COVID-19 Vaccine Acceptance in Unvaccinated Immigrant and US-Born Californians: A 2021 Cross-Sectional Analysis

Aryana Sepassi, PharmD, MAS[1]; Samantha Garcia, PhD, MPH[2]; Sora Tanjasiri, DrPH, MPH[3]; Sunmin Lee, ScD, MPH[4]; Nana Entsuah-Boateng, PharmD[1]; Mark Bounthavong, PharmD, PhD[5,6]

[1]University of California, Irvine School of Pharmacy & Pharmaceutical Sciences, Department of Clinical Pharmacy Practice; [2]University of Southern California, Department of Population and Public Health Sciences; [3]University of California, Irvine Program of Public Health, Department of Epidemiology & Biostatistics, [4]University of California, Irvine School of Medicine, Department of Medicine, [5]University of California, San Diego Skaggs School of Pharmacy and Pharmaceutical Sciences, Division of Clinical Pharmacy, [6]Department of Veteran Affairs, Health Economic Resource Center

Introduction

- The COVID-19 pandemic disproportionately affected immigrant communities in the United States, resulting in greater morbidity and mortality.[1-2]
- Disparities experienced by immigrants were associated with existing barriers to healthcare, including barriers in initial receipt of the COVID-19 vaccine.[3]
- US immigrants generally express positive vaccine acceptance attitudes. It is unknown whether these attitudes contributed to these disparities.[4]
- Evaluating the association between nativity and vaccine status can better serve to tailor public health initiatives targeted toward under-vaccinated immigrant communities.

Objectives

1. To evaluate the association between nativity and COVID-19 vaccine acceptance among unvaccinated adult Californians in 2021.
2. To evaluate whether an association, if present, is moderated by racial/ethnic status, educational attainment, and level of English proficiency

Methods

- California Health Interview Survey (CHIS) data from the adult (age 18 or older) 2021 cross-sectional file were used to generate the following study cohort:

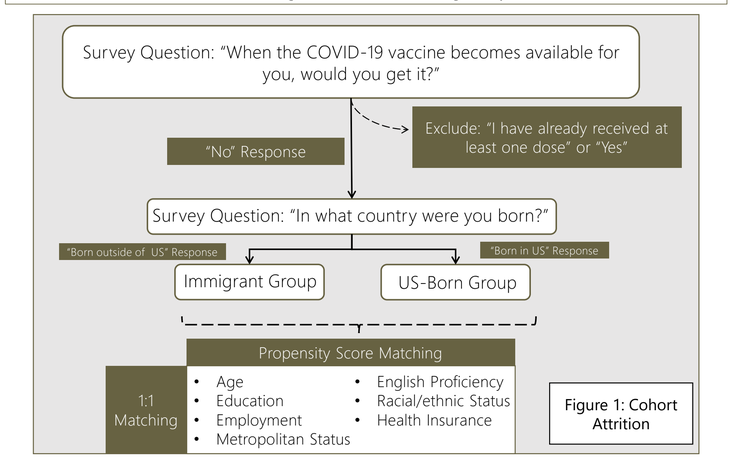


Figure 1: Cohort Attrition

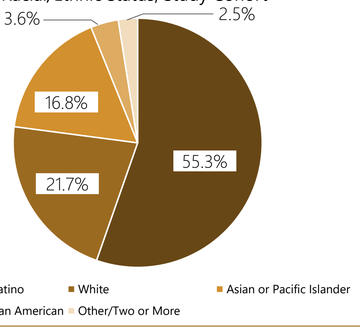
- A survey-weighted multivariable logistic regression model was fitted, adjusting for age, sex, marital status, income level, education, racial/ethnic status, English proficiency, years in the US, health insurance, and daily internet usage to determine the relationship between nativity and vaccine acceptance
- Three interaction terms were independently added to the model to evaluate the effect modification of racial/ethnic status, education, and English proficiency on the relationship between nativity and vaccine acceptance
- Analyses were performed using STATA version 18 (College Station, TX).

Results

A survey weighted total of **4,234,655** unvaccinated individuals were identified

1,983,376	US-Born
2,251,279	Immigrant

Figure 2: Racial/Ethnic Status, Study Cohort



Most Respondents.....

