

How did COVID impact traffic safety?

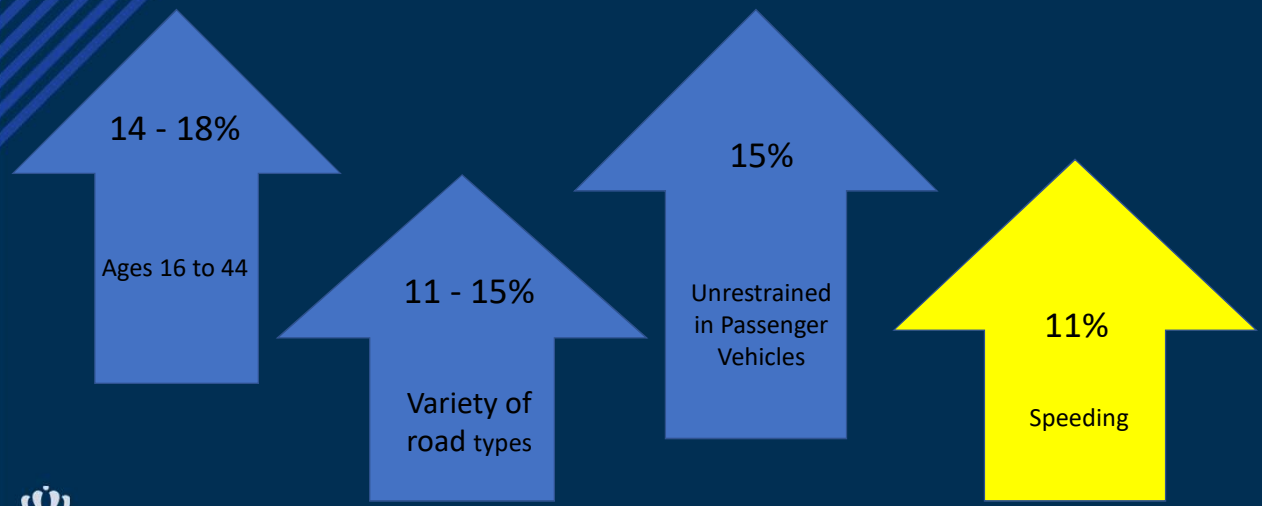
Bryan E. Porter – Old Dominion University

Nic Ward - Leidos

Brief Agenda

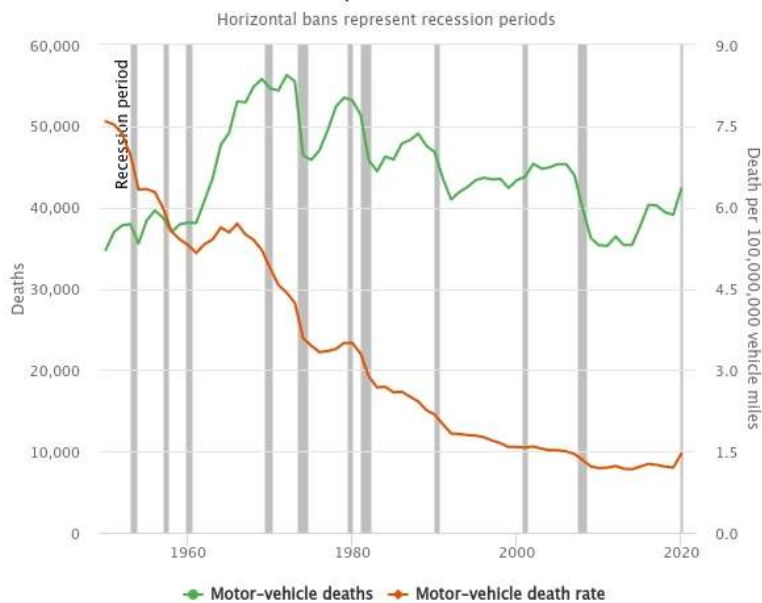
1. Testing the hypothesis that the social impact of COVID-19 was related to risky driving.
2. Discussion of reported crash data highlighting the COVID-19 “spike” compared to other spikes.
3. Discussion of possible psychological mechanisms that COVID-19 may have influenced to increase risky driving.

