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**THE COVID STATES PROJECT:
A 50-STATE COVID-19 SURVEY
REPORT #26: TRAJECTORY OF
COVID-19-RELATED BEHAVIORS**

USA, November 2020

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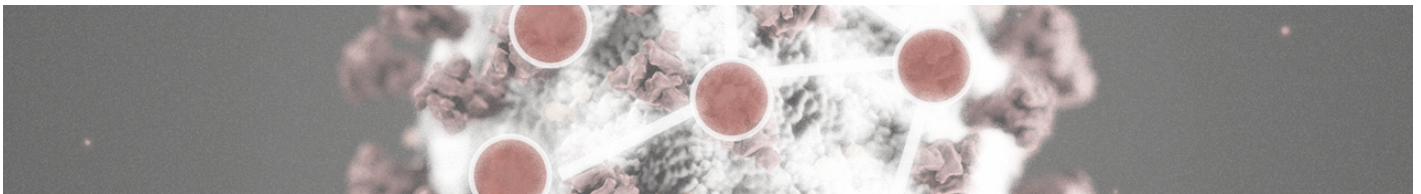
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Northwestern
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Report of November 27, 2020, v.1

The COVID States Project

From: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States

A joint project of:

Northeastern University, Harvard University, Rutgers University, and Northwestern University

Authors: David Lazer (Northeastern University); Mauricio Santillana (Harvard Medical School); Roy H. Perlis (Harvard Medical School); Alexi Quintana (Northeastern University); Katherine Ognyanova (Rutgers University); Jonathan Green (Northeastern University); Matthew A. Baum (Harvard University); Matthew Simonson (Northeastern University); Ata A. Uslu (Northeastern University); Hanyu Chwe (Northeastern University); James Druckman (Northwestern University); Jennifer Lin (Northwestern University), and Adina Gitomer (Northeastern University)

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Northeastern University
Network Science Institute



COVER MEMO

Summary Memo — November 27, 2020

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From April through November, we conducted multiple waves of a large, 50-state survey, some results of which are presented here. You can find previous reports online at covidstates.org.

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Note on methods:

Over 10 survey waves, we polled 139,230 individuals across all 50 states plus the District of Columbia. The data were collected between April and November 2020 by PureSpectrum via an online, nonprobability sample, with state-level representative quotas for race/ethnicity, age, and gender. In addition to balancing on these dimensions, we reweighted our data using demographic characteristics to match the U.S. population with respect to race/ethnicity, age, gender, education, and living in urban, suburban, or rural areas.

For this report, we split our 9th wave, which covered from October 23 to November 4, into its October and November responses, and added them into our October and November waves, respectively. By doing so, the periods covered by each of the final 9 waves used in this report are the following: Late April Wave: 4/17/20-4/26/20, Early May Wave: 5/2/20-5/15/20, Late May Wave: 5/16/20-5/31/20, Late June Wave: 6/12/20-6/28/20, Late July Wave: 7/10/20-7/26/20, August Wave: 8/7/20-8/26/20, September Wave: 9/4/20-9/27/20, October Wave: 10/2/20-10/31/20, November Wave: 11/1/20-11/23/20.

In addition, we pooled our different waves into Spring, Summer and Fall datasets for our state-level analysis. The Spring dataset includes respondents between 4/17/20 and 5/31/20, the Summer dataset respondents between 6/12/20 and 8/26/20, and the Fall dataset respondents between 9/4/20 and 11/23/20.

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Trajectory of COVID-19-related behaviors for all 50 states

The current state of the COVID-19 pandemic in the United States is dire, with circumstances in the Upper Midwest particularly grim. In contrast, multiple countries around the world have shown that temporary changes in human behavior and consistent precautions, such as effective testing, contact tracing, and isolation, can slow transmission of COVID-19, allowing local economies to remain open and societal activities to approach normalcy as of today. These include island countries such as New Zealand, Taiwan, Iceland and Australia, and continental countries such as Norway, Uruguay, Thailand, Finland, and South Korea. These successes demonstrate that coordinated action to change behavior can control the pandemic. In this report, we evaluate how the human behaviors that have been shown to inhibit the spread of COVID-19 have evolved across the US since April, 2020.

Our report is based on surveys that the COVID States Project has been conducting approximately every month since April in all 50 US states plus the District of Columbia. We address four primary questions:

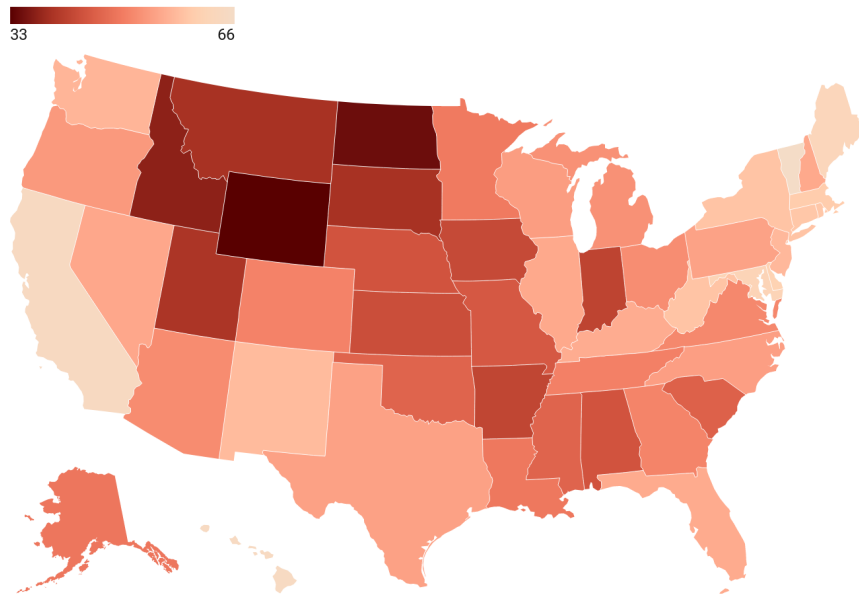
- 1) What are the national trends in social distancing behaviors and mask wearing since April?
- 2) What are the trends among particular population subsets?
- 3) What are the trends across individual states plus DC?
- 4) What is the relationship, at the state level, between social distancing behaviors and mask wearing with the current prevalence of COVID-19?

Overall, we find that social distancing has decreased dramatically since the spring, while mask wearing has increased. These trends are consistent across all states. Generally, **the subpopulations with higher levels of social distancing were women, Asian Americans and African Americans, older, more educated, and Democratic. Partisan gaps in behavior are very large and have increased -- especially for social distancing -- over the past 6 months. Finally, the states that have had the lowest levels of social distancing behavior and mask wearing are currently suffering the worst outbreaks** (See Figure 1 for a comparison of current COVID cases rates and social distancing during the Fall.)

Figure 1.

