

Exploring the Multifaceted Influences on Vaccine Hesitancy in Mississippi

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What is Vaccine Hesitancy?

WHO defines as “delay in acceptance or refusal of vaccines despite availability of vaccination services.”
(Shen & Dubey, 2019)

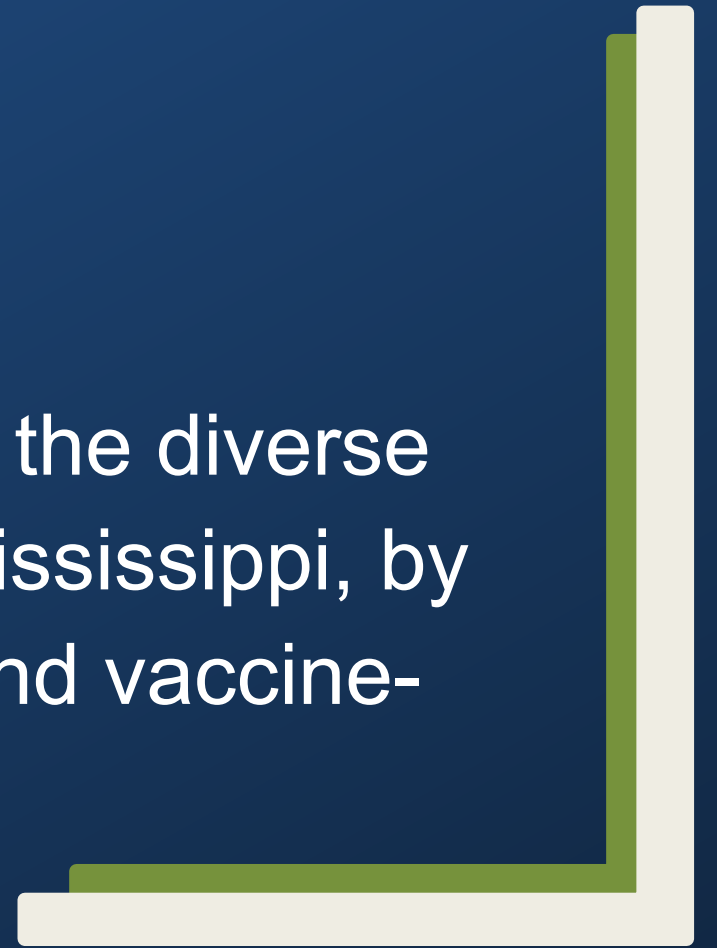


WHY ARE WE CONCERNED?

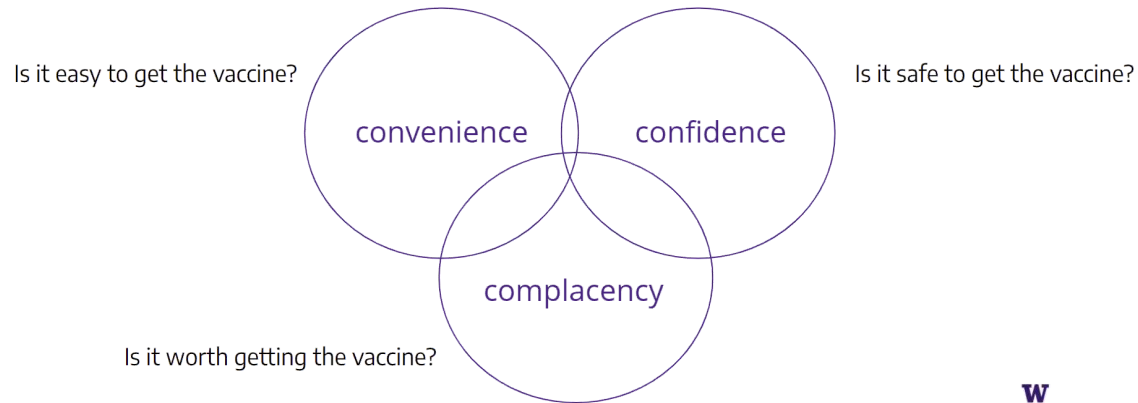
- Long-standing discrimination and cultural insensitivity faced by minority populations have contributed to a higher degree of COVID-19 vaccine reluctance, particularly in the Southern United States (Alcendor et al., 2023).
- Mississippi stands out with the second lowest COVID-19 vaccination rate in the nation (The Commonwealth Fund, 2022).
- In Mississippi, 54% of persons have completed their vaccinations, while 62% have received at least one vaccine dosage . Mississippi's vaccination rate (54%) lags behind the national rate (70%).(*Mississippi Coronavirus Vaccination Progress, 2023*).
- Limited research conducted regarding COVID-19 vaccine hesitancy in Mississippi.
- The COVID-19 vaccination has been successfully provided to millions of people, but a significant number of people are still afraid to get the shot (Vaccine Hesitancy).

