

H1N1 and Seasonal Flu Vaccines

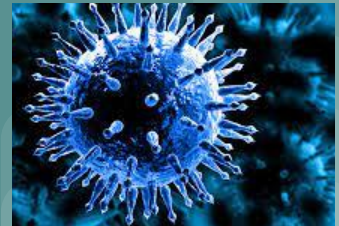


Introduction

A pandemic produced by the H1N1 influenza virus, often known as "swine flu," swept the world beginning in spring 2009. According to researchers, it was responsible for between 151,000 and 575,000 fatalities worldwide in its first year. The H1N1 flu, sometimes known as swine flu, is caused predominantly by the H1N1 strain of the influenza (flu) virus. Swine flu was initially identified during the 1919 pandemic and continues to circulate as a seasonal flu virus. The H1N1 virus strain, which originated in pigs, causes swine flu.

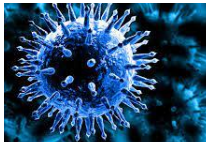
In October 2009, a vaccination against the H1N1 flu virus became widely accessible.

Seasonal influenza is an acute respiratory illness caused by influenza viruses that circulate globally. is a yearly repeating time period marked by the presence of an influenza outbreak.

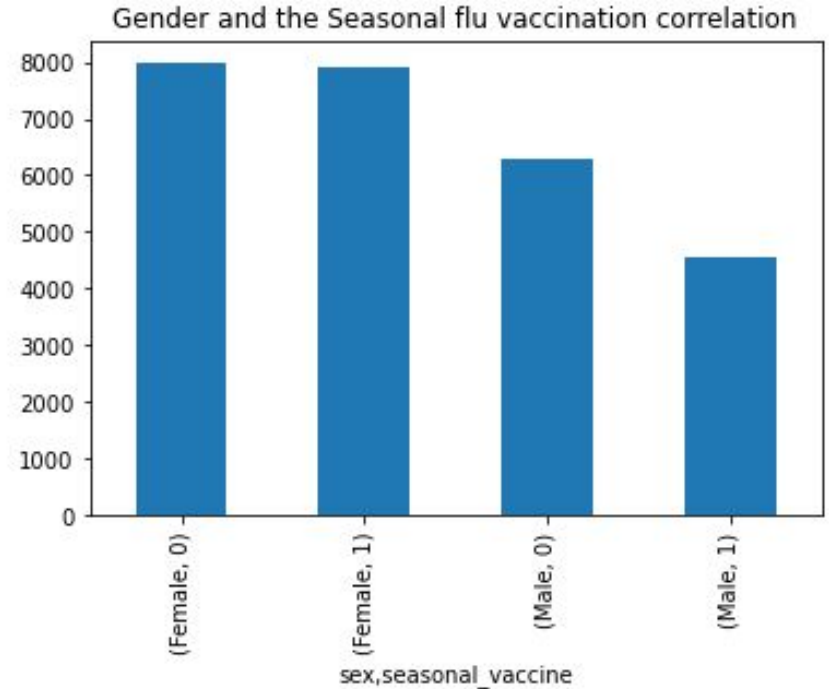
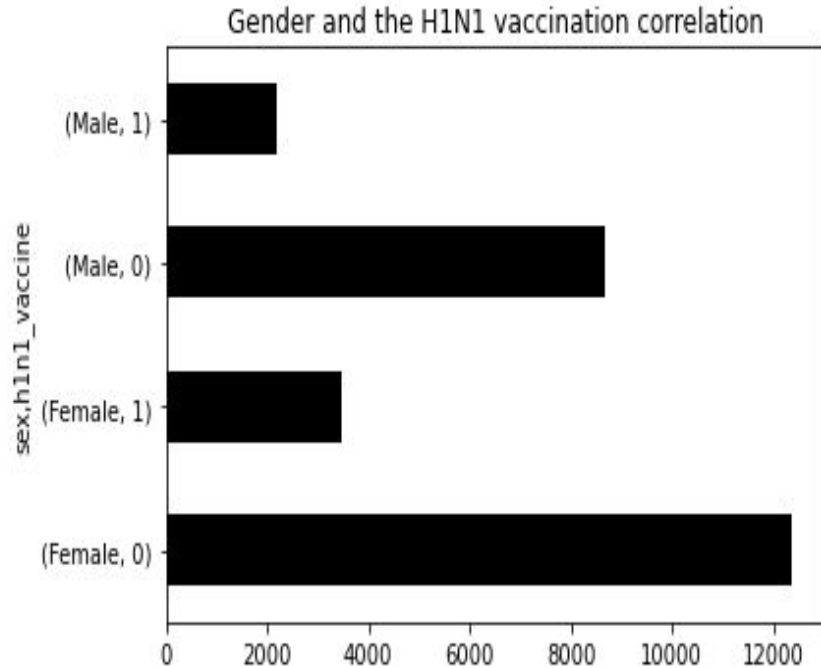