Relative Social Distancing Index per state (FALL 2020)

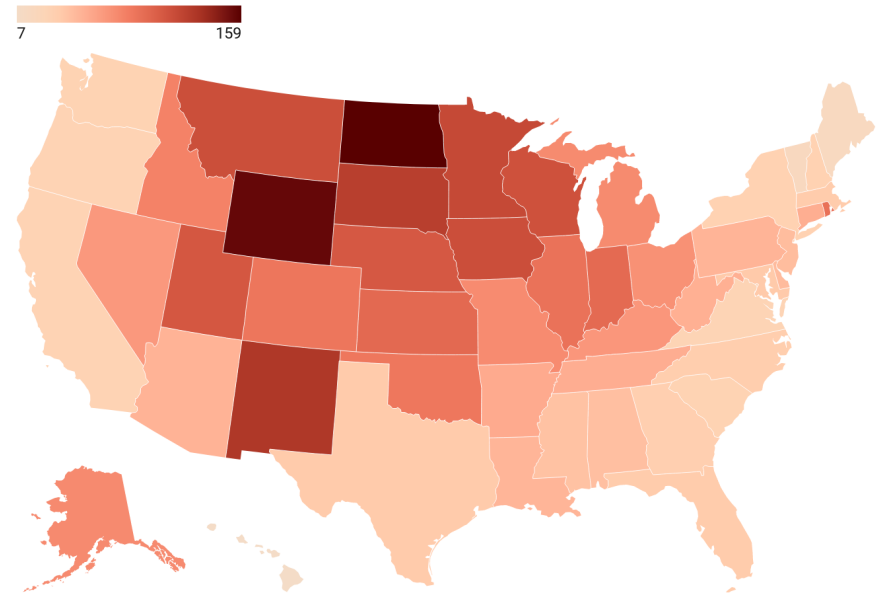
The social distancing index (SDI) ranges 1-100 and is higher for states where people follow health guidelines more closely. SDI is based on the following activities: (1) Go to work, (2) Go to the gym, (3) Go visit a friend, (4) Go to a cafe, bar, or restaurant, (5) Go to church or another place of worship, (6) Avoid contact with other people, (7) Avoid public or crowded places, and (8) Being in a room with people outside your household.



National sample, N1 = 20,315 (9/04/20-9/28/20), N2 = 18,002 (10/2/20-10/23/20), N3 = 24,092 (10/23/20-11/13/20)
 Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org
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COVID-19 cases in the United States

COVID-19 case rate per 100,000 state residents over the past week (November 19-25, 2020).



Data source: CDC COVID Data tracker (covid.cdc.gov/covid-data-tracker)
 Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org
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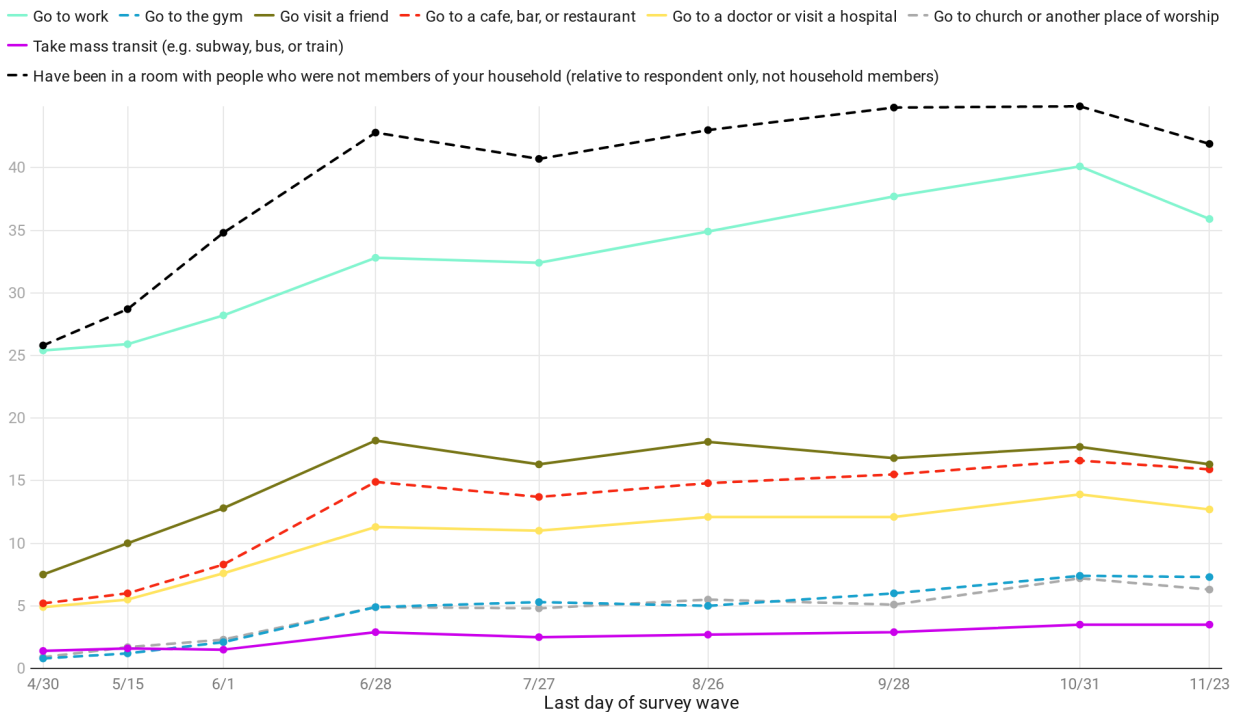
Findings

COVID-19 is transmitted from human to human, and as such, the key behavior that drives the spread of COVID-19 is close proximity among people. In particular, large groups of people indoors facilitate the occurrence of super-spreading events, where a single contagious individual may infect multiple people at once. [Recent research](#) highlights, in particular, the role of restaurants and gyms in driving the early spread of COVID-19. Figure 2 presents the trends for a set of activities that bring people from different households into indoor spaces. We note the general upward trend in many of these activities since April, with reports of having been in a room with people who are not members of the household in the preceding 24 hours jumping from 26% in April to 45% in October. Large group activities have particularly jumped in frequency. Reports of being in groups of 11 to 100 or more in the preceding 24 hours more than doubled, from 2.4% of respondents in April to 6.4% in October (Figure 3).

Figure 2:

In the last 24 hours, did you or any members of your household do any of the following activities outside of your home?

Percentage of respondents across 9 survey waves



National Sample: N1 = 19,489 (04/16/20 - 04/30/20), N2 = 20,305 (05/02/20 - 05/15/20), N3 = 18,103 (05/16/20 - 06/01/20), N4 = 22,470 (06/12/20 - 06/28/20), N5 = 19,058 (07/10/20 - 07/27/20), N6 = 21,196 (08/07/20 - 08/26/20), N7 = 20,315 (09/04/20 - 09/28/20), N8 = 24,775 (10/02/20 - 10/31/20), N9 = 22,126 (11/1/20 - 11/23/20)

