

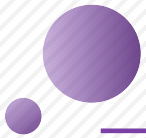


KANSAS STATE
UNIVERSITY

THE USE OF HEALTH BELIEF MODEL TO ASSESS PREDICTORS FOR COVID-19 VACCINATION IN RILEY COUNTY, KANSAS

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01

Introduction

Background

In the United States, there are approximately 45 million total COVID-19 cases, and the number is still increasing as of October 2021 (Centers for Disease Control and Prevention, 2021). At the same time, Riley County had a total COVID-19 positive case of case of 8,097 and a two-week cumulative percent positive of about 3.24 percent as of October 27, 2021 (Riley County Health Department, 2021).



In the U.S., the current fully vaccinated rate is only 57%, there were 80,248 new cases and 1,619 deaths on October 27 (CDC, 2021). At the same time, Riley County had 38 new cases and 59 deaths (RCHD, 2021). As of October 25, Riley County's full vaccination rate was 38% only (Kansas Department of Health and Environment, 2021).

COVID-19

- Transmission
- Testing



Vaccine

- Differences
- Effectiveness

Influence

- Unemployment
- Behavior changes

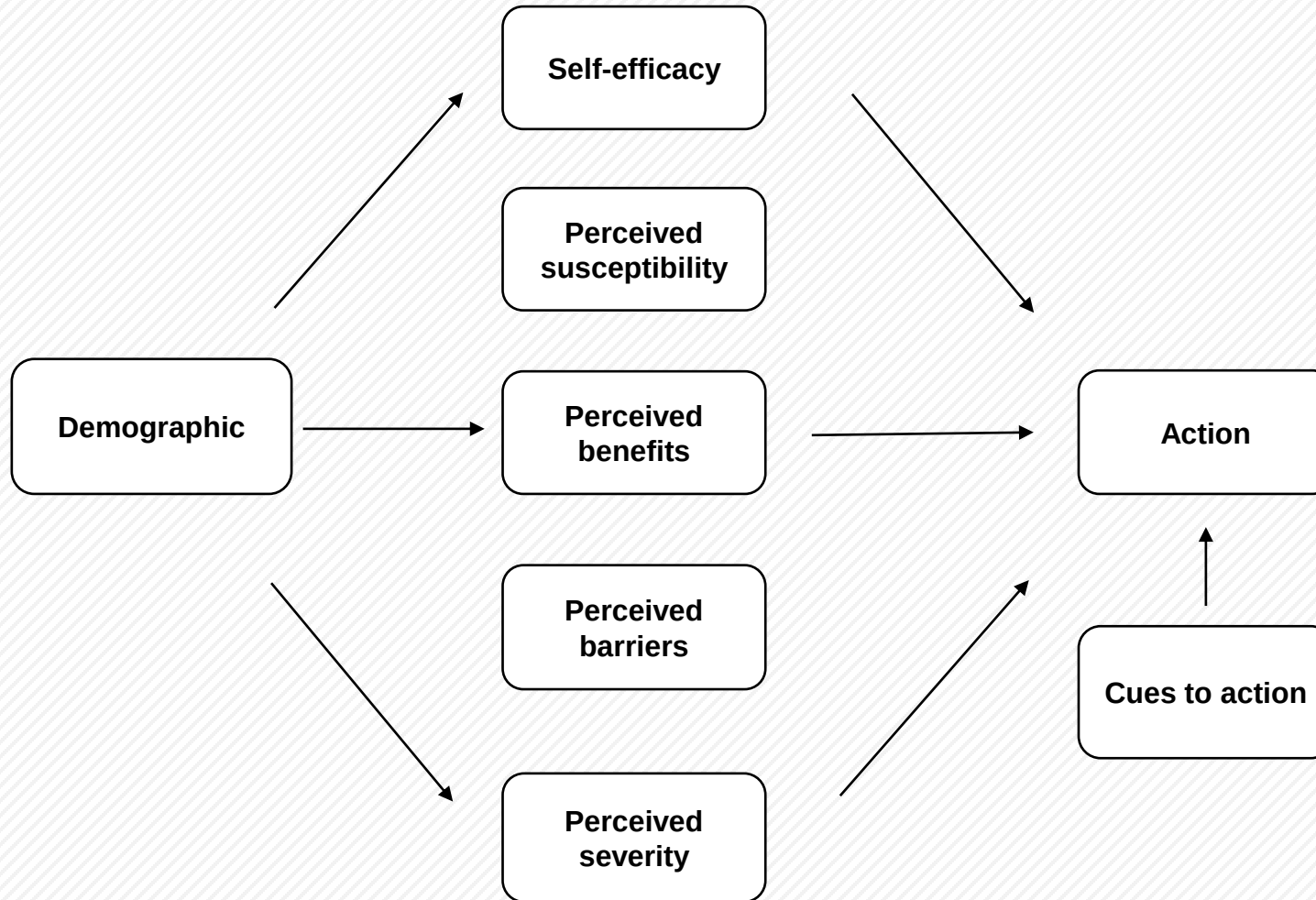


Prevention Efforts vs Vaccine Hesitancy

To understand perception of the COVID-19 vaccine in Riley County, and barriers to vaccine acceptance