- Were 25-44 years old (40.8%)
- Were Male (54.0%)
- Reported an annual income of 300% of the federal poverty level or greater (50.4%)
- Spoke English "Very Well" or "Well" (70.6%)
- Reported Daily Internet Use of "Many Times a Day" (37.6%)
- *Most Immigrants had resided in the US for 15+ years (72.6%)

50.3%	Immigrants
44.2%	US-Born

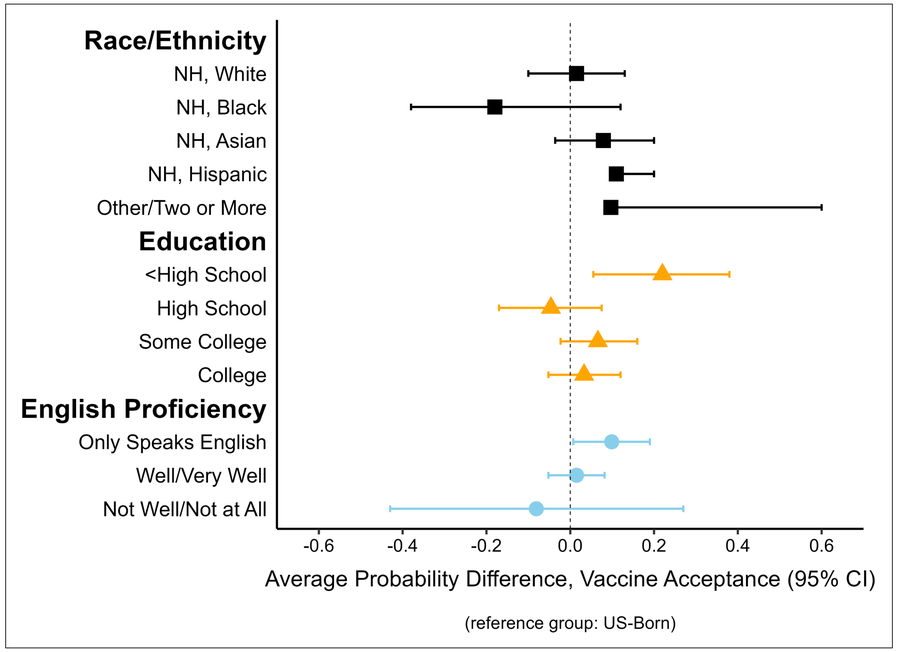
Reported COVID-19 Vaccine Acceptance in 2021

Immigrants had **2.8x greater odds** of demonstrating COVID-19 vaccine acceptance relative to US-born individuals.

Adjusted odds ratio (aOR) = 2.81, 95% CI: 1.16, 6.83

Among immigrants, those who were Hispanic or Latino, those with <high school education, and those who spoke only spoke English had a significantly higher odds of vaccine acceptance, relative to US-born individuals (**Figure 3**)

Figure 3: Average Probability Difference of Vaccine Acceptance for Immigrants vs. US-Born Individuals



Average probability difference is presented in percentage points.

Conclusions

1. Compared to US-Born individuals, immigrants in California had significantly greater odds in demonstrating early COVID-19 vaccine acceptance
2. Racial/ethnic status, educational attainment, and English proficiency level modified this relationship for immigrants.
3. Public health initiatives may use these findings to target future vaccination campaigns to certain vulnerable immigrant sub-groups.

References

1. Nana-Sinkam P, Kraschnewski J, Sacco R, et al. Health disparities and equity in the era of COVID-19. *J Clin Transl Sci.* 5(1):e99.
2. Siddiq H, Teklehaimanot S, Williams J. An Observational Study Quantifying the Disproportionate Impact of COVID-19 Among Immigrant Adults, 2021 California Health Interview Survey. *Public Health Rep.* 2024; 139(1): 120-128.
3. Karmakar M, Lantz PM, Tirpireni R. Association of Social and Demographic Factors With COVID-19 Incidence and Death Rates in the US. *JAMA Network Open*. 2021;4(1):e2036462.
4. Khodadadi AB, Hansen B, Kim YI, Scarinci IC. Latinx Immigrant Mothers' Perceived Self-Efficacy and Intentions Regarding Human Papilloma Vaccination of Their Daughters. *Womens Health Issues.* 2022;32(3):292-300.

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