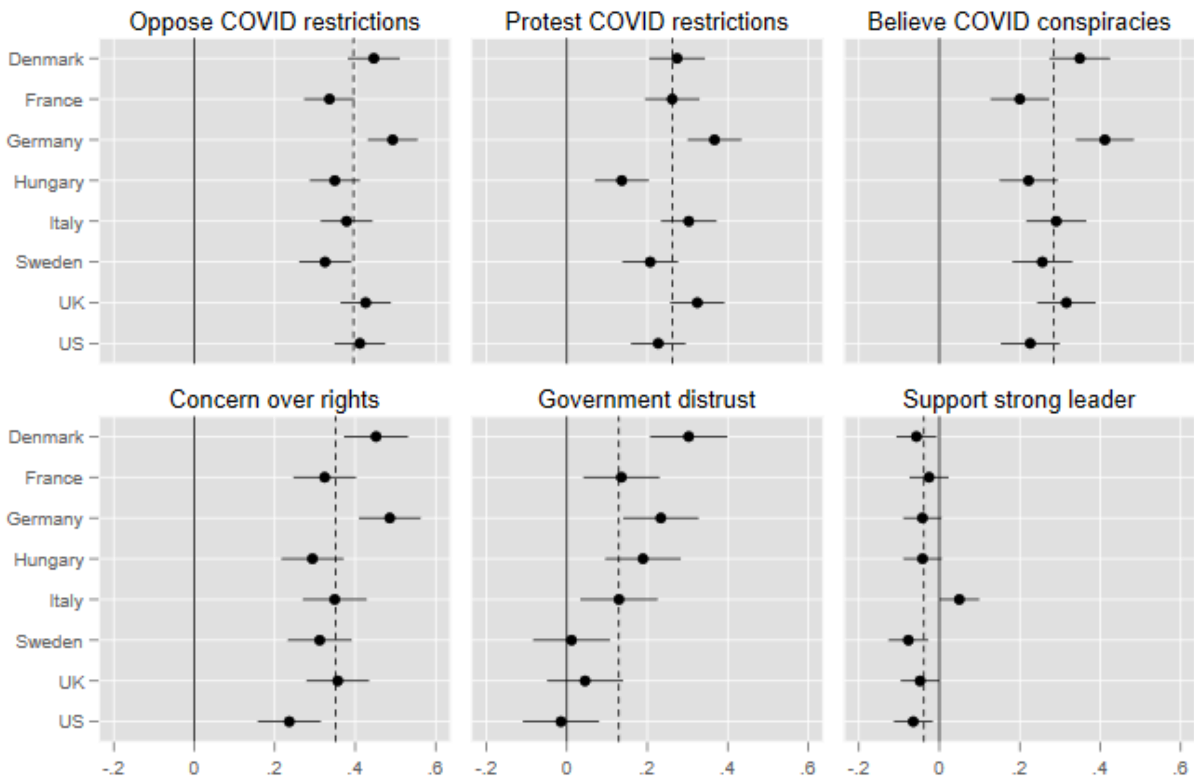
Figure S7. Interaction between policy stringency and deaths



The figure shows point estimates along with 95 % confidence intervals from weighted multilevel regression models (n=49,116). Baseline multilevel regression models (black) represent estimates from specifications that regress fatigue on policy stringency, new deaths, the interaction between the two and time while also including random intercepts. Models with additional controls (blue) represent estimates from models that include for social and personal fear, efficacy, behavioral change and feelings of loneliness as additional controls.

S2.3 Country-specific individual-level correlations

Figure S8. Country-specific correlations between fatigue and political discontent



Note: The figure shows the country-specific correlations between fatigue and political discontent. Point estimates along with 95 % confidence intervals from weighted multilevel regressions (n=46,222-48,714). Dashed vertical lines are the overall estimates from the baseline models. The country-specific correlations are on the baseline models, but additionally allow for varying slopes with respect to fatigue.

