



Locked down and locked in: the impact of COVID-19 on mental health



Alanood Al-Thani | Aisha Al-Remaihi | Advisor: Prof. Taeyong Park

Business Administration and Information Systems Program, Carnegie Mellon University in Qatar

Background

- The impact of isolation and loneliness caused by the COVID-19 pandemic might result in mental health problems and suicide risks.
- Does government restriction policies influence individuals' mental health?

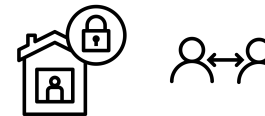
Method

- Dependent variable:** Daily Google search terms by US state (CounselingPsychology, insomnia, depression and AnxietyDisorder)
 - Time period: 23rd of February, 2020 - 17th of February, 2021
 - We assume that google search terms measure people's mental health conditions because when they have a concern they may seek information about it.
- Independent variable:** Daily government restriction policies by state (from the U.S. Department of Health & Human Services).
 - Government restrictions examples: border closures, school closures, isolation and quarantine policies.
 - Measured by adding 1+ for every instance that the government responded with a measure that impacted socialising.
- Controlled variables:** Daily state-level Number of deaths caused by COVID-19 cases (from John Hopkins University of Medicine), positive COVID-19 cases, and unemployment benefit claims (from U.S. Department of Labor).
- Fixed-effects linear regression analysis:** dummy variables for 50 states to control for state-specific characteristics.

Results

- Model 1 with state-fixed effects:** an increase in government restriction policies increases people's searches for insomnia in the US.

Model 2 with no state-fixed effects: an increase in government restriction policies increases people's searches for counseling psychology, insomnia, depression and anxiety disorder terms in the US.

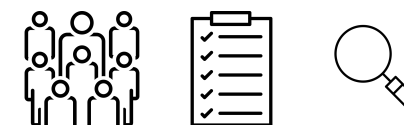


	CounselingPsychology		Insomnia		Depression		AnxietyDisorder	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Government Restriction Policy	.08574 (0.076961)	.1860 (8.39 × 10 ⁻⁶)	.2939 (9.48 × 10 ⁻⁹)	.4151 (2 × 10 ⁻¹⁶)	-.3071 (2 × 10 ⁻¹⁶)	.1444 (1.9 × 10 ⁻⁵)	.02636 (0.608958)	.3449 (5.41 × 10 ⁻¹⁵)
StateBenefitsWeeklyClaim	-74.91 × 10 ⁻⁶ (2 × 10 ⁻¹⁶)	43.82 × 10 ⁻⁶ (2 × 10 ⁻¹⁶)	8.682 × 10 ⁻⁶ (0.021844)	93.41 × 10 ⁻⁶ (2 × 10 ⁻¹⁶)	-30.49 × 10 ⁻⁶ (2 × 10 ⁻¹⁶)	60.10 × 10 ⁻⁶ (2 × 10 ⁻¹⁶)	-13.30 × 10 ⁻⁶ (0.000486)	84.30 × 10 ⁻⁶ (2 × 10 ⁻¹⁶)
Positive	-9.388 × 10 ⁻⁶ (6.57 × 10 ⁻¹⁰)	-3.144 × 10 ⁻⁶ (0.00274)	7.885 × 10 ⁻⁶ (8.95 × 10 ⁻⁷)	-7.666 × 10 ⁻⁷ (0.486)	-4.036 × 10 ⁻⁷ (0.728219)	-1.175 × 10 ⁻⁶ (0.166)	-2.697 × 10 ⁻⁶ (0.094937)	-5.009 × 10 ⁻⁶ (6.22 × 10 ⁻⁶)
Deaths	2.297 × 10 ⁻⁴ (0.021748)	1.172 × 10 ⁻³ (2 × 10 ⁻¹⁶)	-2.482 × 10 ⁻⁴ (0.018825)	1.354 × 10 ⁻³ (2 × 10 ⁻¹⁶)	-8.247 × 10 ⁻⁵ (0.281089)	9.321 × 10 ⁻⁴ (2 × 10 ⁻¹⁶)	-29.53 × 10 ⁻⁶ (0.781304)	1.334 × 10 ⁻³ (2 × 10 ⁻¹⁶)
Constant	3.344 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	4.576 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	1.554 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	3.932 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	5.283 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	6.053 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	2.499 × 10 ⁻¹ (2 × 10 ⁻¹⁶)	4.328 × 10 ⁻¹ (2 × 10 ⁻¹⁶)
Number of observations	18411	18411	18411	18411	18411	18411	18411	18411
State fixed effects	Yes	No	Yes	No	Yes	No	Yes	No

In parentheses () are the P-values

Conclusion & Future Research

- This is the first empirical analysis that demonstrates the impact of government restriction policies on individual's mental health.
- This result will contribute to people's understanding of the potential consequences of the government restriction policies on an individual's wellbeing. Which allows preparations for supporting individuals suffering from mental illness.
- For future research** we should include variables for psychiatrist, clinical psychologist patient visits, medical system, and demographic and socio-economics characteristics by state.
 - Include more search terms related to mental health.



References

Galea, S., Merchant, R. M., & Lurie, N. (2020). The mental health consequences of COVID-19 and physical distancing: The need for prevention and early intervention. *JAMA Internal Medicine, 180*(6), 817-818.

Moutier C. (2020). Suicide prevention in the COVID-19 era: transforming threat into opportunity. *JAMA Psychiatry*. Retrieved from: doi:10.1001/jamapsychiatry.2020.3746

Saltzman, L. Y., Hansel, T. C., & Bordnick, P. S. (2020). Loneliness, isolation, and social support factors in post-COVID-19 mental health. *Psychological Trauma: Theory, Research, Practice, and Policy*.