COVID-19 Impacts? – Early Estimates of US Crash Fatality Changes in 2020 over 2019

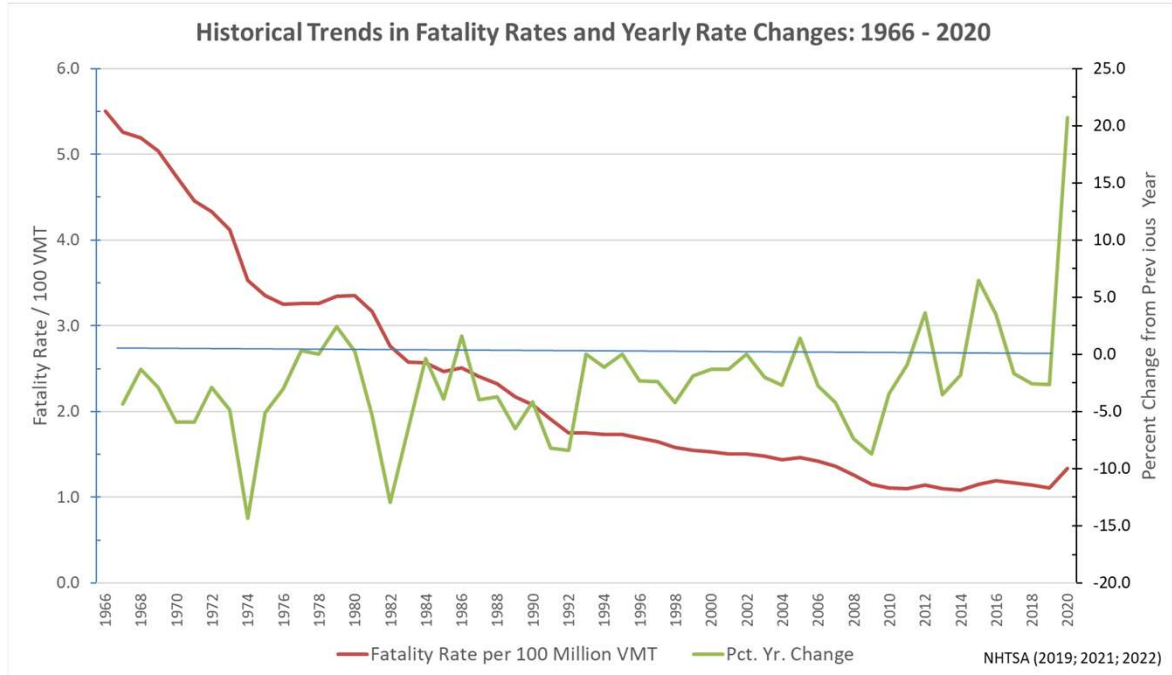


National Center for Statistics and Analysis (2021, June revised)

Historical motor-vehicle deaths and death rates and recession periods

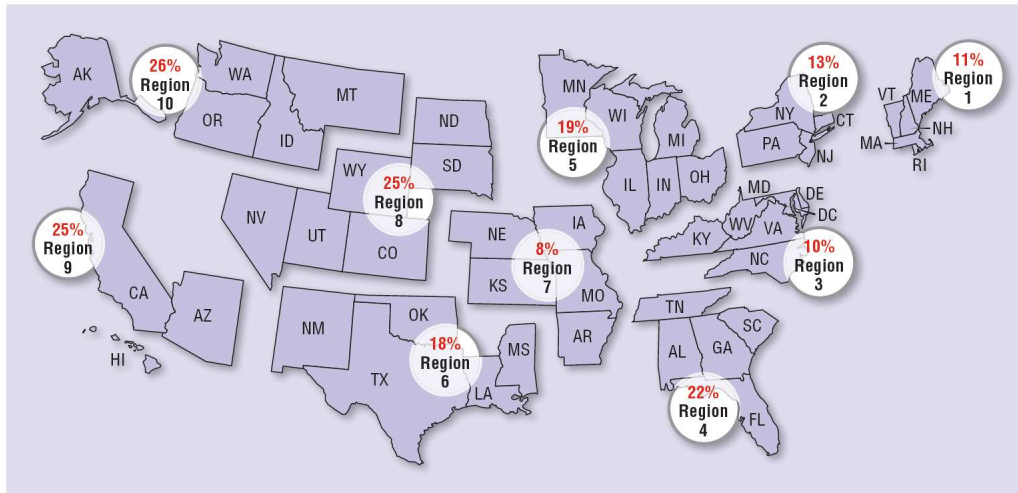


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From NHTSA Traffic Safety Facts (October 2021)