S2.4 Full path between country-level factors over pandemic fatigue to political discontent (mediation analyses)

Table S13. The table shows mediation analyses from the country-level factors over fatigue to political discontent

	Oppose COVID restrictions		p (Δβ)	Protest COVID restrictions		p (Δβ)	Believe COVID conspiracies		p (Δβ)	Concern over rights		p (Δβ)	Government distrust		p (Δβ)	Support Strong leader		p (Δβ)
Policy stringency (2 sd)	.007 (.008)	-.007 (.009)	***	.000 (.014)	-.009 (.012)	**	.012 (.012)	.002 (.010)	**	.015* (.006)	.004 (.004)	***	.010 (.013)	0.006 (.012)	*	.010 (.010)	.012 (.009)	**
New deaths/ca (2 sd)	-.014* (.006)	-.005 (.005)	*	-.009 (.015)	-.003 (.013)	*	-0.008 (0.010)	-0.001 (0.008)	*	-.012 (.009)	-.004 (.007)	*	-.002 (.004)	0.001 (.009)	-	.009 (.007)	.008 (.004)	-
Time (½ year)	.047*** (.008)	.023** (.007)	***	.013 (.010)	-.004 (.008)	***	0.023* (0.011)	0.006 (0.009)	***	.033*** (.008)	.012* (.003)	***	0.017 (0.013)	0.008 (.011)	**	-.013* (.006)	-.010 (.005)	**
Fatigue (2 sd)		.271*** (.017)			.187*** (.019)			0.198*** (0.019)			.241*** (0.021)			0.096*** (.025)			-.035** (.011)	
N	47,993			47,256			46,562			47,743			49,116			47,937		

Note: The table estimates the full path from the country-level factors over pandemic fatigue to political discontent. Point estimates (from weighted multilevel regression) correspond to the estimated change on a scale from 0-1 in each of the political discontent indicators associated with a two standard deviation change in the independent variables. Standard errors in parentheses. *** p < .001, ** p < .01, * p < 05. Columns p (Δβ) tell whether the estimated coefficients are statistically significantly different between the models with and without fatigue, i.e., whether there is a statistically significant mediation or not.

Table S14. Sensitivity of mediation analyses

Dependent variable	Treatment	ACME	ADE	Total effect	Proportion mediated	Rho threshold	R^{2*} threshold	$R^{2\sim}$ threshold
Oppose restrictions	Policy stringency	.015 [.012;.018]	-.008 [-.015;-.001]	.007 [-.001;.014]	2.1 [-10.39;18.76]	.4	.16	.12
Oppose restrictions	New deaths/ca	-.01 [-.012;-.006]	-.007 [-.015;0]	-.017 [-.025;-.009]	.55 [.37;1.08]	.4	.16	.12
Oppose restrictions	Time	.026 [.024;.029]	.023 [.017;.028]	.049 [.042;.055]	.54 [.48;.61]	.4	.16	.12
Protest restrictions	Policy stringency	.01 [.008;.012]	-.007 [-.013;-.001]	.003 [-.003;.01]	1.96 [-37.36;28.85]	.3	.09	.07
Protest restrictions	New deaths/ca	-.006 [-.009;-.004]	-.004 [-.011;.003]	-.01 [-.017;-.004]	.64 [.35;1.60]	.3	.09	.07
Protest restrictions	Time	.018 [.016;.019]	0 [-.005;.005]	.018 [.012;.023]	1.01 [.80;1.40]	.3	.09	.07
Believe conspiracies	Policy stringency	.01 [.008;.013]	.002 [-.007;.01]	.012 [.004;.021]	.84 [.49;2.53]	.3	.09	.07
Believe conspiracies	New deaths/ca	-.007 [-.009;-.005]	-.003 [-.01;.005]	-.01 [-.018;-.001]	.75 [.38;2.98]	.3	.09	.07
Believe conspiracies	Time	.018 [.016;.02]	.004 [-.002;.01]	.023 [.016;.029]	.80 [.61;1.06]	.3	.09	.07
Concern over rights	Policy stringency	.013 [.01;.015]	-.002 [-.009;.006]	.011 [.003;.019]	1.13 [.62;3.80]	.3	.09	.07
Concern over rights	New deaths/ca	-.008 [-.011;-.006]	0 [-.008;.007]	-.008 [-.017;.001]	.95 [-1.21;5.45]	.3	.09	.07
Concern over rights	Time	.023 [.02;.025]	.009 [.003;.015]	.032 [.026;.038]	.71 [.59;.85]	.3	.09	.07
Government distrust	Policy stringency	.005 [.004;.006]	.005 [-.002;.013]	.01 [.003;.017]	.46 [.26;1.93]	.1	.01	.01
Government distrust	New deaths/ca	-.003 [-.004;-.002]	.002 [-.005;.009]	-.001 [-.008;.006]	.52 [-9.94;8.71]	.1	.01	.01
Government distrust	Time	.008 [.007;.009]	.007 [.002;.012]	.016 [.01;.021]	.53 [.39;.84]	.1	.01	.01
Support Strong leader	Policy stringency	-.002 [-.002;-.001]	.014 [.007;.022]	.012 [.005;.02]	-.14 [-.29;-.08]	-.1	.01	.01
Support Strong leader	New deaths/ca	.001 [.001;.002]	.008 [0;.015]	.009 [.002;.016]	.13 [.06;.45]	-.1	.01	.01