BUSINESS UNDERSTANDING

In 2009, the H1N1 influenza pandemic, commonly referred to as "swine flu," spread across the world, resulting in an estimated 151,000 to 575,000 deaths globally in its first year. To combat the virus, a vaccine was made publicly available in October 2009. To gain insight into vaccination patterns and behavior, the United States conducted the National 2009 H1N1 Flu Survey, which was a phone survey that asked participants about their H1N1 and seasonal flu vaccine status, as well as their social, economic, and demographic information, opinions on illness and vaccine risks, and behaviors for reducing transmission. By gaining a better understanding of the relationships between these factors and vaccination patterns, this information can be used to guide future public health initiatives. This phone survey asked respondents whether they had received the H1N1 and seasonal flu vaccines, in conjunction with questions about themselves. These additional questions covered their social, economic, and demographic background, opinions on risks of illness and vaccine effectiveness, and behaviors towards mitigating transmission. A better understanding of how these characteristics are associated with personal vaccination patterns can provide guidance for future public health efforts.

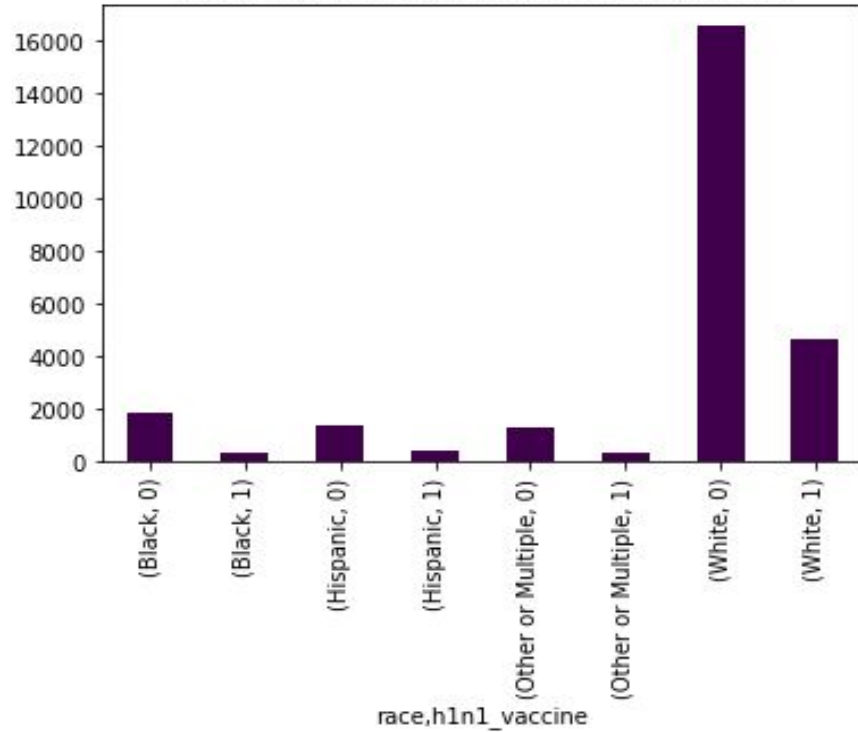


A few characteristics were included in the poll to determine their likelihood of receiving both vaccines:

