



# Undergraduate Honors Project: What I Learned About Vaccine Hesitancy in Florida’s Urban and Rural Communities

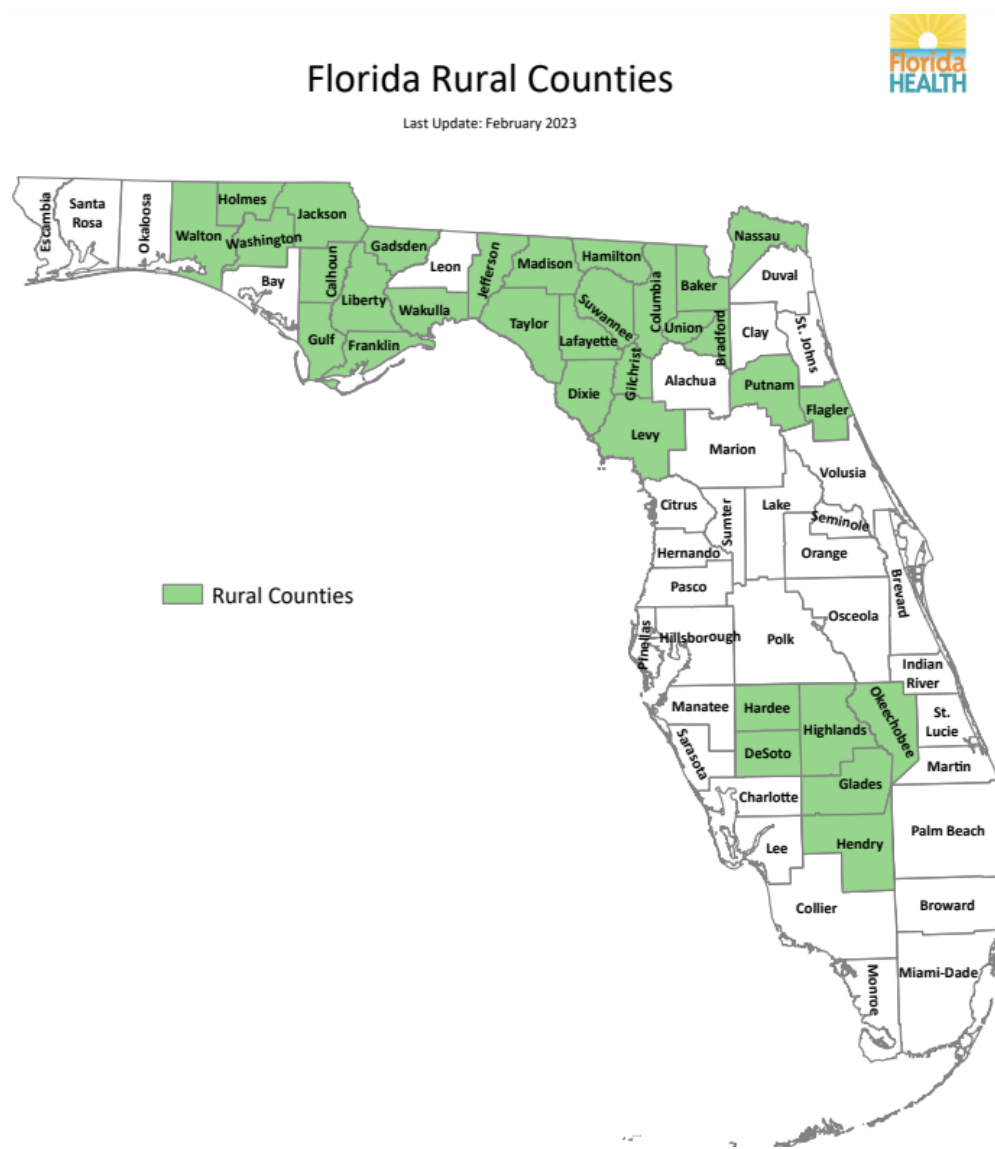
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## Background

Vaccinations are one of the most effective tools in public health, improving safety and eradicating diseases like smallpox (CDC, 2024). While vaccines in the U.S. are generally accessible and affordable, disparities persist, especially in Florida’s urban and rural communities. Rural areas show higher rates of vaccine hesitancy, increasing the risk of preventable outbreaks. The WHO defines vaccine hesitancy as delaying or refusing vaccines despite availability, influenced by factors like confidence and convenience (McIntosh et al., 2016).