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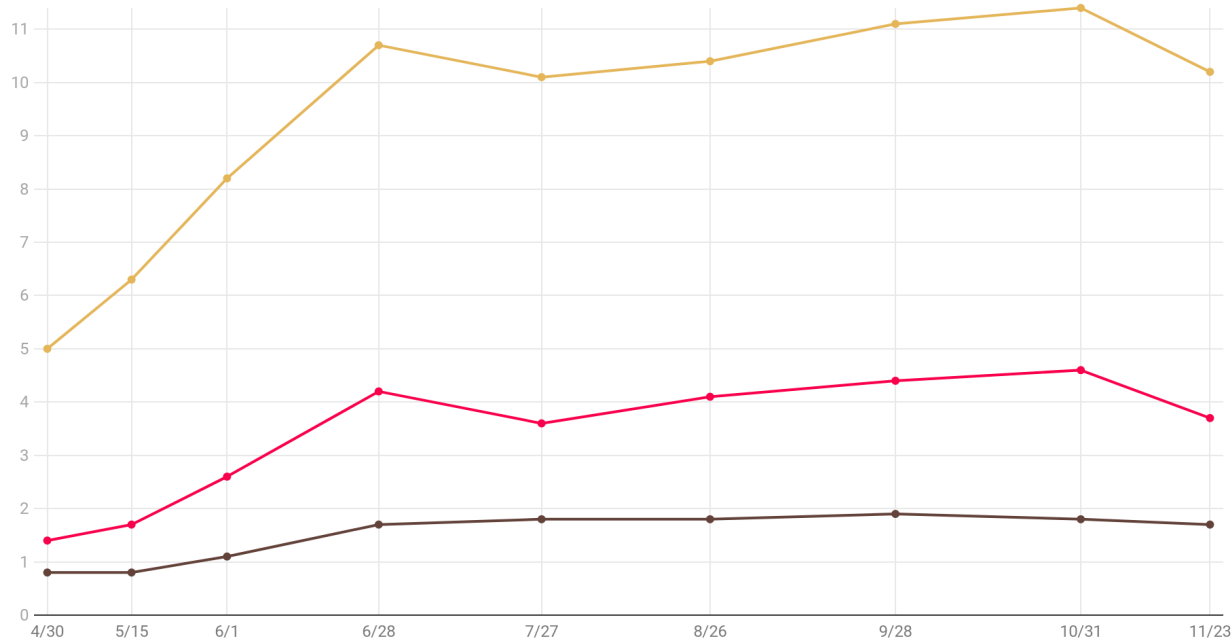
We also find that adherence to health recommendations to reduce the spread of COVID-19 -- with one important exception -- has steadily dropped since April. Adherence to four CDC recommended behaviors (avoiding contact with others; avoiding public/crowded places; frequently washing hands; disinfecting surfaces) all reached their all-time lows in October (see Figure 4). The one important exception is mask wearing: this behavior steadily increased through the end of August, and has held steady since then, with about 77% reporting very closely adhering to recommendations to wear masks in November.

Figure 3:

In the last 24 hours, have you been in a room (or another enclosed space) with people who were not members of your household?

Percentage of respondents across 9 survey waves.

— Yes, with 5-10 people — Yes, with 11-50 people — Yes, with over 50 people



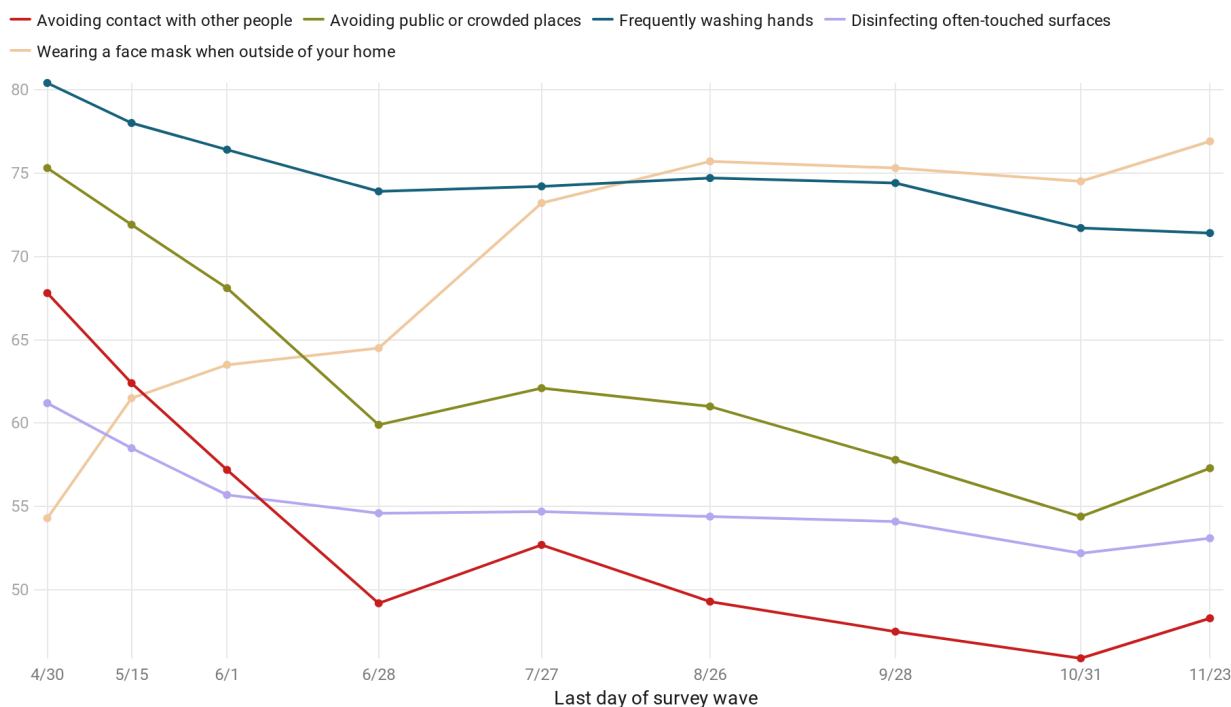
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Figure 4:

In the last week, how closely did you personally follow the health recommendations listed below?

Percentage of respondents answering "very closely" across 9 survey waves.



National Sample: N1 = 19,489 (04/16/20 - 04/30/20), N2 = 20,305 (05/02/20 - 05/15/20), N3 = 18,103 (05/16/20 - 06/01/20), N4 = 22,470 (06/12/20 - 06/28/20), N5 = 19,058 (07/10/20 - 07/27/20), N6 = 21,196 (08/07/20 - 08/26/20), N7 = 20,315 (09/04/20 - 09/28/20), N8 = 24,775 (10/02/20 - 10/31/20), N9 = 22,126 (11/1/20 - 11/23/20)

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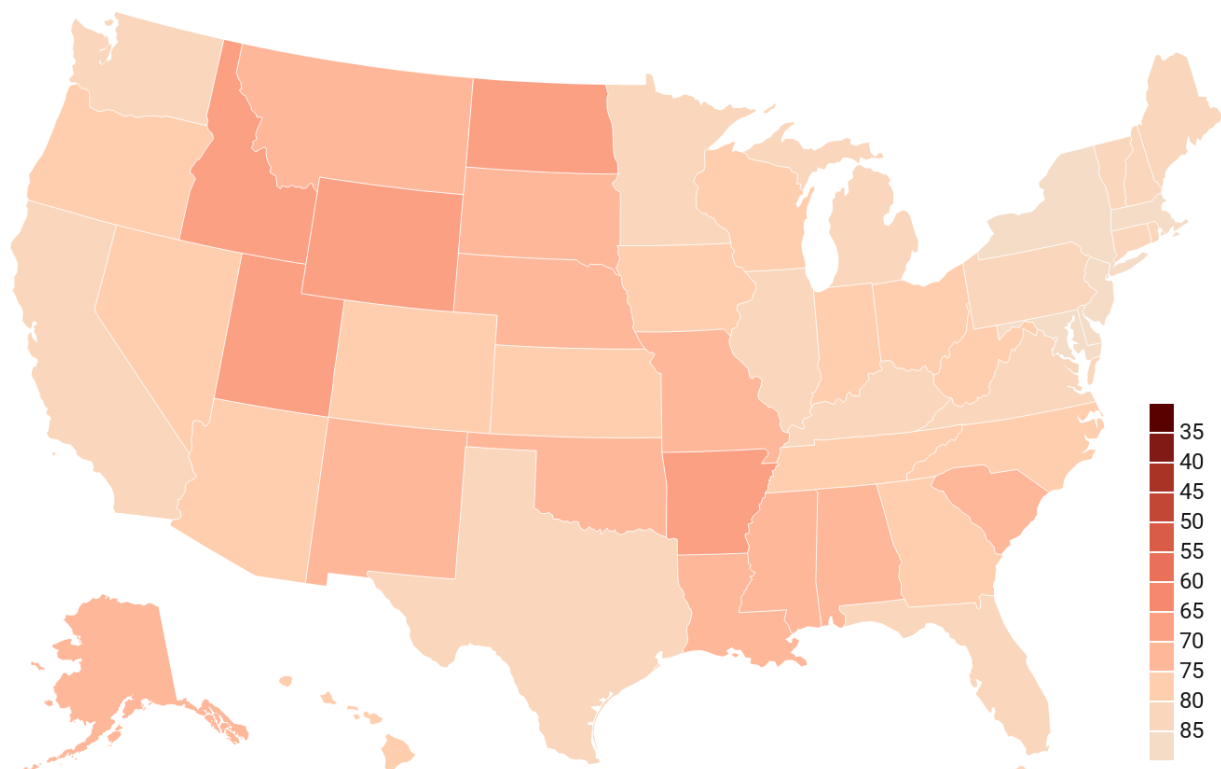
We also note that there is some hint of a counter trend in the final wave, perhaps driven by the current surge of cases. With the exception of taking mass transit, going to the gym, and hand washing, all of the health related behaviors have shifted in the direction of suppression of COVID-19. The magnitude of these shifts is modest (e.g., mask wearing is up about 2 points, being in a room with more than 10 people down 1 point), but may understate the current state of behavior, since the data were collected throughout November until the 23rd, and the negative news about resurgent COVID-19 spread has increased during this period.