02

Theoretical Framework





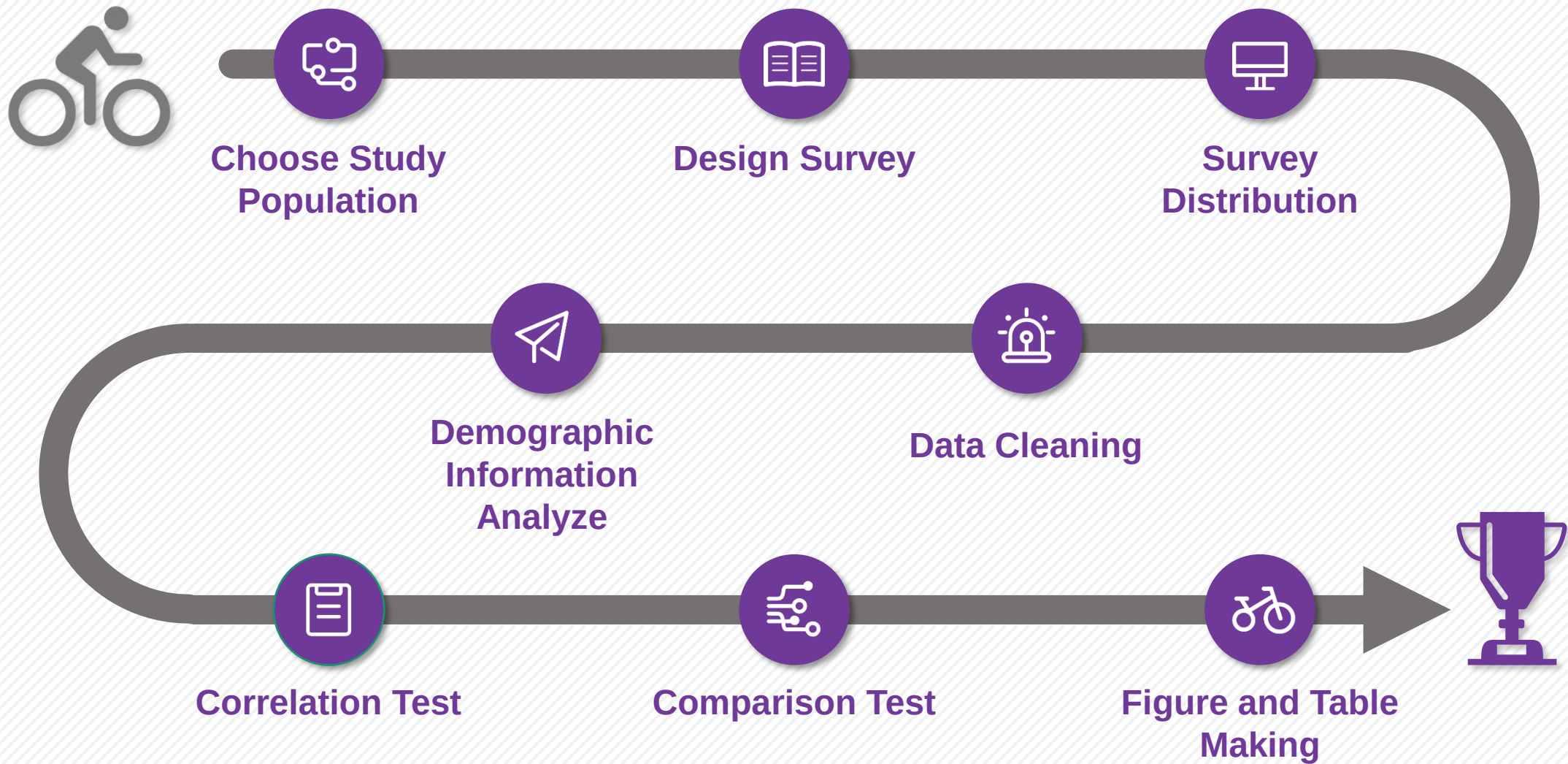
Hypotheses

- H1: COVID-19 vaccine intention will be positively correlated to the perceived threat of COVID-19.
- H2: COVID-19 vaccine intention will be negatively correlated to perceived barriers.
- H3: COVID-19 vaccine intention will be positively correlated to the perceived benefits of the COVID-19



Research Questions

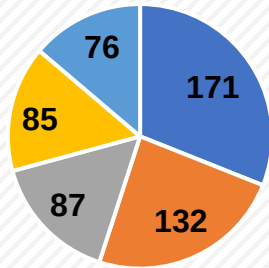
- RQ1: Is there a relationship between the influenza vaccination and COVID-19 vaccine intention?
- RQ2: Is there a difference among different age groups in their perceptions about COVID-19 severity and susceptibility?
