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## Unemployment Insurance, Health Related Social Needs, Healthcare Access, and Mental Health during the COVID-19 Pandemic

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### Abstract

**Question:** Is living in a household that receives unemployment insurance benefits associated with lower risk for health-related social needs, delayed healthcare, and depressive symptoms among those in households that experienced job loss during the COVID-19 pandemic?

**Findings:** We used data from a nationally representative repeated cross-sectional survey to compare those with pandemic-related income disruption living in household that are versus are not receiving unemployment insurance benefits. Receipt of unemployment insurance was associated with lower risk of food insufficiency, missing a housing payment, delaying healthcare, and depressive symptoms.

**Meaning:** Unemployment insurance may mitigate short-term health impacts related to COVID-19 economic hardship.

### Keywords

Socioeconomic Factors; Food Insecurity; Unemployment; Depression; Anxiety; Healthcare Access

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**Prior Presentation:** None

**ACCESS TO DATA AND DATA ANALYSIS:** Seth A. Berkowitz had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis. The data are publically available. Analysis code for replication is provided via the weblink in the main text.

Over 30 million jobs have been lost during the COVID-19 pandemic.<sup>1</sup> Unemployment insurance (UI) was temporarily expanded by the CARES Act<sup>2</sup>, but further reform is under debate. Key CARES act provisions were adding \$600 weekly federal payments to state payments (Federal Pandemic Unemployment Compensation), longer benefit duration (Pandemic Emergency Unemployment Compensation), and broadened eligibility for minimum-wage, self-employed, contract, and gig workers (Pandemic Unemployment Assistance).<sup>2</sup>

UI may have short-term health effects through at least three pathways as benefit income can:<sup>3</sup> meet health-related social needs (e.g., food and housing); cover healthcare access expenses (e.g., insurance premiums, co-pays, transportation); and reduce stress, improving mental health.<sup>3</sup> We hypothesized that, among those with pandemic-related income disruption, living in a household receiving UI benefits would be associated with reduced health-related social needs, better healthcare access, and better mental health.

## Methods

We used data from the repeated cross-sectional Household Pulse Survey (<https://www.census.gov/householdpulsedata>) collected June 11 to July 21, 2020 (response rate: 3.0%, approximately the survey's target level). We included working age adults (born between 1955 and 2002, inclusive) who reported current household income disruption from pandemic-related job loss. The UNC IRB did not consider this human subjects research (Study Number: 20–2657).

Receiving UI was defined as using UI benefits to meet spending needs in the last 7 days. Study outcomes were: food insufficiency<sup>4</sup>, missing last month's housing payment, lack of confidence in affording next month's food or housing, being uninsured, delaying healthcare, delaying non-coronavirus healthcare, depressive symptoms, and anxiety symptoms.<sup>5,6</sup>

We fit survey-weighted Log Poisson regression models to estimate adjusted relative risks, using generalized estimating equations to account for repeated measures within individuals and robust variance estimation (analysis code: <http://saberkowicz.web.unc.edu/statistical-code/household-pulse-unemployment-insurance-code/>). The unit of analysis was the person-week (individuals could participate up to 3 times). Model covariates were: age, gender, self-reported race/ethnicity, education, 2019 annual household income, marital status, household size, state, and survey date. We multiply imputed missing data (Technical Appendix) and used the false discovery rate for type 1 error control.

## Results

68,911 included individuals, representing 34 million Americans, provided 79,032 survey responses. 36% of participants received UI benefits (Table 1).

In adjusted analyses, receiving, versus not receiving, UI benefits was associated with lower risk for unmet health-related social needs, delaying healthcare, and depressive and anxiety symptoms (Table 2). Being uninsured was not significantly different: RR 0.97 (95% CI 0.92 to 1.03).

## Discussion

Being in a household that received UI was associated with fewer health-related social needs, less healthcare delay, and better mental health. However, many who reported pandemic-related job loss did not receive UI—particularly Hispanic individuals and those with less education.

Pandemic UI reforms, specifically more generous income replacement and broader eligibility, should guide future UI programs. Future research should examine whether UI's relationship to health outcomes varies by reason for job loss, race/ethnicity, pre-pandemic income, and number of children, and how UI benefits may intersect with other programs, such as stimulus payments and Medicaid expansion.

Important limitations include possible selection bias (owing to low survey response rate), though we used weighting for respondent representativeness and multiple imputation for missing data. Observed associations should not be considered causal given the repeated cross-section design and because UI recipients may be better off than non-recipients in ways not accounted for (inflating the estimated benefit of UI) or those not receiving UI may have been excluded from the study after accepting underemployment (reducing estimated benefit). Also, both those who did and did not receive UI could receive other pandemic-related assistance—this may bias results to the null.