OBJECTIVE

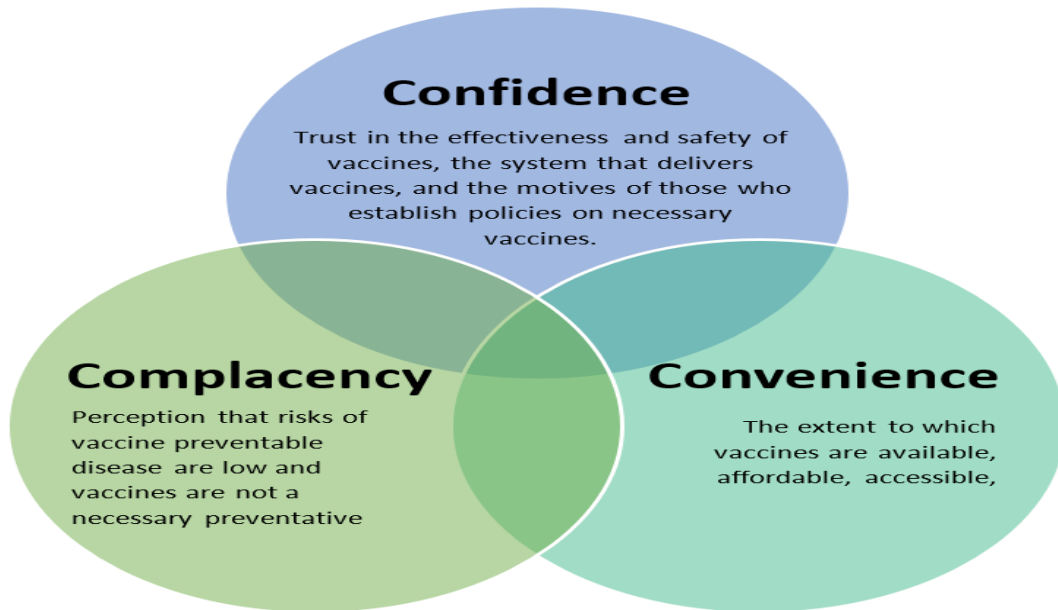
The purpose of this study is to investigate the diverse factors influencing vaccine hesitancy in Mississippi, by examining contextual, individual, group, and vaccine-related influences.



The three C's of vaccine hesitancy



W
CENTER FOR AN INFORMED PUBLIC



VACCINE HESITANCY SAGE MODEL



VACCINE HESITANCY DETERMINANTS

Contextual Influences	Individual & Group Influences	Vaccine & Vaccination Specific Issues
Communication & media	Experience with past vaccination	Reliability & source of supply
Influential leaders, immune	Beliefs, attitude	Mode of administration
Historical influences	Knowledge/awareness	Reliability of vaccine supply
Religion/culture/gender/ socio-economic	Risk/benefit (perceived, heuristic)	Vaccine schedule,
Geographical barriers	Provider barrier	Role of health care professionals
Pharmaceutical industry influences	Immunization as a social norm Vs not needed/harmful	Risk/ benefits (scientific evidence)

METHODOLOGY

- The data was collected from **589** adults from Mississippi using an online questionnaire.
- MS INBRE Outreach Scholars recruited participants through social media, e-mail, direct text messages, and community outreach.
- Persons 18 years and older were included.

STATISTICAL ANALYSES

- Statistical Tool: We utilized SAS Studio v9.4 for data analyses.
- Statistical Methods: Our analysis involved Chi-square test and Multiple Logistic Regression.
- Using Multiple Logistic Regression to examine how predictors variables are related to outcome variable.

