Supplementary Figures and Tables

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Figure 1A: Unadjusted temporal trends in psychological distress over 28 waves in the Understanding Coronavirus in America study, March 2020 to June 2021.
Figure 2A: Unadjusted temporal trends in risk perceptions over 28 waves in the Understanding Coronavirus in America study, March 2020 to June 2021

Notes: Red lines are secular trends in risk perceptions over time for respondents who became vaccinated. Blue lines are secular trends over time for respondents who did not become vaccinated.
Figure 3A: Difference-in-Differences Estimates of the Association Between Receiving the COVID-19 Vaccine and Psychological Distress (including risk factors as mediators)

Notes: Each point estimate refers to the change in distress between vaccinated and never vaccinated individuals, compared to their baseline differential in the wave immediately prior to vaccination. Models control for individual and wave fixed effects, receiving Supplemental Nutrition Assistance Program (SNAP) benefits in the month prior to the survey, whether the respondent received unemployment insurance in the past 14 days, and employment status at the time of the survey.
Figure 4A. Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status, stratified by age, April 2020 to June 2021

Notes: Point estimates and 95% confidence intervals are from separate two-way fixed effects models stratified by subgroup. Models control for individual and wave fixed effects, receiving Supplemental Nutrition Assistance Program (SNAP) benefits in the month prior to the survey, whether the respondent received unemployment insurance in the past 14 days, and employment status at the time of the survey. Standard errors are clustered at the individual level.
Figure 5A. Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status, stratified by self-reported race/ethnicity, April 2020 to June 2021

Notes: Point estimates and 95% confidence intervals are from separate two-way fixed effects models stratified by subgroup. Native Hawaiian or Other Pacific Islander respondents were combined with Asian respondents due to extremely small cell sizes for the former groups. Models control for individual and wave fixed effects, receiving Supplemental Nutrition Assistance Program (SNAP) benefits in the month prior to the survey, whether the respondent received unemployment insurance in the past 14 days, and employment status at the time of the survey. Standard errors are clustered at the individual level.
**Figure 6A.** Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status, stratified by education, April 2020 to June 2021

Notes: Point estimates and 95% confidence intervals are from separate two-way fixed effects models stratified by subgroup. Models control for individual and wave fixed effects, receiving Supplemental Nutrition Assistance Program (SNAP) benefits in the month prior to the survey, whether the respondent received unemployment insurance in the past 14 days, and employment status at the time of the survey. Standard errors are clustered at the individual level.
**Figure 7A.** Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status, stratified by gender, April 2020 to June 2021

Notes: Point estimates and 95% confidence intervals are from separate two-way fixed effects models stratified by subgroup. Models control for individual and wave fixed effects, receiving Supplemental Nutrition Assistance Program (SNAP) benefits in the month prior to the survey, whether the respondent received unemployment insurance in the past 14 days, and employment status at the time of the survey. Standard errors are clustered at the individual level.
**Figure 8A.** Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status, stratified by household income, April 2020 to June 2021

Notes: Point estimates and 95% confidence intervals are from separate two-way fixed effects models stratified by subgroup. Models control for individual and wave fixed effects, receiving Supplemental Nutrition Assistance Program (SNAP) benefits in the month prior to the survey, whether the respondent received unemployment insurance in the past 14 days, and employment status at the time of the survey. Standard errors are clustered at the individual level.
### Table A1. Timing of data collection for each wave of the Understanding Coronavirus in America

| Wave | Date begin  | Date close  |
|------|-------------|-------------|
| 1    | 3/10/2020   | 3/31/2020   |
| 2    | 4/1/2020    | 4/27/2020   |
| 3    | 4/15/2020   | 5/11/2020   |
| 4    | 4/29/2020   | 5/25/2020   |
| 5    | 5/13/2020   | 6/8/2020    |
| 6    | 5/27/2020   | 6/22/2020   |
| 7    | 6/10/2020   | 7/6/2020    |
| 8    | 6/24/2020   | 7/20/2020   |
| 9    | 7/8/2020    | 8/3/2020    |
| 10   | 7/22/2020   | 8/17/2020   |
| 11   | 8/5/2020    | 8/31/2020   |
| 12   | 8/19/2020   | 9/14/2020   |
| 13   | 9/2/2020    | 9/28/2020   |
| 14   | 9/16/2020   | 10/12/2020  |
| 15   | 9/30/2020   | 10/26/2020  |
| 16   | 10/14/2020  | 11/9/2020   |
| 17   | 10/28/2020  | 11/23/2020  |
| 18   | 11/11/2020  | 12/7/2020   |
| 19   | 11/25/2020  | 12/21/2020  |
| 20   | 12/9/2020   | 1/4/2021    |
| 21   | 12/23/2020  | 1/18/2021   |
| 22   | 1/6/2021    | 2/1/2021    |
| 23   | 1/20/2021   | 2/15/2021   |
| 24   | 2/3/2021    | 3/1/2021    |
| 25   | 2/17/2021   | 3/29/2021   |
| 26   | 3/17/2021   | 4/27/2021   |
| 27   | 4/14/2021   | 5/25/2021   |
| 28   | 5/12/2021   | 6/22/2021   |