Vaccine hesitancy has grown in the polarized U.S. climate, especially during COVID-19, shaped by personal, community, and policy factors (McIntosh et al., 2016). This thesis explores the rate differences of vaccination adoption in Florida’s urban and rural areas to inform targeted public health interventions.



## Methodology

### Quantitative:

Data from FL Health Charts includes first-dose COVID-19 vaccinations from 2021 to 2023 to measure acceptance or hesitancy. Key variables include geographic region (urban vs. rural), income (four tiers), race/ethnicity (more or less diverse based on 65% white population), age (cutoff at 42.4 years), and political affiliation (Republican or Democrat-majority counties).

### Qualitative:

A conceptual content analysis of 44 sources (from 2020 to 2025) was conducted using data from Florida State University Libraries. Line-by-line inductive coding identified emerging themes without pre-established categories, focusing on the impact of individual variables rather than relationships

Table 1. Content Analysis Search Terms, Count, and Results

Search Terms	Peer-Reviewed Academic Journal Articles	Newsletter Articles	Book Chapters	Reports	Total N=44
Florida Vaccine Demographics	10	4		1	15
COVID-19 and Florida	9	6		1	16
COVID-19 Vaccine Demographics	3		1		4
Urban COVID-19 Vaccinations	1				1
Rural COVID-19 Vaccinations	2			1	3
COVID-19 Vaccine Perceptions	4				4
Vaccine Hesitancy and Florida			1		1
Content Analysis Results	Codes	Categories	Themes		
	149	46	17		

Note: Search terms were conducted in this order. Therefore, it is likely the search terms with less results would have also encompassed sources included in the first 2 search terms.

## Discussion

This study aimed to determine whether living in a rural or urban Florida county influenced COVID-19 vaccination rates and to explain this relationship using other variables. The results supported the hypothesis, showing that living in a rural county was linked to a 0.114 decrease in vaccination rate in 2021. Geographic region was the 2<sup>nd</sup> most prevalent theme in the content analysis, after vaccine characteristics.

### Major Predictors of Lower Vaccination Rates:

- Political affiliation – Republican-majority counties were less likely to have higher vaccination rates.
- Income and age – Lower income and older age groups showed lower vaccination rates.

### Recommendations: Based on Qualitative Analysis

- Faith-based outreach – Partner with pastors and trusted leaders to promote vaccine acceptance.
- Combat misinformation – Partner with social media and conservative media to spread accurate information.
- Incentives – Offer incentives for attending vaccine sessions and vaccination sites.
- Accessibility – Use mobile vaccination units and partner with local stores and pharmacies to improve access, especially in rural areas.

## Research Questions

**Question 1:** How do COVID-19 vaccination rates vary in Florida’s urban and rural counties?

**Question 2:** What are the determinants, reasons, and influences behind these differences?

**Question 3:** What public health programs can be implemented to reach vaccine equity?

## Results

Figure 6. Political Party Affiliation, Geographic Status, and 2021 COVID-19 Vaccine Rates by County.