We aggregate these measures into a "social distancing index" (SDI) using methods detailed in the appendix. Table A1 in the appendix lists each state's score and rank (and table A2 every state's adherence to mask wearing). Figures 5, 6 and 7 provide heat maps of SDIs for each state for the spring, summer, and fall; and figures 8, 9 and 10 the heat maps of mask usage. As a point of comparison, we also include the heat map of current cases per 100,000 people in Figure 1.

Figure 5:

Relative Social Distancing Index per state: Spring 2020

The social distancing index (SDI) ranges 1-100 and is higher for states where people follow health guidelines more closely. SDI is based on the following activities: (1) Go to work, (2) Go to the gym, (3) Go visit a friend, (4) Go to a cafe, bar, or restaurant, (5) Go to church or another place of worship, (6) Avoid contact with other people, (7) Avoid public or crowded places, and (8) Being in a room with people outside your household.



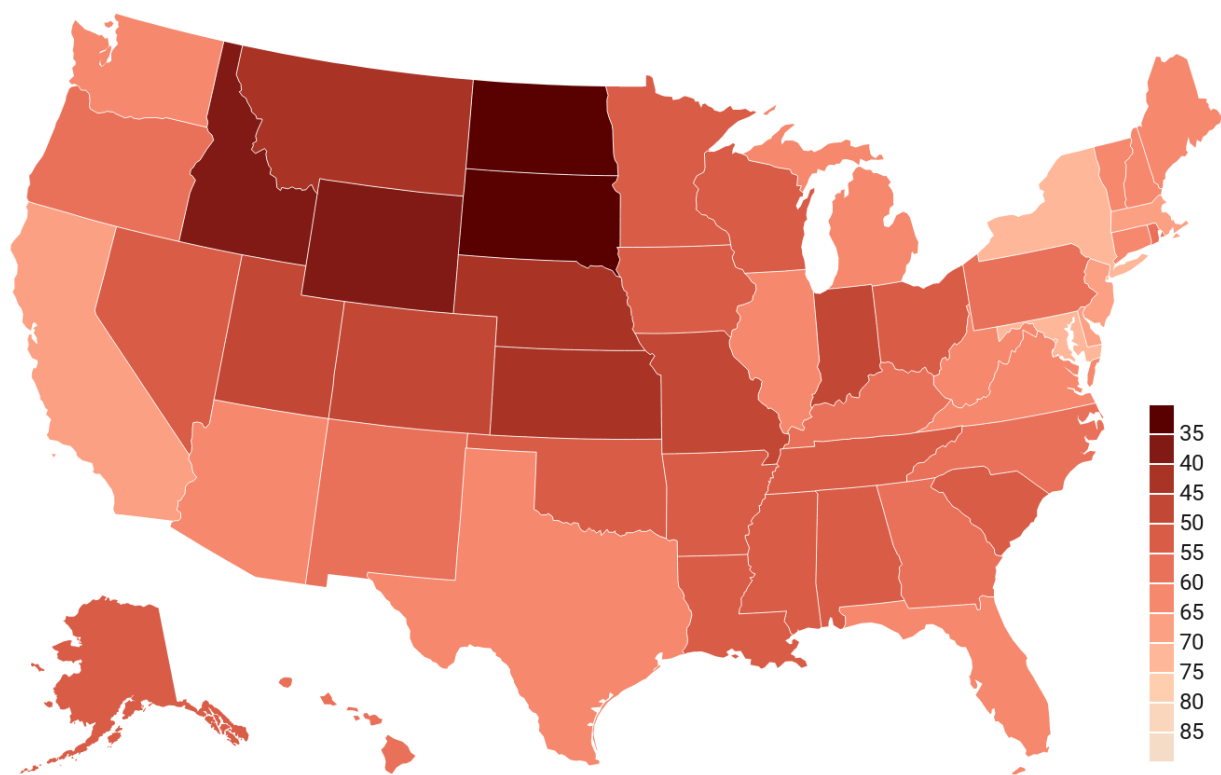
National sample, N1 = 19,505 (4/16/20-4/30/20), N2 = 20,333 (5/2/20-5/15/20), N3 = 18,132 (5/16/20-5/31/20)

Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org
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Figure 6:

Relative Social Distancing Index per state: Summer 2020

The social distancing index (SDI) ranges 1-100 and is higher for states where people follow health guidelines more closely. SDI is based on the following activities: (1) Go to work, (2) Go to the gym, (3) Go visit a friend, (4) Go to a cafe, bar, or restaurant, (5) Go to church or another place of worship, (6) Avoid contact with other people, (7) Avoid public or crowded places, and (8) Being in a room with people outside your household.



National sample, N1 = 22,470 (6/12/20-6/28/20), N2 = 19,058 (7/10/20-7/26/20), N3 = 21,196 (8/7/20-8/26/20)