- RQ3: Are there differences in vaccination hesitancy based on ethnicity?
- RQ4: What are the most used interpersonal and media sources for health information?



03

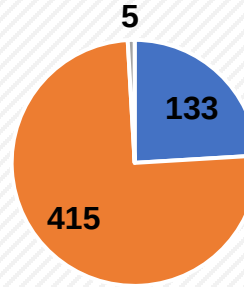
Results

Age



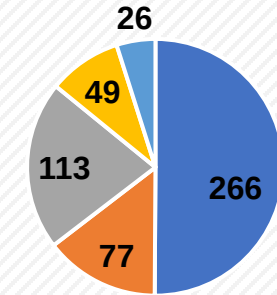
■ 18-27 ■ 28-37 ■ 38-47 ■ 48-57 ■ 58+

Gender



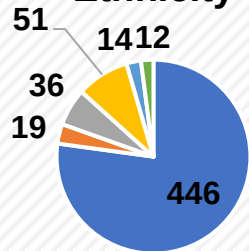
■ Male ■ Female ■ Other

Number of Children



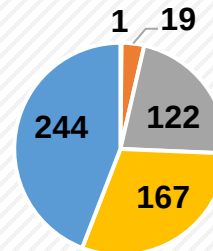
■ 0 ■ 1 ■ 2 ■ 3 ■ 3+

Ethnicity



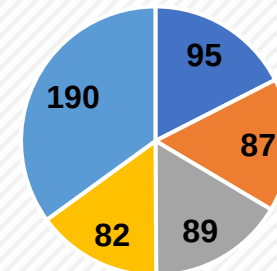
■ Caucasian
 ■ Black or African American
 ■ Latino/Hispanic
 ■ Asian
 ■ Native American or other Pacific Islander
 ■ Other