Support Strong leader	Time	-.003 [-.004;-.003]	-.011 [-.016;-.006]	-.014 [-.02;-.009]	.21 [.15;.33]	-.1	.01	.01

Note: The analyses test the sensitivity of the assumption of sequential ignorability that underpins causal interpretation of the mediation results in Table S13. "Pandemic fatigue" is the mediator in all analyses. Analyses are run in R using the "medsens" package. The "medsens" package does not support multilevel modelling [5]. Therefore, we build OLS models that get as to the multilevel models in Table S.13 as possible. That is, we regress the respective outcomes on "treatments" (policy stringency, new deaths/ca and time), the mediator ("pandemic fatigue) while also including country dummies. ACMEs are the average causal mediation effects. ADEs are average direct effects in the mediation model (after taking "pandemic fatigue" into account). Total effects are the effect of the treatments on the outcomes without taking "pandemic fatigue" into account. The Rho thresholds gives the correlation in error terms at which the ACME = 0. The R^{2*} thresholds give the proportions of residual variance in the mediator and outcome that can be explained by the hypothesized unobserved confounder, while the $R^{2\sim}$ thresholds give the proportions of total variance in the mediator and outcome that can be explained by the hypothesized unobserved confounder. In interpreting the results, it is relevant to note that there is not "an objective criterion that allows researchers to determine whether sequential ignorability is valid or not" and, hence, interpretation mainly happens via "cross-study comparison (...) for assessing the robustness of one's conclusion relative to those of other similar studies." [6] The illustrative examples in [6] relate to survey experiments where the mediator and outcome is measured immediately after exposure to some treatments. We do not know of any studies for comparison that use a similar setup as ours where the combination of country-level data and survey-level data creates much smaller - and, hence, less robust - mediation effects. At the same time, we do note that the individual-level panel analyses suggest that the relationship between the mediator (i.e., fatigue) and the outcomes (i.e., discontent) is indeed causal and, hence, not entirely driven by omitted variable bias.

S2.5 Robustness of the two-way fixed effects findings

Causal interpretation of the two-way fixed effects estimates relies on the parallel trends assumption: In the absence of changes to "pandemic fatigue", individuals would have experienced similar developments in political discontent [4]. This assumption can be violated in two ways: Reversed causality and omitted variable bias. However, with more than two waves of data, we are able to assess the plausibility of the parallel trends assumption indirectly. One common way of testing the assumption is to add a so-called "lead" into the model as an additional predictor [4]. In essence, the lead is respondents' reported fatigue in the next round of data.

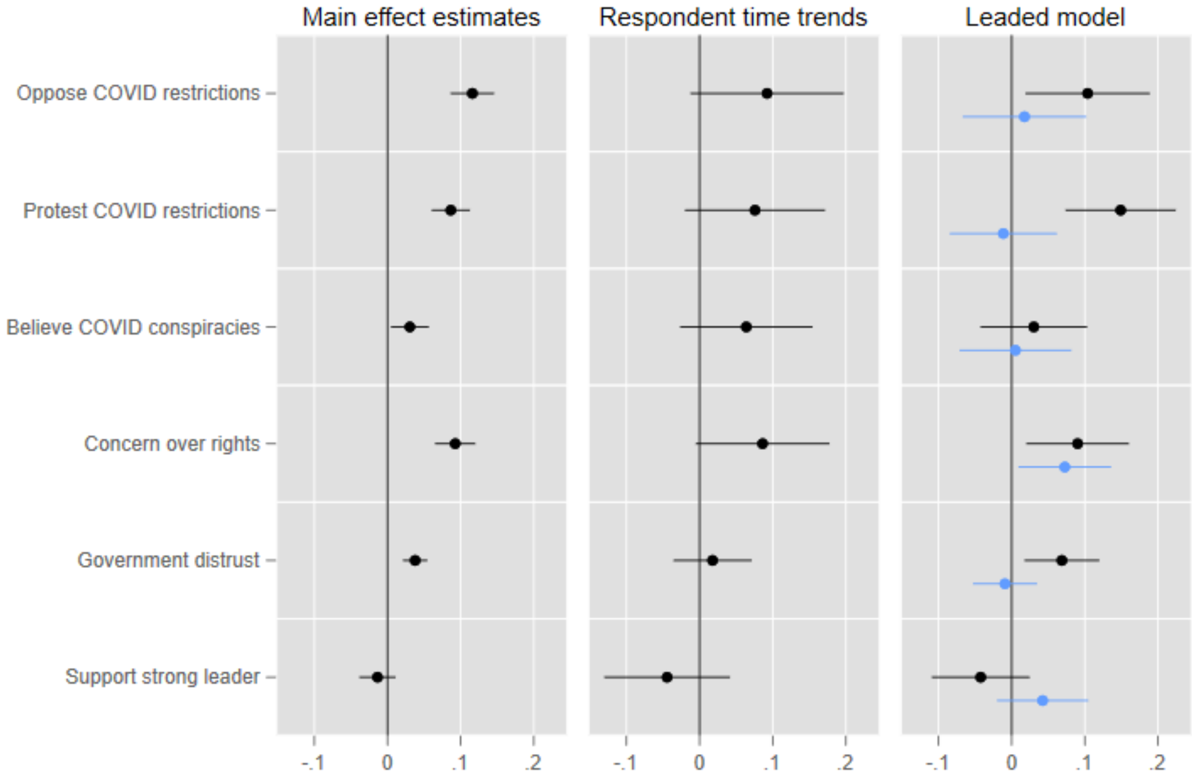
Thus, we regress changes in discontent on changes in "fatigue" in the same period, and changes in "fatigue" in a future period. As a change in the future cannot influence changes today, a significant effect for the latter term is likely due to reverse causality (i.e., discontent feeding back to "fatigue"), and an indication that the parallel trends assumption is violated. Conversely, if the coefficient estimates for a future change in "fatigue" are close to 0, and the estimates for present change in "fatigue" are substantially similar to the main effect estimates, it increases our confidence in the parallel trends assumption, and thus the causal interpretation of estimates.