DESCRIPTIVE STATISTICS

Table 1: Demographic Characteristics of Vaccine Hesitancy Respondents (N = 589)

Categorical Variables		N	%
Gender			
	Female	397	67.4
	Male	190	32.3
Age			
	"18-29"	343	58.2
	"30-44"	119	20.2
	"45 & above"	127	21.6
Race			
	White	255	43.3
	African American	268	45.5
	Other	66	11.2
Education			
	Less than High School / High School Degree	62	10.5
	Some College / 2-Year or Vocational Degree	271	46.0
	4-Year College Degree or Higher	256	43.5
Household Income			
	\$0 to \$19,999	98	16.6
	\$20,000 to \$29,999	86	14.6
	\$30,000 or greater	405	68.8
Vaccine Hesitancy			
	Hesitant	122	20.7
	Not Hesitant	44	7.5

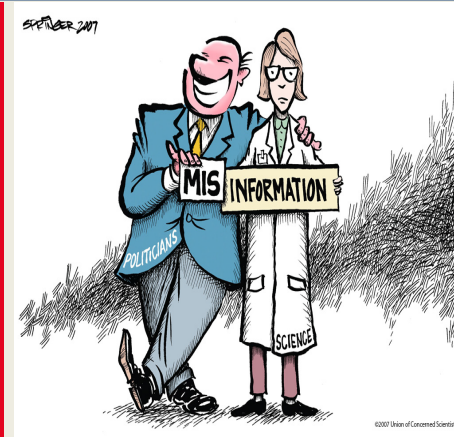
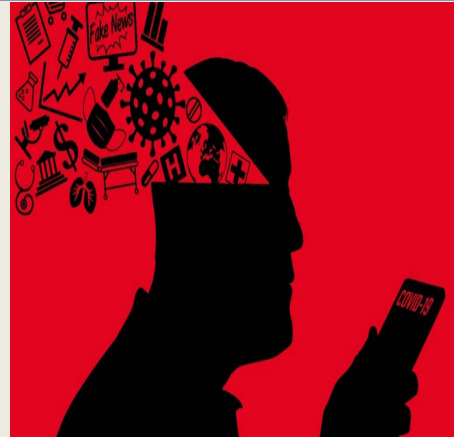
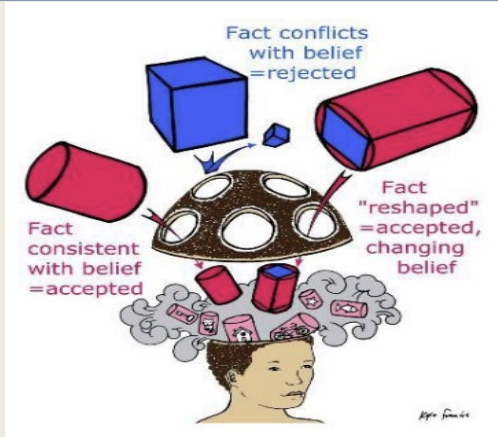
- In this study, most of the participants were females (N= 397,67.4%).
- About 20.5% of the surveyed population is hesitant towards vaccines, while 7.5% express vaccine not hesitant.
- According to age range responses, (58.23%) were "18-29," (20.2%) were "30-44," and (21.56%) were "45 & above."
- The majority of respondents (45.5%) identified as African American, followed by White (43.3%) and others (11.2%).

BIVARIATE ANALYSIS BETWEEN VACCINE HESITANCY AND INFLUENCING FACTORS

Independent Variables	Test	Test Statistic	p
Media primary source	χ^2	18.604	0.004
Media second source	χ^2	20.320	0.026
Influential leaders	χ^2	11.378	0.000
Religion/culture reasons	χ^2	4.375	0.036
Not getting the COVID-19 vaccine risk health	MH*	37.279	<.0001
Refused vaccine in past	χ^2	23.233	<.0001
Politics	MH*	6.253	0.01
Geographic barrier	MH*	35.816	<.0001
Vaccine producer interested in my health	MH*	16.969	0.000
Producers Safe and Effective	MH*	25.182	0.000
Provider Barrier	MH*	5.320	0.021
Better ways to prevent COVID-19	MH*	17.443	<.000
Vaccines strengthen the immune system	MH*	15.651	<.000
Risk/ benefits (Perceived, heuristic)	MH*	5.096	0.024
Safety Concern	MH*	3.877	0.048
Sufficient information about the vaccine	MH*	8.063	0.006
Immunization norm Vs not needed	MH*	50.225	<.0001
The COVID-19 vaccine is safe	MH*	45.390	<.0001
Institutional Experience	MH*	22.011	<.0001

- Bivariate analysis was conducted to explore the relationship between vaccine hesitancy and influencing factors at a significance level of $\alpha=0.05$.
- A statistically significant positive relationship was found between vaccine hesitancy and variables such as communication and media environment, influential leaders, religious/cultural, gender/socio-economic influences, political, provider trust, pharmaceutical industry influences, and perceived risk and benefits are related to vaccine hesitancy in Mississippians.