Figure 2: Percentage Change in Estimated Fatalities in the First Half of 2021 From Estimated Fatalities in the Same Half of 2020, by NHTSA Region



From Wegman & Katrakazas (2021)

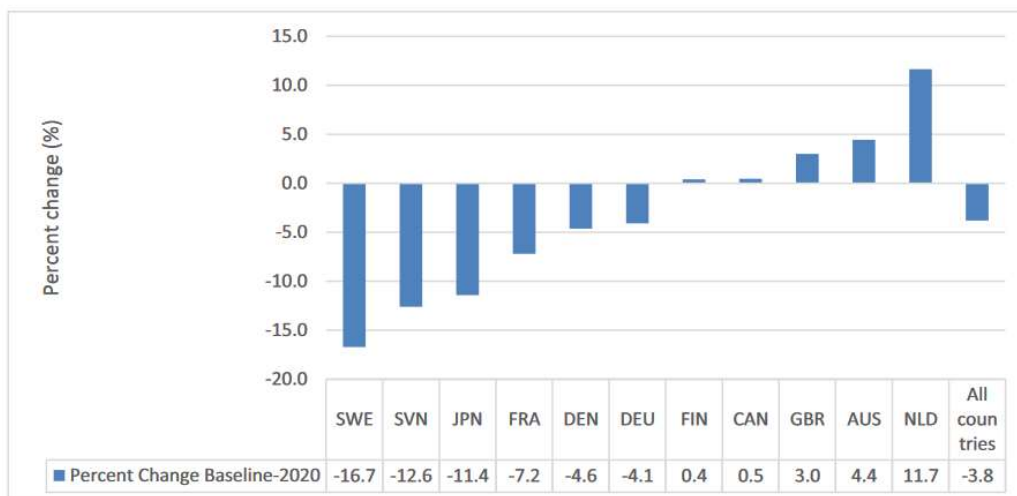


Fig. 12. Average percent change in fatality rates per country in 2020 compared with the baseline years.

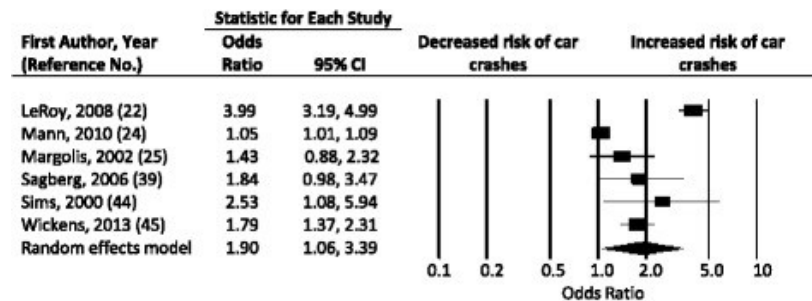
Hypotheses



Decline in
mental
health



Summary of odd ratios
indicating confidence of
association between
risk of car crash and
depression based on
published literature
between 1995 and 2015.

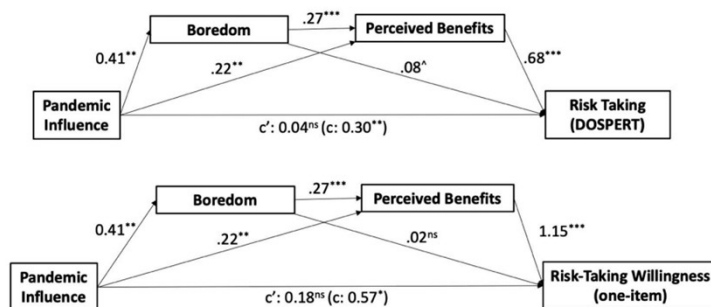


Source: Hill, L. L., Lauzon, V. L., Winbrock, E. L., Li, G., Chihuri, S., & Lee, K. C. (2017). Depression, antidepressants and driving safety. *Injury epidemiology*, 4(1), 10.

Increased
Risk
Taking



People more severely impacted
by COVID-19 report greater
boredom, resulting in more risk
taking (due to greater
perceived benefits of risk).



Note. Significance levels are denoted by ^ at $p < .10$, * at $p < .05$, ** at $p < .01$ and *** at $p < .001$.