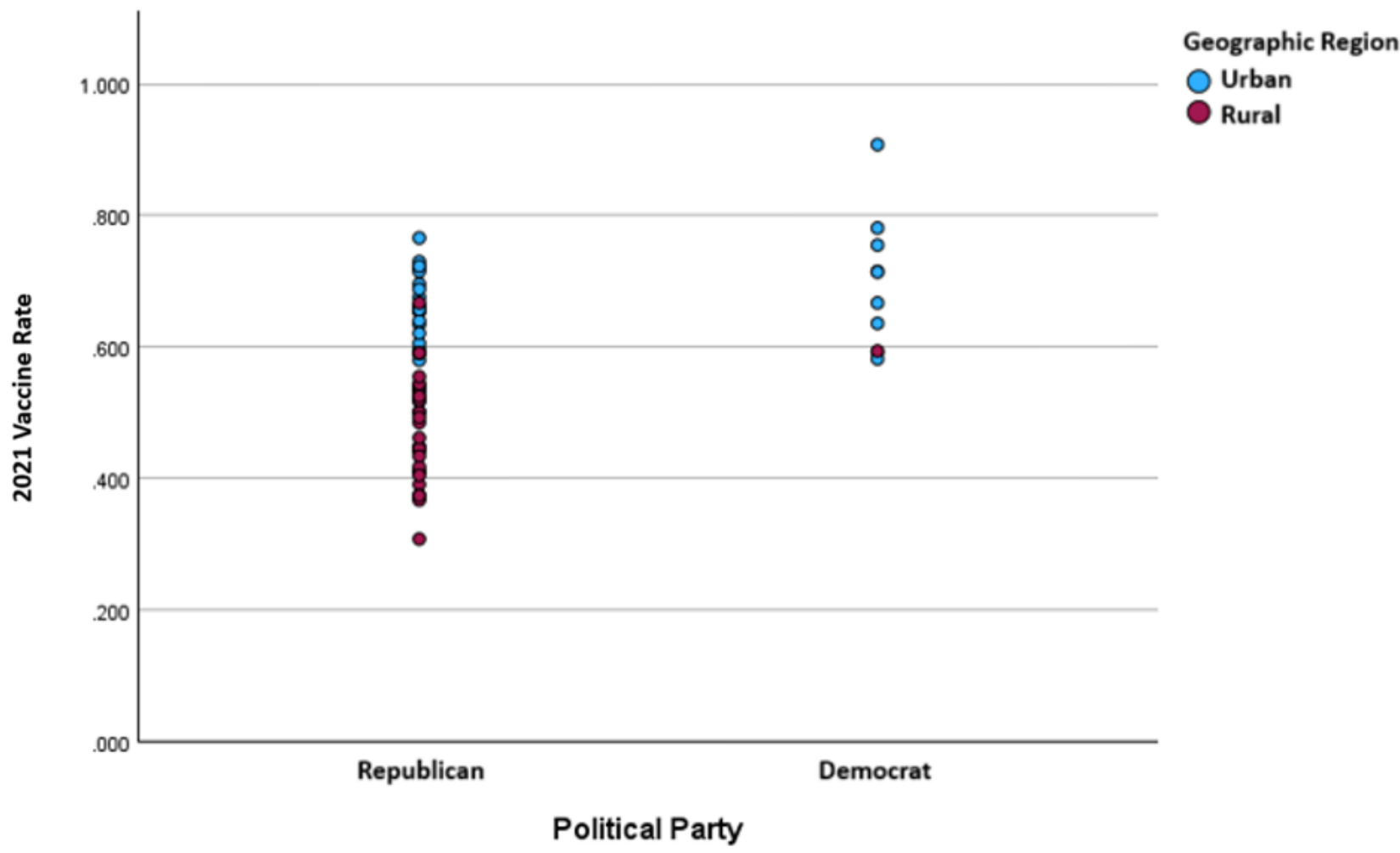


Figure 3. County Income Levels, Covid-19 Vaccination Rates and Geographic Region.