Another common way to gauge the plausibility of the parallel trends assumption is to include unit-specific time trends (i.e., interactions between individuals and time) into the models. This relaxes the parallel trends assumption by allowing each individual's political discontent to follow a unique, linear trend. In effect, this model controls for potentially non-parallel time-varying confounding. Again, if the parallel trends assumption is plausible we would expect the estimated effects of "fatigue" to be substantively similar to the main effect estimates.

Figure S9 below shows the results from these tests. Crucially, it is clear that the estimated coefficients for "pandemic fatigue" overall remain very similar across the various models. The estimated coefficients for changes in future "fatigue" remain close to 0 and far from conventional levels of statistical significance across all models—except for government distrust. Altogether, these findings provide evidence that individuals did not begin increasing their level of political discontent prior to a change in "pandemic fatigue" and corroborate the parallel trends assumption. The models also demonstrate that the estimated effects of "fatigue" remain similar even if we include respondent-specific time trends.

To further probe the robustness of the effect estimates, Figure S10 shows the two-way fixed effects for each country separately.

Figure S9. Robustness of the parallel trends assumption



Note: The figure shows the robustness of the parallel trends assumption. The left panel displays the main effect estimates (n = 9,815-10,792); the middle panel displays the estimates adjusted for respondent specific (linear) time trends (n = 9,815-10,792); and the right panel displays estimates from models that include leaded fatigue (n = 1,656-1,847). Black filled circles show the estimated current effects while blue the blue filled circles show the estimated leaded effects along with 95 % confidence intervals. Standard errors are clustered by individuals.

Figure S10. Two-way fixed effects results, by country

Note: The figure shows the two-way fixed effects results, by country. Circles show the estimated effects along with 95 % confidence intervals. Standard errors are clustered by individuals.

References

1. Lilleholt, L., Zettler, I., Betsch, C., & Böhm, R. (2020, December 17). Pandemic Fatigue: Measurement, Correlates, and Consequences. https://doi.org/10.31234/osf.io/2xvbr
2. Taylor, S., Rachor, G. S., & Asmundson, G. J. (2022). Who Develops Pandemic Fatigue? *medRxiv*. https://doi.org/10.1101/2022.01.24.22269786
3. Smets, E. M. A., Garssen, B., Bonke, B. D., & De Haes, J. C. J. M. (1995). The Multidimensional Fatigue Inventory (MFI) psychometric qualities of an instrument to assess fatigue. Journal of psychosomatic research, 39(3), 315-325.
4. Angrist, J. D., & Pischke, J. S. (2008). Mostly harmless econometrics. In *Mostly Harmless Econometrics*. Princeton university press.
5. Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R package for causal mediation analysis.
6. Imai, K., Keele, L., Tingley, D., & Yamamoto, T. (2011). Unpacking the black box of causality: Learning about causal mechanisms from experimental and observational studies. *American Political Science Review*, *105*(4), 765-789.