Education Level



■ Some High School
 ■ High School or GED
 ■ Some College
 ■ Undergraduate degree
 ■ Graduate/Professional degree

Estimated Annual Income



■ Less than \$10,000 ■ \$10,001-25,000\$
 ■ \$25,001-40,000\$ ■ \$40,001-55,000\$
 ■ More Than \$55,000

	Mean	SD	Cronbach's α
Intention	4.44	.98	.92
Perceived Benefits	3.72	.94	.77
Perceived Severity	2.99	.96	.79
Perceived Susceptibility	4.03	.71	.67
Perceived Clinical Barriers	1.94	.74	.63
Perceived Access Barriers	2.22	.73	.59
Self-Efficacy	3.6	.85	.68

Bivariate Intercorrelations of Key Study Variables

	Intention	Perceived Benefits	Perceived Severity	Perceived Susceptibility	Perceived Clinical Barriers	Perceived Access Barriers	Self-Efficacy	Influenza Vaccination	Media Channel	Interpersonal Channel
Intention	1									
Perceived Benefits	.520**	1								
Perceived Severity	.205**	.253**	1							
Perceived Susceptibility	.288**	.200**	.134**	1						
Perceived Clinical Barriers	-.552**	-.391**	-.085*	-.215**	1					
Perceived Access Barriers	-.436**	-.300**	-.001	-.111**	.355**	1				
Self-Efficacy	.251**	.137**	-.600	.142**	-.197**	-.238**	1			
Influenza Vaccination	.375**	.220**	.035	.214**	-.304**	-.226**	.128**	1		
Media Channel	.214**	.175**	.090*	.109**	-.074	-.103*	.065	.099*	1	
Interpersonal Channel	.047	.121**	.041	.102*	.079	.024	.012	.045	.398**	1

*Correlation is significant at the 0.05 level (two-tailed).

**Correlation is significant at the 0.01 level (two-tailed).

One-way ANOVA between Groups based on Demographic Factors

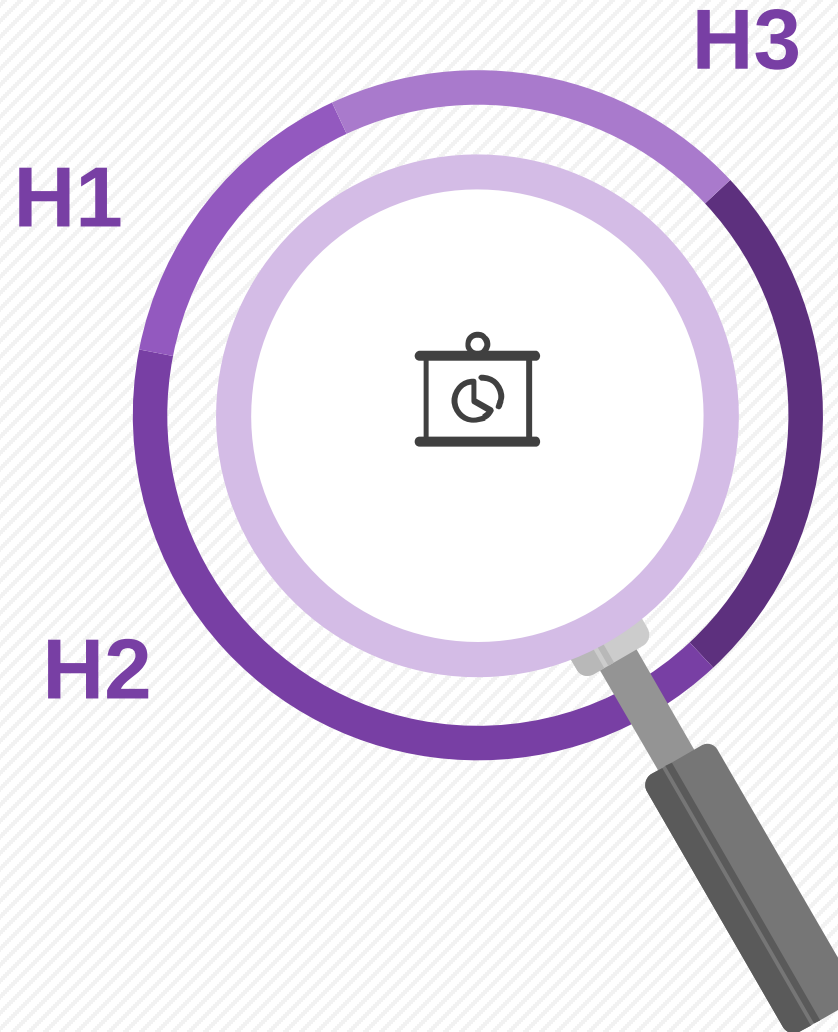
Age Group	
Perceived Severity	$F(4, 545) = 2.482, p = .043$
Perceived Susceptibility	$F(4, 546) = 7.071, p < .001$
Ethnicity Group	
Intention	$F(5, 522) = 4.027, p = .001$
Perceived Benefits	$F(5, 524) = 2.700, p = .02$
Perceived Susceptibility	$F(5, 524) = 7.251, p < .001$
Perceived Clinical Barriers	$F(5, 523) = 4.780, p < .001$