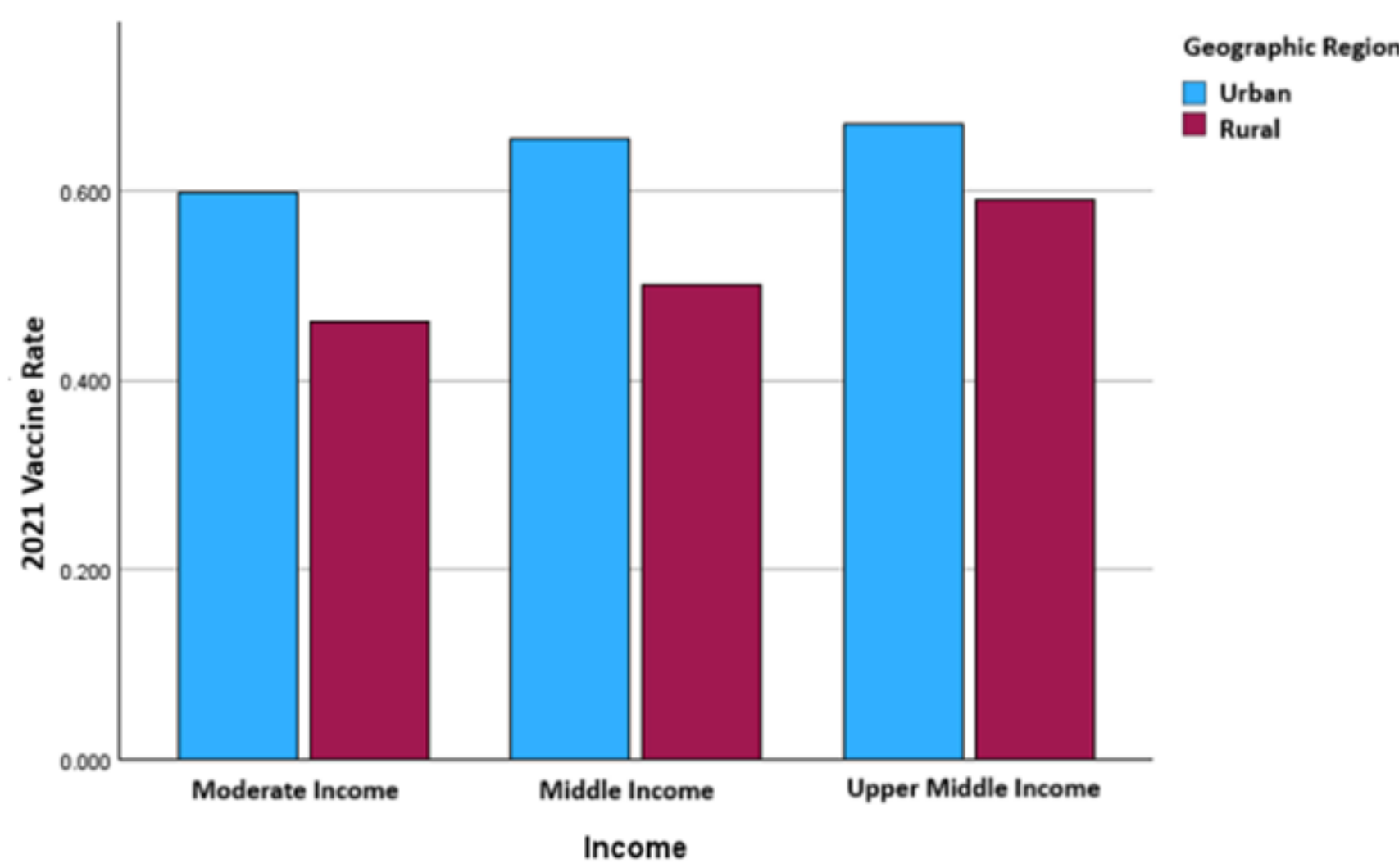


Table 2. Descriptive Statistics of Vaccination Rates by Geographic Region by Year

Year	Geographic Region	Mean Vaccination Rate	Std. Deviation	N	Min	Max
2021	Urban	0.657	0.084	34	0.517	0.908
	Rural	0.476	0.083	33	0.308	0.667
2022	Urban	0.239	0.041	34	0.16	0.361
	Rural	0.152	0.042	33	0.084	0.233
2023	Urban	0.092	0.026	34	0.051	0.174
	Rural	0.049	0.021	33	0.022	0.099

Note. Descriptive statistics summarize the distribution of values across geographic regions and years. The mean represents the average, while the standard deviation (SD) indicates variability within each group.

Table 3. Multiple Logistic Regression Results

	Unstandardized B Coefficients	Std. Error	Standardized Coefficients Beta	t	Sig.
Mean Vaccination Rate (2021)	0.519	0.042		12.31	<.001***
Geographic Status	-0.114	0.024	-0.466	4.833	<.001***
Income	0.04	0.017	0.222	2.39	0.02*
Race/Ethnicity	-0.042	0.025	-0.159	1.688	0.097
Age	0.088	0.019	0.358	4.591	<.001***
Political Affiliation	0.098	0.032	0.287	3.071	0.003**

Note: This data is based on the 2021 vaccine rate only. Statistical significance is assessed at the 95% confidence level (p < 0.05). Variables with p-values below this threshold are considered statistically significant. p<.05\*, p<.01\*\*, p<.001\*\*\*

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Table 4. Content Analysis Results: Top 5 Themes

Codes	Categories	Themes (n=17)	N
15	3	Vaccine Characteristics	69
11	2	Misinformation	65
12	3	Geographic Location	58
12	3	Politics	54
5	3	Officials	41