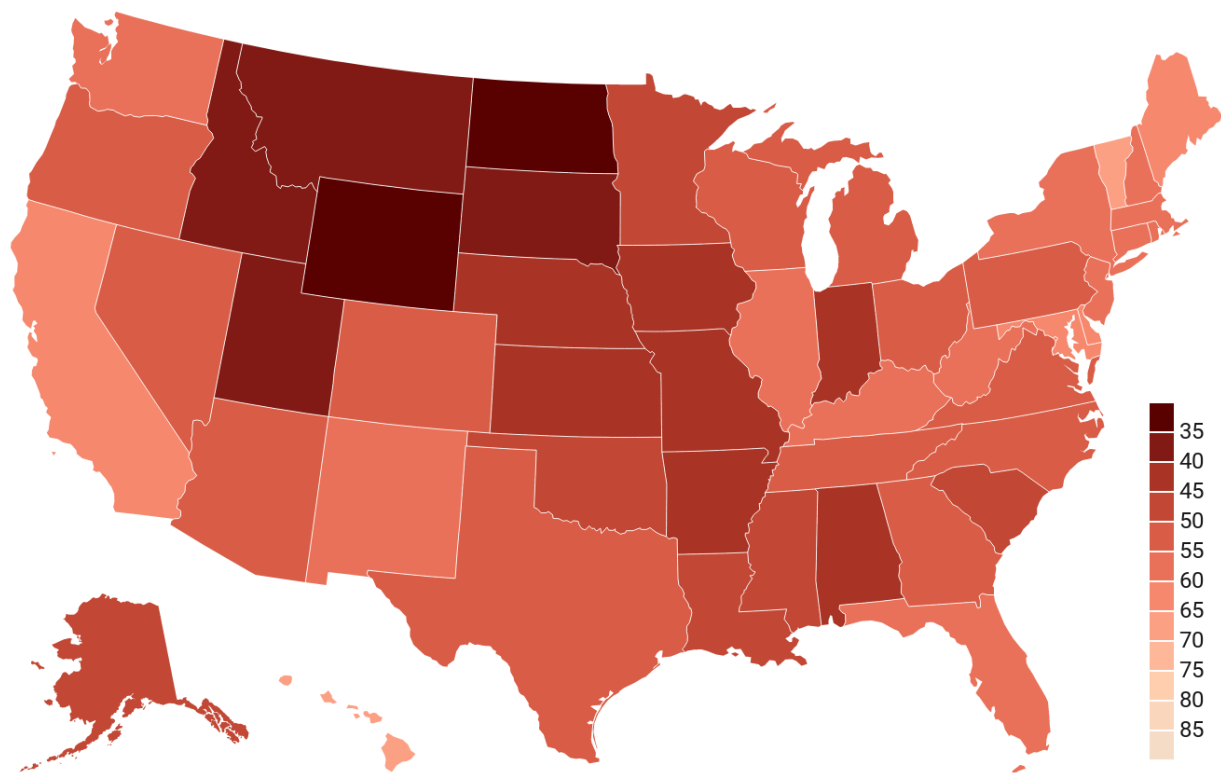
Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org

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Figure 7:

Relative Social Distancing Index per state: Fall 2020

The social distancing index (SDI) ranges 1-100 and is higher for states where people follow health guidelines more closely. SDI is based on the following activities: (1) Go to work, (2) Go to the gym, (3) Go visit a friend, (4) Go to a cafe, bar, or restaurant, (5) Go to church or another place of worship, (6) Avoid contact with other people, (7) Avoid public or crowded places, and (8) Being in a room with people outside your household.



National sample, N1 = 20,315 (9/04/20-9/28/20), N2 = 18,002 (10/2/20-10/23/20), N3 = 24,092 (10/23/20-11/13/20)

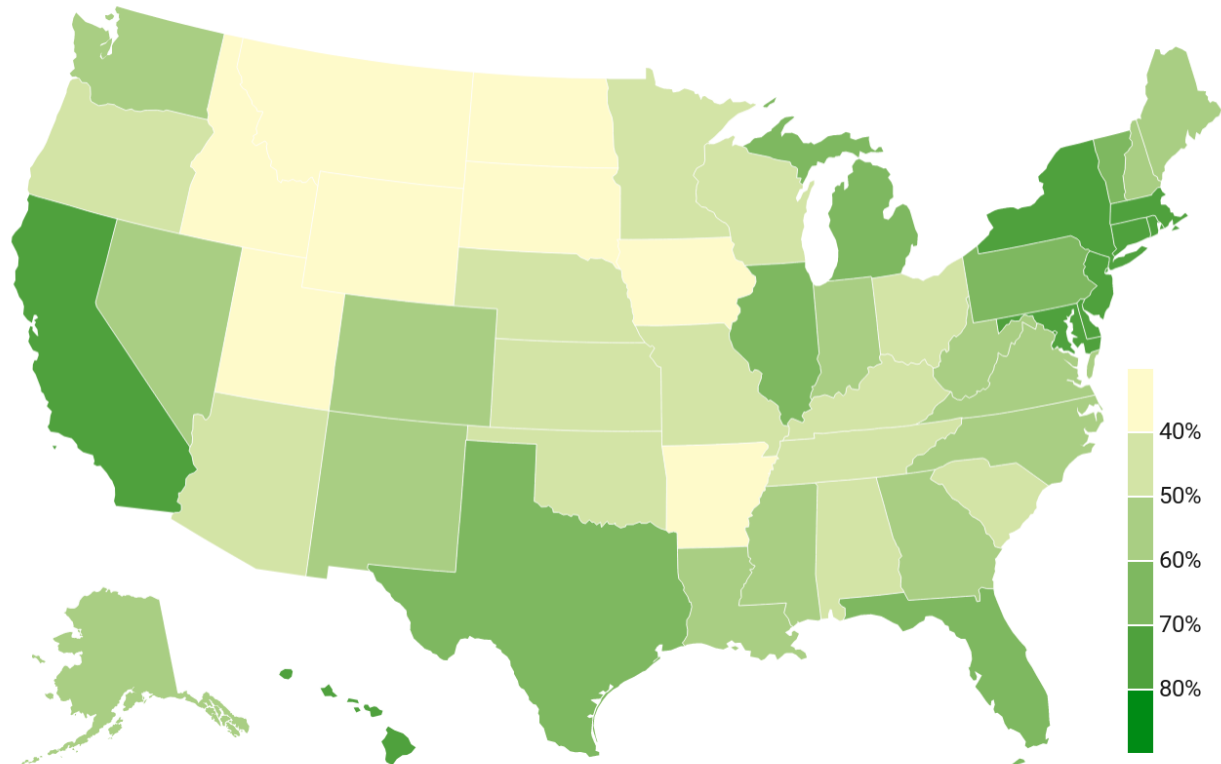
Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org

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Figure 8:

Wearing a face mask per state: Spring 2020

Percent respondents reporting close adherence to face mask guidelines.



National sample, N1 = 19,505 (4/16/20-4/30/20), N2 = 20,333 (5/2/20-5/15/20), N3 = 18,132 (5/16/20-5/31/20)

