KIRK KERKORIAN SCHOOL OF MEDICINE | UNLV

Community Level Correlates of COVID-19 Booster Vaccine Hesitancy in the United States: A Cross-Sectional Analysis

Jeffrey Martin, Henry Krasner, Nicolette Harmon, MPH, Crysty-Ann Olaco, Dr. Kavita Batra, MPH, Ph.D., Dr. Dale Netski, Ph.D.

Kirk Kerkorian School of Medicine at UNLV

Introduction

- As of August 2023, coronavirus-19 (COVID-19) has resulted in 768.9 million confirmed cases and 11.7 million deaths worldwide.
- Despite ample evidence regarding the safety and efficacy of the COVID-19 primary vaccine and booster doses, public hesitancy towards these vaccines continue to rise. Over the past two years, global vaccine hesitancy towards the COVID-19 booster dose has increased—with North America and Europe showing the highest rates of hesitancy.
- Previous research has demonstrated that individual-level factors such as race and level of education play a role in vaccine hesitancy. However, it is unknown how community-level factors affect COVID-19 booster dose hesitancy.

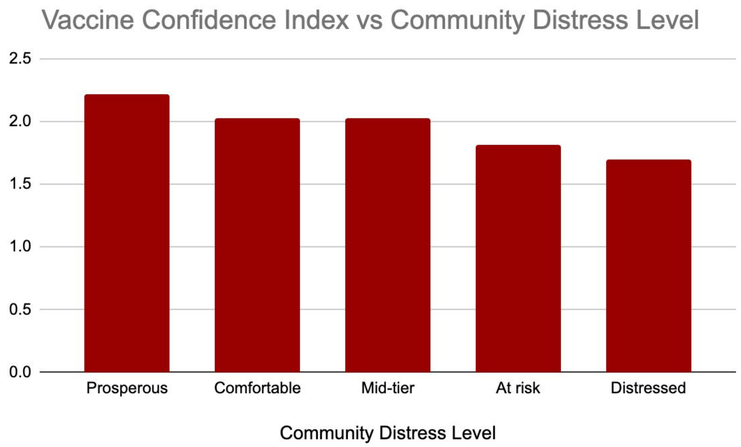
Aims

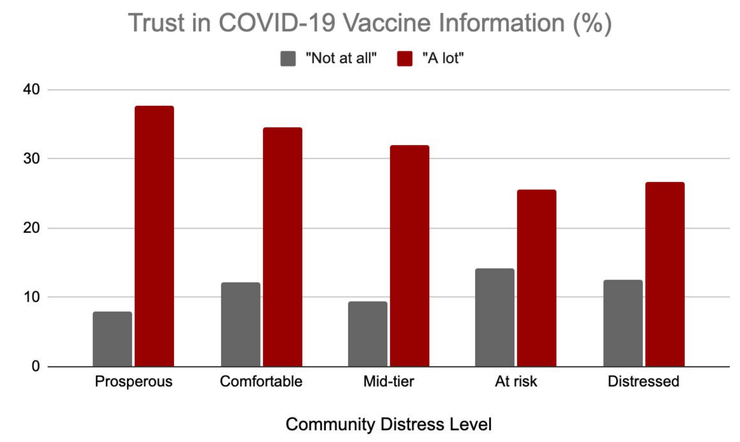
This study aims to identify how community-level factors affect hesitancy towards the COVID-19 booster dose.

Methods

- This cross-sectional study utilized data from a nationally representative survey conducted via Qualtrics from 14 July to 19 July 2021.
- Survey included a 48-item questionnaire that measures attitudes toward vaccinations, vaccine literacy, COVID-19 vaccine confidence index, and demographic information.
- The 2,138 survey participants were divided into quintiles of varying community distress levels (ranging from 1=prosperous to 5=distressed) based on their zip codes using the Distressed Communities Index, a tool that analyzes zip codes using seven different economic community-based indicators.
- Data was cross-analyzed with the national vaccine hesitancy survey. Data was analyzed through Chi-square with Cramer's V as the reported test statistic, one-way ANOVA, and post-hoc analysis with Tukey's test.

Figures and Tables





Differences in the Trust in COVID-19 Vaccine Information by Community Distress Level

Variable Name	Categories	1	2	3	4	5	*P* value	Statistics	ES
How much trust in COVID-19 vaccine information, n (%)	Not at all	36 (8.0)	53 (12.2)	37 (9.4)	60 (14.2)	48 (12.6)	<.001	33.015	.073
	Very little	71 (15.7)	78 (18.0)	76 (19.2)	93 (22.0)	87 (22.9)			
	Somewhat	175 (38.7)	152 (35.1)	156 (39.5)	162 (38.3)	144 (37.9)			
	A lot	170 (37.6)	150 (34.6)	126 (31.9)	108 (25.5)	101 (26.6)			

Community distress levels are categorized into the following 5 levels: 1= prosperous, 2= comfortable, 3= mid-tier, 4= at risk, and 5= distressed. ES = effect size. Effect size is reported as Cramer's V coefficient.

Chi-square analysis with Cramer's V as reported test statistic.

Results

- Prosperous communities (category 1) showed the smallest percentage of people (8.0%) with low trust and the greatest percentage (37.6%) with high trust in COVID-19 vaccine information.
- At risk and distressed communities (categories 4 and 5, respectively) had the greatest percentage (14.2% and 12.6%) of people with low trust and the smallest percentages (25.5% and 26.6%) with high trust in COVID-19 vaccine information.
- Additionally, participants from the prosperous communities were shown to have the highest vaccine confidence index (2.22), and members of the distressed communities were shown to have the lowest vaccine confidence index (1.70).
- Post-hoc analysis of the vaccine confidence index results showed that there was a significant difference between prosperous and at-risk communities ($p<0.001$), prosperous and distressed communities ($p<0.001$), comfortable and at-risk communities ($p = 0.040$), comfortable and distressed communities ($p<0.001$), mid-tier and at-risk communities ($p = 0.044$), and mid-tier and distressed communities ($p<0.001$).

Conclusions and Future Directions

- These findings indicate that individuals that are part of more distressed communities are associated with higher levels of hesitancy towards the COVID-19 booster dose.
- Reasons for this could include mistrust in government, lack of educational opportunities about vaccine safety and health literacy, and lack of accessibility to preventative care resources.
- Results from this study affirm the importance of developing community-level interventions in these more vulnerable groups to promote COVID-19 booster vaccine uptake.
- Future studies can further stratify the demographic variables in order to identify specific community-level factors that predispose populations to vaccine hesitancy.
- Future research can also examine how different community-level interventions can promote vaccine confidence in communities with higher rates of vaccine hesitancy.