As unemployment insurance reform develops, policymakers should recognize the important health benefits unemployment insurance may offer working-age Americans.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1:**Characteristics of Included Participant<sup>^</sup>

	Overall	Did Not Receive Unemployment Insurance Benefits	Received Unemployment Insurance Benefits	P*
	N = 68911	N = 40173	N = 28738	
	Weighted N = 34382646	Weighted N = 21967614	Weighted N = 12415032	
	N (weighted %) or mean (SD)	N (weighted %) or mean (SD)	N (weighted %) or mean (SD)	
Age, years	39.5 (13.4)	39.2 (13.6)	40.0 (13.0)	0.003
Women	43421 (50.7)	25016 (49.6)	18405 (52.7)	0.003
Race/ethnicity				<0.001
NH White	41555 (44.7)	23425 (42.5)	18130 (48.6)	
NH Black	8859 (17.1)	5126 (16.8)	3733 (17.6)	
Hispanic	11413 (27.5)	7489 (30.4)	3924 (22.3)	
NH Asian	3460 (5.8)	1960 (5.1)	1500 (7.1)	
NH Other	3624 (4.9)	2173 (5.2)	1451 (4.4)	
Education				<0.001
< HS Diploma	3369 (14.9)	2444 (18.2)	925 (9.0)	
HS Diploma	12310 (35.6)	7379 (35.4)	4931 (36.1)	
> HS Diploma	53232 (49.5)	30350 (46.4)	22882 (54.9)	
Pre-pandemic annual household income				<0.001
Less than \$25,000	14142 (30.2)	9285 (34.5)	4857 (23.0)	
\$25,000 - \$34,999	8690 (16.1)	4930 (16.4)	3760 (15.8)	
\$35,000 - \$49,999	8753 (14.9)	4733 (14.0)	4020 (16.4)	
\$50,000 - \$74,999	10477 (16.4)	5506 (14.7)	4971 (19.2)	
\$75,000 - \$99,999	6598 (9.4)	3434 (8.3)	3164 (11.3)	
\$100,000 - \$149,999	6176 (8.0)	3217 (7.3)	2959 (9.3)	
\$150,000 - \$199,999	2286 (2.8)	1238 (2.6)	1048 (3.2)	
\$200,000 and above	1963 (2.1)	1233 (2.3)	730 (1.9)	
Married	30703 (41.6)	17993 (41.0)	12710 (42.6)	0.14
Household Size				<0.001
1	8927 (5.0)	4825 (4.5)	4102 (5.9)	
2	19268 (19.2)	10649 (17.9)	8619 (21.5)	
3	14410 (20.6)	8440 (20.0)	5970 (21.7)	
4	12957 (21.9)	7809 (22.4)	5148 (21.0)	
5	7147 (15)	4438 (15.6)	2709 (14.0)	
6	3307 (8.5)	2090 (8.9)	1217 (8.0)	
7	1363 (3.8)	894 (4.2)	469 (3.0)	
8	625 (1.9)	421 (2.1)	204 (1.5)	

	Overall	Did Not Receive Unemployment Insurance Benefits	Received Unemployment Insurance Benefits	P*
	N = 68911	N = 40173	N = 28738	
	Weighted N = 34382646	Weighted N = 21967614	Weighted N = 12415032	
	N (weighted %) or mean (SD)	N (weighted %) or mean (SD)	N (weighted %) or mean (SD)	
9	250 (0.9)	169 (1.1)	81 (0.7)	
10	657 (3.1)	438 (3.4)	219 (2.8)	
Survey Period				0.37
June 11 – June 16, 2020	10130 (24.1)	5855 (23.8)	4275 (24.8)	
June 18 – June 23, 2020	13966 (16.3)	8151 (16.4)	5815 (16.1)	
June 25 – June 30, 2020	11969 (14.8)	7077 (15.1)	4892 (14.1)	
July 2 – July 7, 2020	10613 (14.6)	6158 (14.6)	4455 (14.6)	
July 9 – July 14, 2020	11452 (15.3)	6673 (15.5)	4779 (14.8)	
July 16 – July 21, 2020	10781 (15.0)	6259 (14.6)	4522 (15.6)	
Food Insufficiency	13533 (25.1)	9517 (28.9)	4016 (18.5)	<0.001
Missed Housing Payment	10731 (26.7)	7028 (31.3)	3703 (19.3)	<0.001
Lacking Confidence in Affording Food Next Month	36158 (61.2)	22257 (64.2)	13901 (56.0)	<0.001
Lacking Confidence in Affording Housing Next Month	19773 (46.2)	12458 (50.9)	7315 (38.8)	<0.001
Uninsured	19463 (34.7)	11926 (36.7)	7537 (31.1)	<0.001
Delay Healthcare	31167 (44.9)	18532 (44.9)	12635 (44.8)	0.89
Delay Non-COVID Healthcare	26694 (39.0)	16143 (39.4)	10551 (38.4)	0.36
PHQ2 Depression Score $\geq 3$	25482 (42.3)	15487 (43.9)	9995 (39.5)	<0.001
GAD2 Anxiety Score $\geq 3$	32724 (50.6)	19364 (51.7)	13360 (48.8)	0.01