Notes: Waves 1 and 9 excluded from our TWFE and event study models because core questions were not asked in these periods. New UCA surveys are fielded every two weeks. Each day one fourteenth of participants are invited to take the survey, and participants have two weeks to take the survey meaning that the total field period for each wave of the survey is 4 weeks and there is overlap between waves. Participants are incentivized to respond to the survey on the day they are invited to participate.
Table 2A: Characteristics of sample by vaccination status

| Household income ($)                  | Vaccinated (57%) | Never Vaccinated (43%) | P-value |
|---------------------------------------|------------------|------------------------|---------|
| <20,000                               | 36%              | 64%                    | <0.001  |
| 20,000 to 29,999                      | 48%              | 52%                    |         |
| 30,000 to 39,999                      | 50%              | 50%                    |         |
| 40,000 to 49,999                      | 59%              | 41%                    |         |
| 50,000 to 59,999                      | 53%              | 47%                    |         |
| 60,000 to 74,999                      | 59%              | 41%                    |         |
| 75,000 to 99,999                      | 63%              | 37%                    |         |
| 100,000+                              | 68%              | 32%                    |         |

| Education                              |                   |                       | <0.001  |
|---------------------------------------|-------------------|-----------------------|---------|
| Less than high school                 | 35%               | 65%                   |         |
| High school or GED                    | 41%               | 59%                   |         |
| Some college                          | 49%               | 51%                   |         |
| Assoc. degree                         | 55%               | 46%                   |         |
| Bachelor's or higher                  | 68%               | 32%                   |         |

| Race                                  |                   |                       | <0.001  |
|---------------------------------------|-------------------|-----------------------|---------|
| White                                 | 57%               | 43%                   |         |
| Black                                 | 48%               | 52%                   |         |
| American Indian or Alaska Native     | 38%               | 62%                   |         |
| Asian                                 | 69%               | 31%                   |         |
| Hawaiian/Pacific Islander             | 59%               | 41%                   |         |
| Mixed                                 | 49%               | 51%                   |         |

| Hispanic                              |                   |                       | <0.001  |
|---------------------------------------|-------------------|-----------------------|---------|
| Hispanic                              | 47%               | 53%                   |         |

| Gender                                |                   |                       | <0.001  |
|---------------------------------------|-------------------|-----------------------|---------|
| Male                                  | 59%               | 41%                   |         |
| Female                                | 54%               | 46%                   |         |

| Marital status                        |                   |                       | <0.001  |
|---------------------------------------|-------------------|-----------------------|---------|
| Married (spouse lives with respondent)| 61%               | 39%                   |         |
| Married (spouse lives elsewhere)      | 41%               | 59%                   |         |
| Separated                             | 36%               | 64%                   |         |
| Divorced                              | 55%               | 45%                   |         |
| Widowed                               | 60%               | 40%                   |         |
| Never married                         | 45%               | 55%                   |         |

| Age categories                        |                   |                       | <0.001  |
|---------------------------------------|-------------------|-----------------------|---------|
| 18 to 24                              | 34%               | 66%                   |         |
| 25 to 34                              | 35%               | 65%                   |         |
| 35 to 44                              | 45%               | 55%                   |         |
| 45 to 54                              | 55%               | 45%                   |         |
| 55 to 64                              | 62%               | 39%                   |         |
| 65 to 74                              | 78%               | 22%                   |         |
| 75+                                   | 80%               | 20%                   |         |

Note: Characteristics are unweighted and based on the first observation for each participant in the sample. P-values are from chi-square tests of the bivariate association between the demographic group and a dichotomous
variable that equals 1 if the respondent indicates being vaccinated in any wave of the survey and 0 if never vaccinated.