COVID-19 vaccine intention will be positively related to the perceived threat of COVID-19.

- This hypothesis was supported. There was a statistically significant positive relationship between COVID-19 vaccine intention and perceived virus severity ($r=.205$, $p<.001$).

COVID-19 vaccine intention will be negatively related to perceived barriers.

- This hypothesis was supported. Results show a statistically significant negative relationship between the COVID-19 vaccine intention and the perceived access barriers ($r=-.436$, $p<.001$).



COVID-19 vaccine intention will be positively related to the perceived benefits of the COVID-19 vaccine.

- This hypothesis was supported. Results show a statistically significant positive relationship between COVID-19 vaccine intention and the perceived benefits of the COVID-19 vaccine ($r=.52$, $p<.001$).

RQ1

There was a significant positive relationship between the COVID-19 vaccine intention and influenza vaccine ($r=.375$, $p< .001$).

RQ2

The age group between 18-27 differed significantly on their perceived susceptibility from all other age groups ($p< .05$).



RQ3

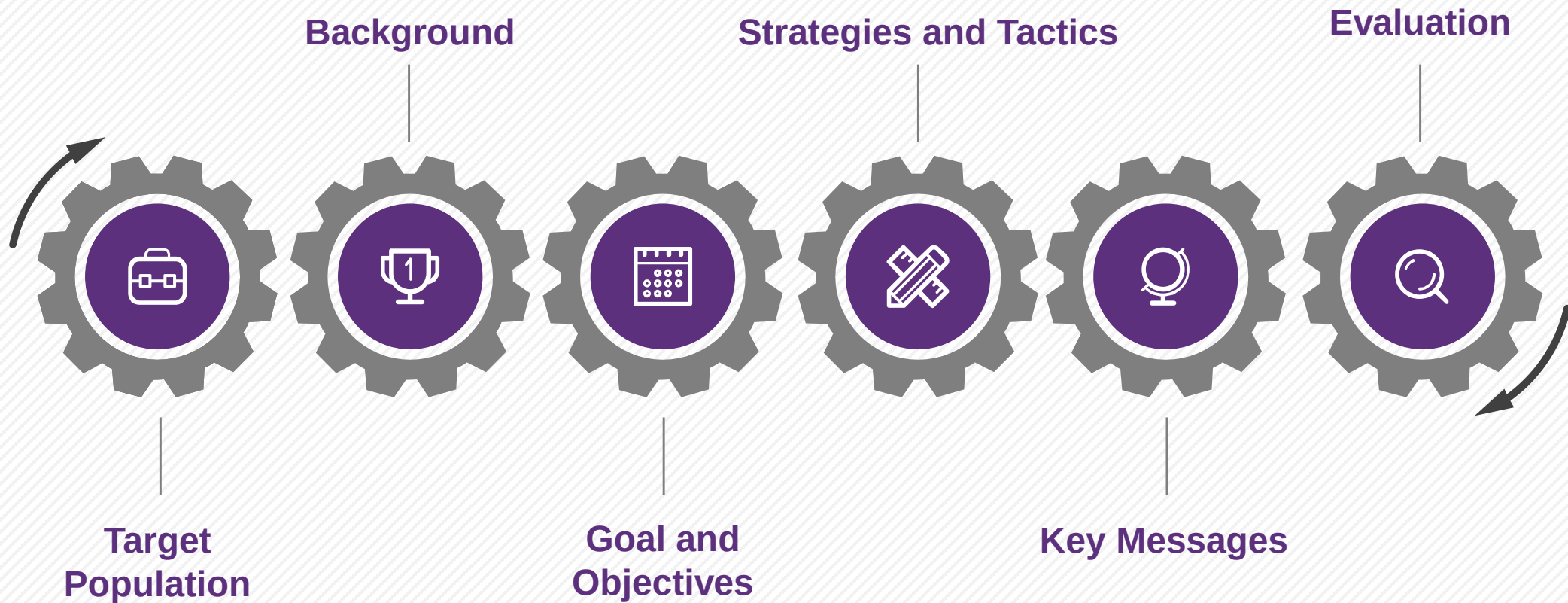
People of Asian ethnicity had significantly lower perceived virus susceptibility than the Caucasian group ($p< .001$).

RQ4

The most used interpersonal source was found to be friends (92.85% people used), and the most used media source was found to be the internet (98.65% people used).

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Health Campaign



Strategy 1

- Enhance the basic health education on COVID-19 virus and the COVID-19 vaccine for K-State students.

Tactics

- Education material distribution
- Influencer promotion
- Mandatory COVID-19 training



Strategy 2

- Increase familiarity between K-State students and COVID-19

Tactics

- Invite people who suffered from COVID-19 to give presentations

05

Competencies

Number and Competency		Description