<sup>^</sup> Included participants are ones who 1) reported being in a household that experienced a loss of employment income on or after March 13, 2020, and 2) had no regular earned income source in the 7 days preceding the survey (defined as the kind of income a respondent had pre-pandemic), to meet their spending needs. Because participants could complete the survey for up to 3 weeks, this table presents results according to the first recorded survey response.

\* P values from weighted t-tests (age) or chi-squared tests (all other variables)

NH = non-Hispanic

HS = high school

COVID = Coronavirus Disease

PHQ = Patient Health Questionnaire

GAD = Generalized Anxiety Disorder

For the PHQ2 and GAD2, scores range from 0 to 6 (more depressive or anxiety symptoms), and, in keeping with scoring recommendations, we used a cutpoint of  $\geq 3$  on both the PHQ2 and GAD2 to indicate potentially clinically significant symptoms

**Table 2:**

Adjusted Relative Risk Between Receipt of Unemployment Insurance Benefits and Health-Related Social Needs, Healthcare Access, and Mental Health Outcomes

	Relative Risk (95% CI)	P	Q
Food Insufficiency	0.83 (0.77 to 0.88)	<.0001	0.0002
Missed Housing Payment	0.63 (0.58 to 0.69)	<.0001	0.0002
Lacking Confidence in Affording Food Next Month	0.94 (0.92 to 0.97)	0.0003	0.0005
Lacking Confidence in Affording Housing Next Month	0.84 (0.80 to 0.88)	<.0001	0.0002
Uninsured	0.97 (0.92 to 1.03)	0.36	0.36
Delay Healthcare	0.93 (0.89 to 0.98)	0.003	0.003
Delay Non-COVID Healthcare	0.91 (0.87 to 0.96)	0.0006	0.0009
PHQ2 Depression Score $\geq 3$	0.90 (0.85 to 0.95)	<.0001	0.0002
GAD2 Anxiety Score $\geq 3$	0.93 (0.89 to 0.97)	0.001	0.001

Relative risk compares risk for outcome in those who received unemployment insurance benefits to those who did not receive unemployment insurance benefit. A relative risk < 1 indicates lower risk for a given outcome (e.g., less likely to experience food insufficiency)

Point estimates, 95% confidence intervals, and p-values are from log-Poisson regression models fit using generalized estimating equations (to account for repeated survey responses within individuals), person weights, and robust variance estimation. Models were fit in 10 Markov Chain Monte Carlo multiple imputation datasets and combined for a summary estimate.

The q-value comes from the False Discovery Rate approach to control type I error. The q-value can be interpreted as indicating the proportion of results with that q-value or lower that would be expected to be a false positive accounting for all the analyses conducted. Thus a q-value < 0.05 indicates that, accounting for multiple analyses, a given result is expected to be a false positive less than 5% of the time.

Models were adjusted for age, gender, race/ethnicity, education, income, household size, marital status, state, and week of survey. The models for Food Insufficiency and Lacking Confidence in Affording Food Next Month were additionally adjusted for pre-pandemic food insufficiency.

Because of repeated observations, models included 79032 observations, except for models examining missing a housing payment and lacking confidence in affording housing next month. Because those questions were not asked of individuals who owned their home free and clear (and thus were not 'at risk' of experiencing the outcome), they were excluded from these analyses, resulting in 54794 observations.

COVID = Coronavirus Disease

PHQ = Patient Health Questionnaire

GAD = Generalized Anxiety Disorder

For the PHQ2 and GAD2, scores range from 0 to 6 (more depressive or anxiety symptoms), and, in keeping with scoring recommendations, we used a cutpoint of  $\geq 3$  on both the PHQ2 and GAD2 to indicate potentially clinically significant symptoms