Source: Tsai, C.I. & Ying Zeng, Y. (2021). Risky but alluring: Severe COVID-19 pandemic influences risk taking. *Journal of Experimental Psychology (Applied)*, 27(4), 679-694.



“Social Capital” represents the social bond (e.g., trust) between people that can support collective actions that benefit the group – including improved traffic safety!

“Unfortunately, many of the necessary protective practices instituted in response to COVID-19 further undermine social capital in American communities.

Specifically, extensive and prolonged physical distancing and isolation may accelerate and exacerbate the decline in social capital.”

Source: Pitas, N., & Ehmer, C. (2020). Social Capital in the Response to COVID-19. *American journal of health promotion : AJHP*, 34(8), 942–944

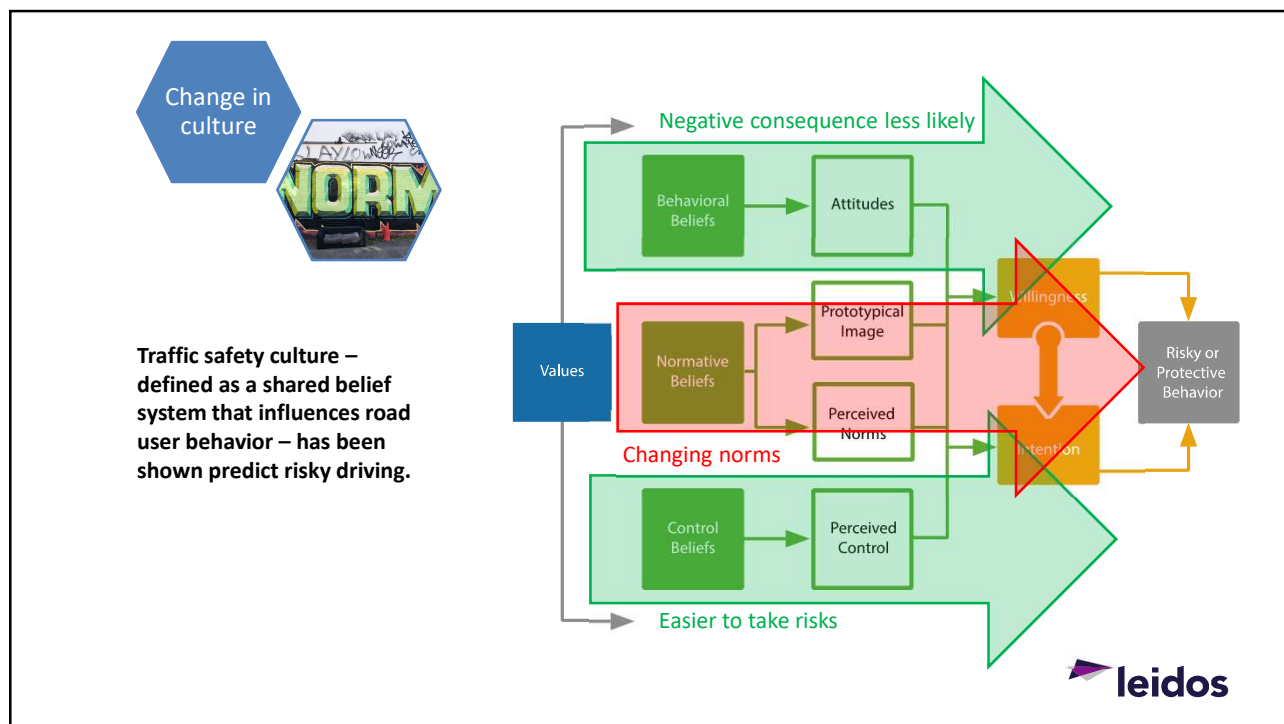


But exposure increased for high risk groups (young, male), which report greater risk taking behaviors.

Behaviors in 30 Days Before Survey	People who Increased Driving During Pandemic	People who Did Not Increase Their Driving
Speeding 10+ mph over Speed Limit on a Residential Street	51%	35%
Reading a Text	50%	33%
Red-Light Running on Purpose	45%	25%
Changing Lanes Aggressively	43%	20%
Not Wearing a Seatbelt	21%	12%
Alcohol-Impaired Driving	13%	6%
Driving After Cannabis Use	13%	4%

Source: AAA Newsroom, Solving A Puzzle: With Fewer Drivers on the Road During COVID, Why the Spike in Fatalities?





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