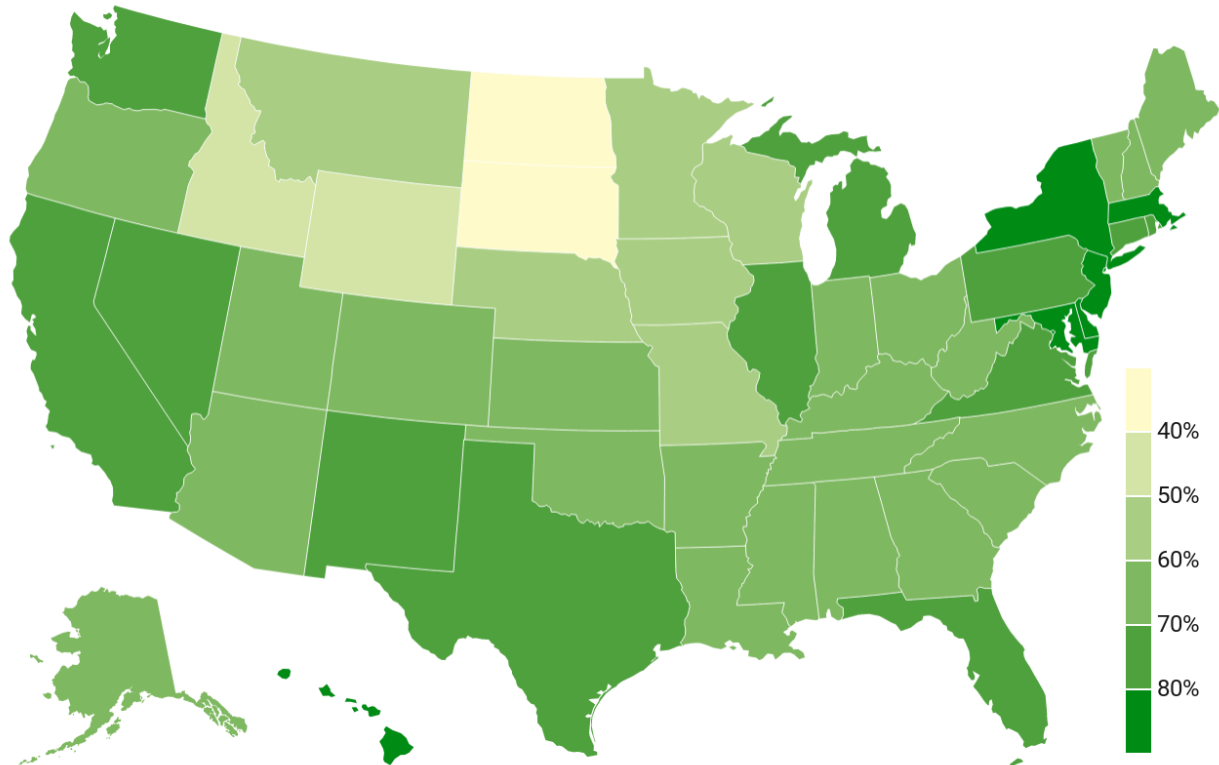
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Figure 9:

Wearing a face mask per state: Summer 2020

Percent respondents reporting close adherence to face mask guidelines.



National sample, N1 = 22,470 (6/12/20-6/28/20), N2 = 19,058 (7/10/20-7/26/20), N3 = 21,196 (8/7/20-8/26/20)

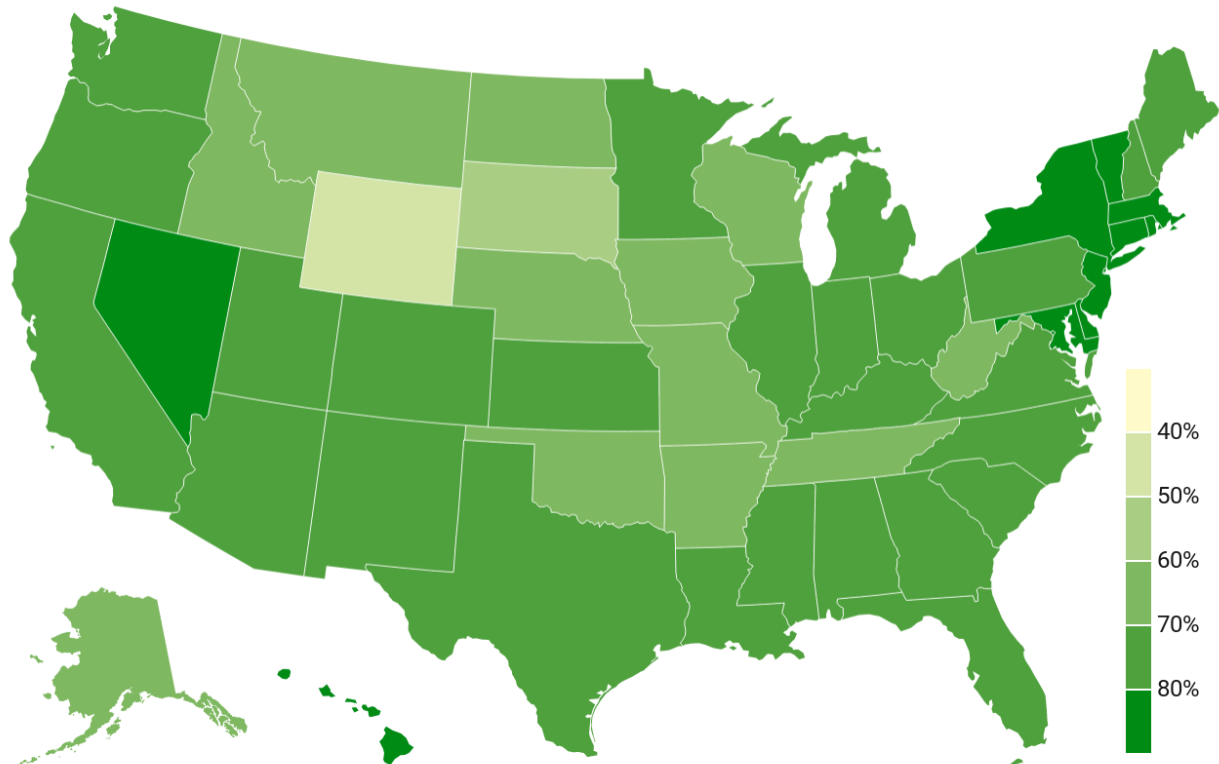
Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org

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Figure 10:

Wearing a face mask per state: Autumn 2020

Percent respondents reporting close adherence to face mask guidelines.



National sample, N1 = 20,315 (9/04/20-9/28/20), N2 = 18,002 (10/2/20-10/23/20), N3 = 24,092 (20/23/20-11/13/20)

Source: The COVID-19 Consortium for Understanding the Public's Policy Preferences Across States (A joint project of: Northeastern University, Harvard University, Rutgers University, and Northwestern University) www.covidstates.org

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Several things are evident when looking at the state level data. First, the general decline in social distancing is, unsurprisingly, clear in the state-level data. Remarkably, the state with the lowest level of social distancing in the spring (Idaho) had a higher level of social distancing than the state with the highest level of social distancing in the fall (Hawaii). Second, the states that have been hit the hardest in the fall have had the lowest levels of social distancing and mask wearing throughout the pandemic. This is visually evident when comparing SDI and mask wearing in the summer and fall to current case counts. Overall, the correlation between social distancing in the fall and current case rates is a remarkable (by social science standards) $-.74$; and for case rates and mask wearing $-.64$. Further analysis is required to evaluate causal linkages. However, these patterns are consistent with an overall story in terms of the sequence of spread in the United States. The first states to be hit were the ones most exposed to international travelers (states in the Northeast and West Coast). The entire country then went into a regime of social distancing, during which COVID-19 substantially subsided. Social distancing significantly relaxed after May, and the disease -- not vanquished over the summer, and now lurking everywhere -- reasserted its presence with the cooler weather in the fall, beginning in states that had the lowest adherence to social distancing.

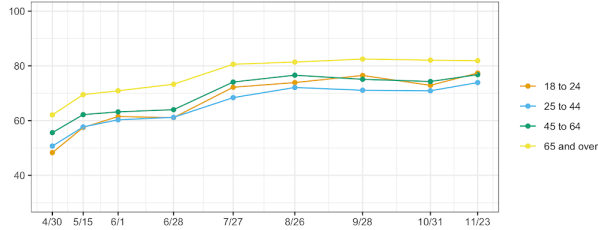
Examining subpopulations, in Figure 4, we see consistent patterns in terms of differences in behaviors over time. Women across all waves are more likely to wear masks and socially distance than men; and education is positively related to both mask wearing and social distancing. Patterns with respect to race are somewhat more complicated. White respondents are generally less likely than other racial groups to socially distance or wear masks. African Americans, Asian Americans and Hispanics have roughly equal likelihood of wearing masks. Asian Americans have the highest levels of social distancing, African Americans somewhat less, and Hispanic respondents have roughly the same level as white respondents. Younger respondents started out with moderately lower levels of SDI than older respondents, but have dropped far more, from 78 in April to 31 in October; by comparison, the oldest cohort dropped from 97 to 74.