#1	Apply epidemiological methods to the breadth of settings and situations in public health practice	This study used the cross-sectional method to compare different groups at the same time.
#2	Select quantitative and qualitative data collection methods appropriate for a given public health context.	The questionnaire used in this study includes both quantitative and qualitative data collection methods.
#3	Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	This project involved the analysis of data using the software Statistical Package for the Social Sciences (SPSS).
#4	Interpret results of data analysis for public health research policy or practice	Riley County Health Department can use the study results as references for policymaking.
#22	Apply systems thinking tools to a public health issue	Used the Health Belief Model (HBM) flow chart to illustrate the sequences between different theory elements to solve the problem.

MPH Emphasis Area: Infectious Diseases and Zoonoses

Number and Competency		Description
1	Pathogens/pathogenic mechanisms	Evaluate modes of disease causation of infectious agents.
2	Host response to pathogens/immunology	Investigate the host immune response to infection.
3	Environmental/ecological influences	Examine the influence of environmental and ecological forces on infectious diseases.
4	Disease surveillance	Analyze disease risk factors and select appropriate surveillance.
5	Disease vectors	Investigate the role of vectors, toxic plants, and other toxins in infectious diseases.

06

References

Centers for Disease Control and Prevention. (2021, October 27). *CDC COVID Data Tracker*. Centers for Disease Control and Prevention.
<https://covid.cdc.gov/covid-data-tracker/#vaccination-trends>

Riley County Health Department. (2021, October 27). *Corona Virus Response-Riley County, KS*. Riley County Health Department. <https://coronavirus-response-rcitgis.hub.arcgis.com/>

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Questions?

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