Table 3A. Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status and perceived risk factors using sample weights, April 2020 to June 2021 (N=5,792)

|                                | Model 1 | Model 2 | Model 3 |
|--------------------------------|---------|---------|---------|
|                                | Coef.   | 95% CI  | Coef.   | 95% CI  | Coef.   | 95% CI  |
| Received Vaccination (ref: no) |         |         |         |         |         |         |
| Yes                            | 0.06    | -0.10 to 0.23 | 0.06 | -0.11 to 0.22 | 0.03 | -0.10 to 0.22 |
| Unsure                         | 0.12    | -0.23 to 0.47 | 0.12 | -0.24 to 0.47 | 0.03** | -0.13 to 0.06 |
| Received SNAP (ref: no)        |         |         |         |         |         |         |
| Yes                            | -0.02   | -0.15 to 0.11 | -0.02 | -0.15 to 0.11 | -0.35** | -0.58 to 0.12 |
| Unsure                         | -0.36** | -0.58 to -0.13 | -0.35** | -0.58 to 0.12 |
| Currently working (ref: no)    |         |         |         |         |         |         |
| Yes                            | 0.22**  | 0.06 to 0.38 | 0.22** | 0.06 to 0.38 | 0.22** | 0.06 to 0.38 |
| Risk of death                  |         |         |         |         |         |         |
| Risk of infection              |         |         |         |         |         |         |
| Risk of Hospitalization        |         |         |         |         |         |         |
| Individual fixed effects       | Yes     | Yes     | Yes     |         |         |         |
| Wave fixed effects             | Yes     | Yes     | Yes     |         |         |         |
| Constant                       | 2.25*** | 2.13 to 2.37 | 2.13*** | 1.99 to 2.28 | 1.94*** | 1.78 to 2.09 |
| N. of cases                    | 5,792   | 5,792   | 5,792   | 5,792   | 5,792   | 5,792   |

* p<0.05, ** p<0.01, *** p<0.001
Table 4A. Two-way fixed effects models with psychological distress (PHQ-4) regressed on vaccination status and perceived risk factors among respondents aged 65 and above, April 2020 to June 2021 (N=1,473)

|                          | Model 1     | Model 2     | Model 3     |
|--------------------------|-------------|-------------|-------------|
|                          | Coef. 95% CI| Coef. 95% CI| Coef. 95% CI|
| Received Vaccination (ref: no) | -0.10* -0.18 to -0.01 | -0.09* -0.18 to -0.01 | -0.05 -0.14 to 0.03 |
| Received UI (ref: no)     |             |             |             |
| Yes                      | 0.14 -0.04 to 0.33 | 0.14 -0.04 to 0.33 | 0.14 -0.04 to 0.33 |
| Unsure                   | 0.43 -0.30 to 1.16 | 0.42 -0.30 to 1.16 | 0.42 -0.30 to 1.16 |
| Received SNAP (ref: no)   |             |             |             |
| Yes                      | -0.03 -0.29 to 0.23 | -0.03 -0.28 to 0.23 | -0.03 -0.28 to 0.23 |
| Unsure                   | 0.00 -0.34 to 0.33 | 0.01 -0.33 to 0.35 | 0.01 -0.33 to 0.35 |
| Currently working (ref: no) |             |             |             |
| Yes                      |             |             |             |
| Risk of death            |             |             |             |
|                         | 0.01 -0.01 to 0.03 |             |             |
| Risk of infection        |             |             |             |
|                         | 0.03*** 0.01 to 0.04 |             |             |
| Risk of Hospitalization  |             |             |             |
|                         | 0.01* 0.00 to 0.03 |             |             |
| Individual fixed effects | Yes         | Yes         | Yes         |
| Wave fixed effects       | Yes         | Yes         | Yes         |
| Constant                 | 1.47*** 1.37 to 1.56 | 1.45*** 1.35 to 1.55 | 1.31*** 1.19 to 1.43 |
| N. of cases              | 1,473       | 1,473       | 1,473       |