See What We Believe, Rather Than Believing What We See



MULTIPLE LOGISTIC REGRESSION

Outcome Variable	Variables	B	p	OR	95%CI
Vaccine Hesitancy	Influential Leaders	1.832	0.004	6.249	1.784- 21.884
	Refused to vaccine as an adult in past	1.859	<.0001	6.422	2.546- 16.199
	Covid-19 prevention without vaccine	0.391	0.008	1.480	1.107- 1.979
	Enough information to get vaccine	-0.444	0.002	0.641	0.484- 0.850

- Influential leaders have a statistically significant positive influence on vaccine hesitancy (OR = 6.249).
- A history of refusing optional vaccination is strongly associated with increased vaccine hesitancy (OR = 6.422).
- Belief in alternative COVID-19 prevention methods also contributes to hesitancy (OR = 1.480).
- Having sufficient information about the COVID-19 vaccine and its safety is negatively associated with hesitancy (OR = 0.641).
- The Likelihood ratio ($\chi^2= 58.495$, $p=<.0001$)

Influential leaders

Some groups or leaders do not agree with COVID-19 vaccination for different reasons. Do you know of any of these groups or individuals?



Vaccine Hesitancy

Influence arising from personal perception or social environment

As an adult, have you ever decided to not get an optional vaccination for yourself?



Vaccine Hesitancy

Knowledge, Awareness, Beliefs, Attitudes

There are other (better) ways to prevent COVID-19 instead of the vaccine



Vaccine Hesitancy

Risk/benefit (scientific evidence)

I have/had enough information about the COVID-19 vaccine and its safety to make a decision to get it for myself.

Willing to receive Vaccine

IMPLICATIONS

- **Engage Influential Leaders:** Collaborate with influential community leaders to promote accurate vaccine information and encourage vaccination.
- **Address Historical Hesitancy:** Develop interventions targeting individuals with a history of refusing vaccines, addressing their unique concerns and fears.
- **Policy and Education:** Implement policies that enhance vaccine education and build trust in healthcare providers and the pharmaceutical industry.
- These implications emphasize the importance of tailored strategies to address specific influences on vaccine hesitancy and promote vaccination in Mississippi.

LIMITATIONS

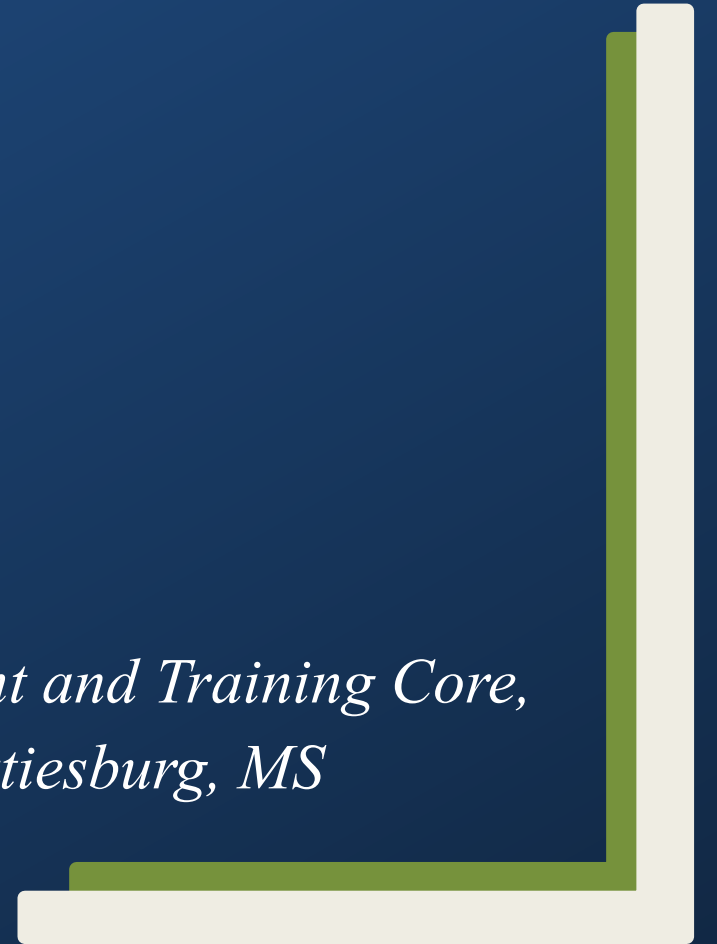
- The causal relationships cannot be determined, and the study cannot capture changes or trends in vaccine hesitancy over time, which is especially relevant in the context of evolving public health crises.

Thank you

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