Most striking, however, is the growing partisan chasm in social distancing and mask wearing. Democrats and Republicans have both trended in the same direction-- increased mask wearing and decreased social distancing during this period. However, Democrats have increased mask wearing faster than Republicans, and decreased social distancing slower. As a point of comparison, the difference between men and women on the index in April was 4; and between Democrats and Republicans it was 5. In November, the gap between men and women has grown slightly, to 7; and for Democrats and Republicans, the gap has soared to 23. There is a similar, but less dramatic, pattern with respect to mask wearing, though the gap with mask wearing was already quite large in April (16 points), increasing to 20 in November.

Figure 11:

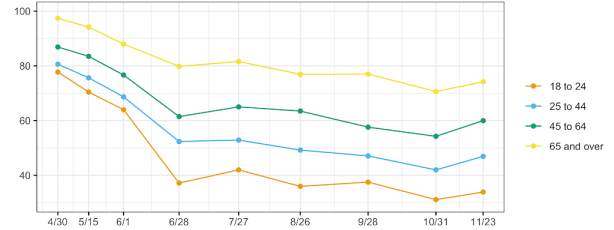
Mask Wearing by Age Group

Percent of group indicating they followed recommendation 'very closely' in previous week



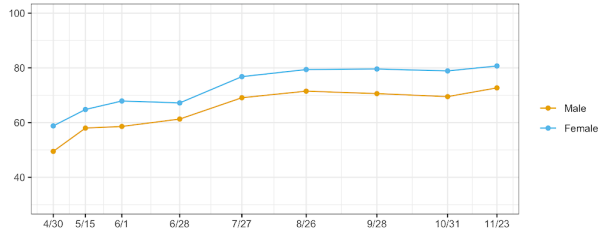
Social Distancing Index by Age Group

Relative measure of how closely members of group are engaged in distancing behaviors, on average



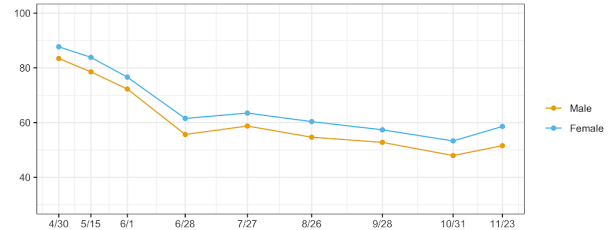
Mask Wearing by Gender

Percent of group indicating they followed recommendation 'very closely' in previous week



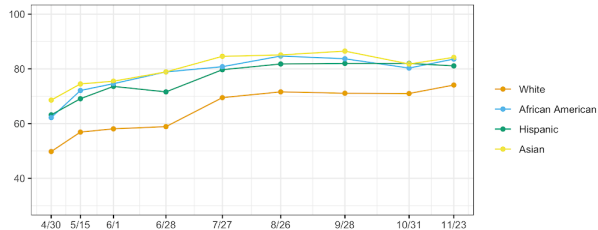
Social Distancing Index by Gender

Relative measure of how closely members of group are engaged in distancing behaviors, on average



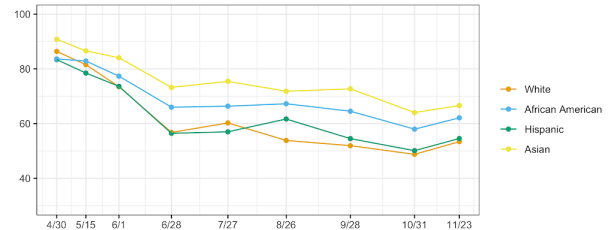
Mask Wearing by Race

Percent of group indicating they followed recommendation 'very closely' in previous week



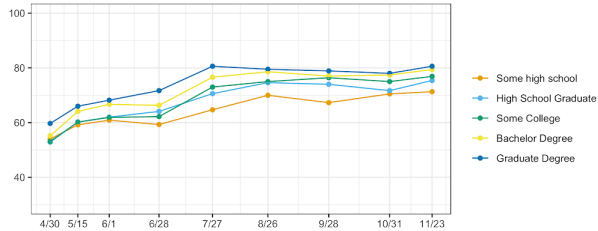
Social Distancing Index by Race

Relative measure of how closely members of group are engaged in distancing behaviors, on average



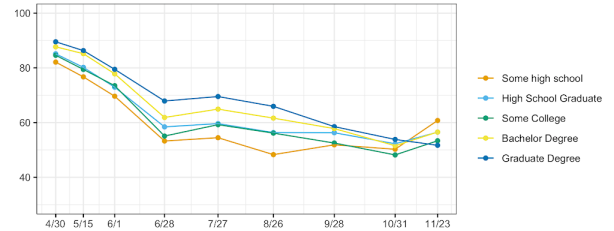
Mask Wearing by Education

Percent of group indicating they followed recommendation 'very closely' in previous week



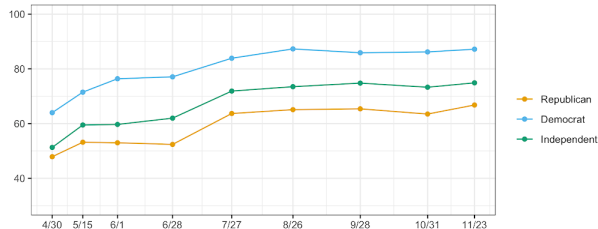
Social Distancing Index by Education

Relative measure of how closely members of group are engaged in distancing behaviors, on average



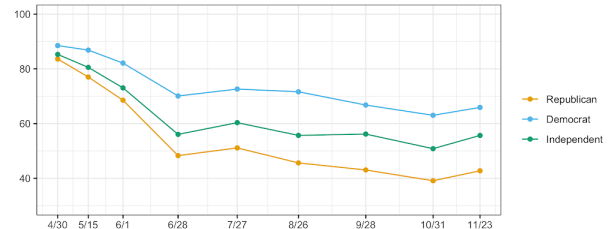
Mask Wearing by Party

Percent of group indicating they followed recommendation 'very closely' in previous week