*p<0.05, **p<0.01, ***p<0.001
Table 5A. Two-way fixed effects models with severe psychological distress (PHQ-4 scores ≥ 9) regressed on vaccination status and perceived risk factors, April 2020 to June 2021 (N= 5,792)

|                          | Coef.     | 95% CI      | Coef.     | 95% CI      | Coef.     | 95% CI      |
|--------------------------|-----------|-------------|-----------|-------------|-----------|-------------|
| Received Vaccination     | -0.006*   | -0.011, -0.001 | -0.006*   | -0.011, -0.001 | -0.003   | -0.008, 0.002 |
| (ref: no)                |           |             |           |             |           |             |
| Received UI (ref: no)    |           |             | -0.004    | -0.014, 0.005 | -0.004    | -0.014 to 0.005 |
| Yes                      |           |             | -0.008    | -0.033, 0.016 | -0.009    | -0.033 to 0.016 |
| Unsure                   |           |             | -0.005    | -0.017 to 0.007 | -0.005    | -0.017 to 0.007 |
| Received SNAP (ref: no)  |           |             | -0.014    | -0.031 to 0.002 | -0.014    | -0.030 to 0.002 |
| Yes                      |           |             |           |             |           |             |
| Unsure                   |           |             |           |             |           |             |
| Currently working (ref:  |           |             |           |             |           |             |
| no)                      |           |             |           |             |           |             |
| Yes                      | 0.008     | -0.004 to 0.019 |           |             | 0.007     | -0.004 to 0.019 |
| Unsure                   |           |             |           |             |           |             |
| Risk of death            | 0.001**   | 0.000 to 0.003 |           |             |           |             |
| Risk of infection        | 0.002***  | 0.001 to 0.003 |           |             |           |             |
| Risk of Hospitalization  | 0.000     | -0.001 to 0.001 |           |             |           |             |
| Individual fixed effects |           |             |           |             |           |             |
| Wave fixed effects       |           |             |           |             |           |             |
| Constant                 | 0.064***  | 0.055 to 0.072 | 0.061***  | 0.050 to 0.071 | 0.051***  | 0.040 to 0.063 |
| N. of cases              | 5,792     | 5,792       | 5,792     | 5,792       | 5,792     | 5,792       |

*p < 0.05, ** p < 0.01, *** p < 0.001

Notes: Coefficients are from linear probability models. Severe distress is coded 1 if PHQ-4 scores are equal to or greater than 9 and coded 0 for scores below 9.
Table 6A. Two-way fixed effects models with severe psychological distress (PHQ-4 scores 9 and above) regressed on vaccination status and perceived risk factors adjusting for state-by-wave fixed effects, April 2020 to June 2021 (N= 5,788)

| Received Vaccination (ref: no) | Model 1       | Coef.  | 95% CI     | Model 2       | Coef.  | 95% CI     | Model 3       | Coef.  | 95% CI     |
|--------------------------------|---------------|--------|------------|---------------|--------|------------|---------------|--------|------------|
|                                |               | -0.09**| -0.14 to -0.03 | -0.09** | -0.14 to -0.03 | -0.03 | -0.09 to 0.02 |
| Received UI (ref: no)          |               |        |            |               |        |            |               |        |            |
| Yes                            |               | 0.07   | -0.04 to 0.18 | 0.06    | -0.05 to 0.18 |        |           |
| Unsure                         |               | -0.01  | -0.31 to 0.29 | -0.02   | -0.32 to 0.28 |        |           |
| Received SNAP (ref: no)        |               |        |            |               |        |            |               |        |            |
| Yes                            |               | 0.02   | -0.09 to 0.14 | 0.02    | -0.09 to 0.14 |        |           |
| Unsure                         |               | -0.20* | -0.39 to -0.02 | -0.20* | -0.38 to -0.01 |        |           |
| Currently working (ref: no)    |               |        |            |               |        |            |               |        |            |
| Yes                            |               | 0.07   | -0.06 to 0.19 | 0.07    | -0.06 to 0.19 |        |           |
| Risk of death                  |               |        |            | 0.03***     | 0.01 to 0.04 |        |           |
| Risk of infection              |               |        |            | 0.04***     | 0.03 to 0.04 |        |           |
| Risk of Hospitalization        |               |        |            | 0.02***     | 0.01 to 0.03 |        |           |
| Individual fixed effects       | Yes           |        |            | Yes          |        |            | Yes           |        |            |
| Wave fixed effects             | Yes           |        |            | Yes          |        |            | Yes           |        |            |
| State × wave fixed effects     | Yes           |        |            | Yes          |        |            | Yes           |        |            |
| Constant                       | 2.35***       | 1.03 to 3.67 | 2.29*** | 0.96 to 3.63 | 2.07** | 0.74 to 3.41 |
| N. of cases                    | 5,788         |        |            | 5,788        |        |            | 5,788         |        |            |

*p<0.05, **p<0.01, ***p<0.001