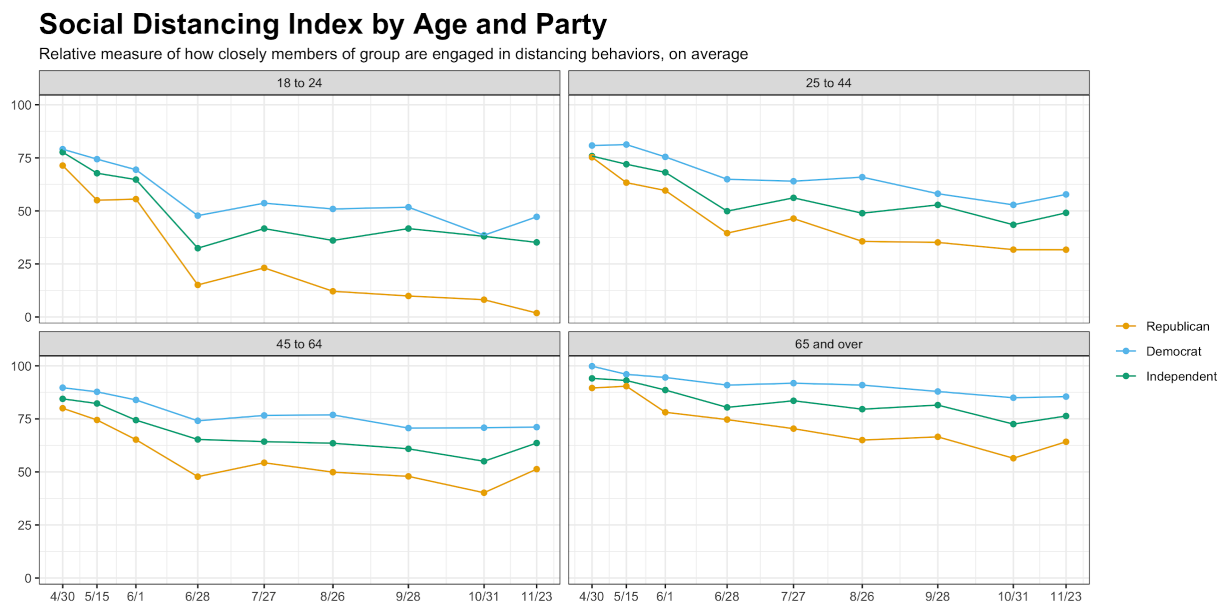
Social Distancing Index by Party

Relative measure of how closely members of group are engaged in distancing behaviors, on average



While many of the demographics align with partisanship -- in terms of gender, race, and education -- age is an interesting exception, because younger people tend to be more Democratic, but also tend to have lower SDI scores. Figure 12 summarizes the SDI trends for age stratified by partisanship; this highlights, in particular, a remarkably large divide in November (almost 50 points on a 100 point scale) between younger Democrats and Republicans, which is about twice that of the overall partisan divide in this same wave. In April, that divide was only 8 points.

Figure 12:



Appendix A: Construction of the Social Distancing Index

The social distancing index (SDI) for each state or demographic subgroup was constructed by averaging standardized values of 8 social distancing variables for the specific state or subgroup with respect to the mean and the standard deviation of the overall trend. In this manner, all 8 variables are weighted equally in this index and included in relative terms. The reference mean and standard deviation for each variable is taken from the national Spring, Summer and Fall values for the state social distancing index, and from the overall values across the 9 survey waves for the different demographic subgroups' social distancing index.

Finally, the relative values for each variable are averaged and converted into a 0-100 scale, yielding the final social distancing index. The maximum and minimum values of these averaged relative values used for re-scaling, across all states and subgroups, were for Democrats aged 65 or over in our first April wave, and for Republicans between 18 and 24 years old in the November wave, respectively.

The variables included in the index are, first, the percentage of respondents answering positively to the question: "In the last 24 hours, did you or any members of your household do any of the following activities outside of your home?" for "Go to work", "Go to the gym", "Go visit a friend", "Go to a cafe, bar or restaurant" and "Go to church or another place of worship"; and second, the percentage of respondents answering "Not at all closely" or "Not very closely" to the question "In the last week, how closely did you personally follow the health recommendations listed below?" for the following behaviors: "Avoiding contact with other people" and "Avoiding public or crowded places". Finally, the last variable included is a re-scaling of the different answers to the question "In the last 24 hours, have you been in a room (or another enclosed space) with people who were not members of your household? This might have been at a social gathering, a work meeting, or another type of event.", to a 0-100 scale, where 0 corresponds to "No, I have not" and 100 to "Yes, with over 100 other people".

Additional tables for health behaviors by states are available online at:

github.com/kateto/covidstates/tree/master/Report%20Data/Report%2026%20Behaviors

Table A1: Social Distancing Index by State and Season, Ranked by SDI in Fall

State	Spring	Summer	Fall	Rank
VT	84	64.27	66.18	1
HI	76.77	57.23	65.00	2
CA	83.07	68.09	64.65	3
ME	81.69	61.58	62.95	4
DC	85.71	71.48	62.63	5
MD	86.59	70.36	61.95	6
DE	86.12	65.76	60.93	7
MA	86.92	65.16	59.88	8
CT	83.34	63.91	59.16	9
RI	84.62	58.05	59.06	10
NY	89.01	70.75	58.81	11
WV	76.81	61.2	58.81	12
NM	73.38	58.04	57.49	13
NJ	85.58	68.75	57.25	14
WA	82.48	64.43	56.8	15
KY	82.17	57.86	55.59	16
FL	81.89	63.03	55.41	17
NH	81.56	62.1	55.14	18
IL	81.42	61.91	55.1	19
NV	79.81	54.77	54.93	20
PA	81.7	58.79	54.23	21
TX	80.2	60.57	54.09	22
NC	79.11	57.41	53.8	23
WI	79.26	52.75	53.55	24
OR	76.76	56.87	53.11	25

MI	84.89	63.08	52.12	26
OH	78.76	54.91	51.57	27
AZ	75.67	60.00	51.44	28
VA	82.69	61.26	50.9	29
GA	77.59	56.8	50.4	30
CO	77.2	49.95	50.17	31
TN	75.98	50.63	50.05	32
MN	80.41	51.72	49.12	33
LA	74.15	52.98	48.77	34
AK	72.77	52.31	48.56	35
OK	70.03	51.47	46.01	36
MS	71.48	53.34	46.01	37
SC	73.18	54.54	45.6	38
MO	72.94	48.65	44.28	39
AL	71.84	53.76	43.64	40
NE	72.75	40.53	43.55	41
KS	75.87	41.62	42.83	42
IA	75.51	53.93	42.19	43
AR	69.31	51.57	41.64	44
IN	75.75	46.92	41.34	45
UT	69.2	45.19	39.22	46
MT	70.3	42.7	38.72	47
SD	71.13	32.11	38.71	48
ID	66.5	38.57	36.58	49
ND	67.73	33.76	34.22	50
WY	66.77	38.06	32.7	51

Table A2: Mask Wearing by State and Season, Ranked by Mask Wearing in Fall

State	Spring	Summer	Fall	Rank
HI	75	83	88	1
DC	76	81	84	2
DE	74	84	84	3
MD	76	82	84	4
VT	62	69	83	5
CT	72	80	82	6
NJ	78	81	82	7
NY	78	81	82	8
RI	76	80	82	9
MA	73	81	81	10
NV	56	75	81	11
NM	54	75	79	12
CA	71	78	78	13
TX	60	72	78	14
FL	63	72	77	15
IL	63	73	77	16
OR	46	64	76	17
WA	50	72	76	18
AZ	49	69	75	19
ME	56	65	75	20
VA	60	76	75	21
AL	48	66	74	22
NC	50	67	74	23
NH	59	68	74	24
PA	69	74	73	25

UT	38	62	73	26
CO	57	67	72	27
KS	46	60	72	28
MN	45	57	72	29
MS	53	68	72	30
GA	57	66	71	31
KY	47	66	71	32
LA	52	70	71	33
MI	64	74	71	34
OH	49	65	71	35
IN	52	61	70	36
SC	44	65	70	37
WV	52	62	70	38
AK	53	64	69	39
AR	40	65	69	40
TN	49	62	69	41
MO	48	59	68	42
MT	31	50	68	43
NE	44	55	68	44
OK	43	62	68	45
WI	43	57	67	46
ID	34	47	63	47
IA	39	54	62	48
ND	34	40	60	49
SD	35	38	55	50
WY	33	44	49	51