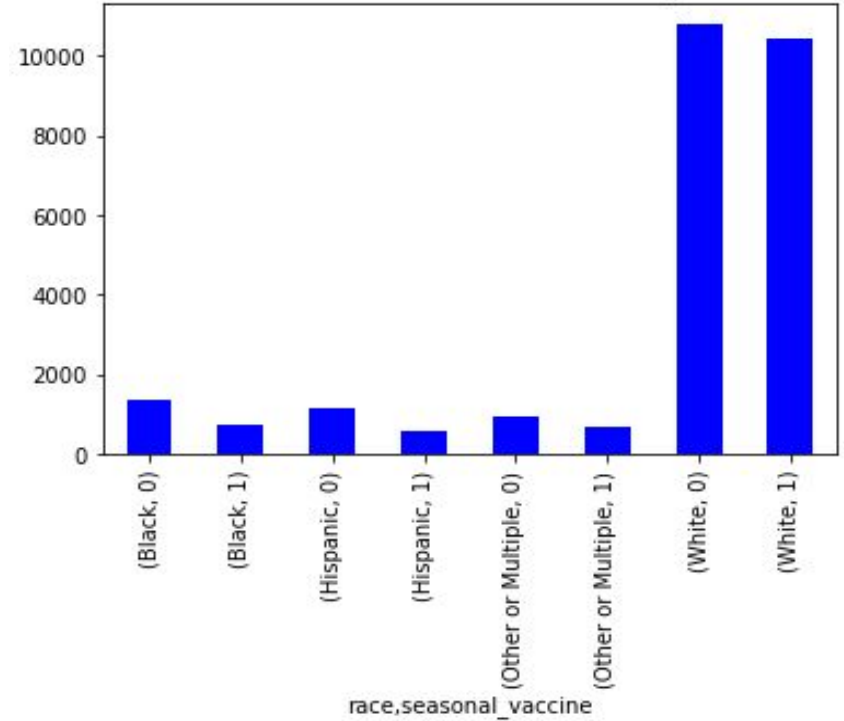


Women outnumbered males in seeking both vaccinations

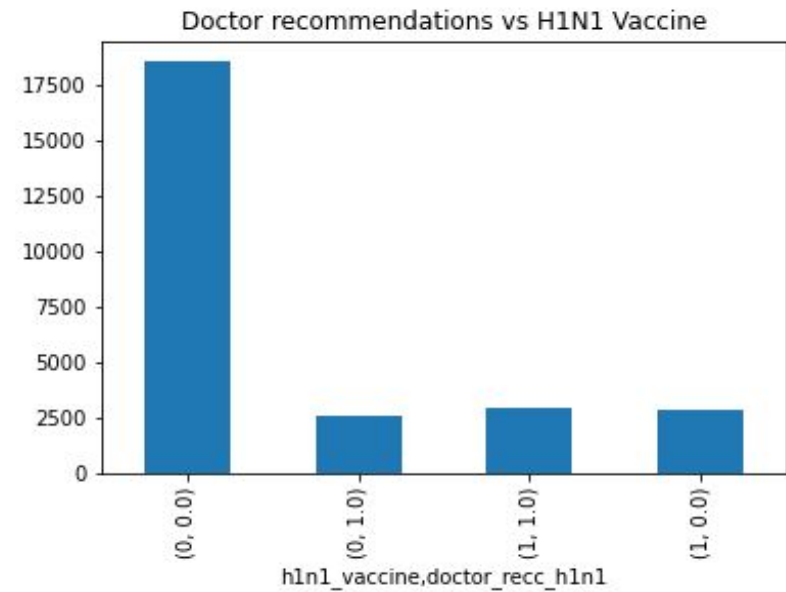
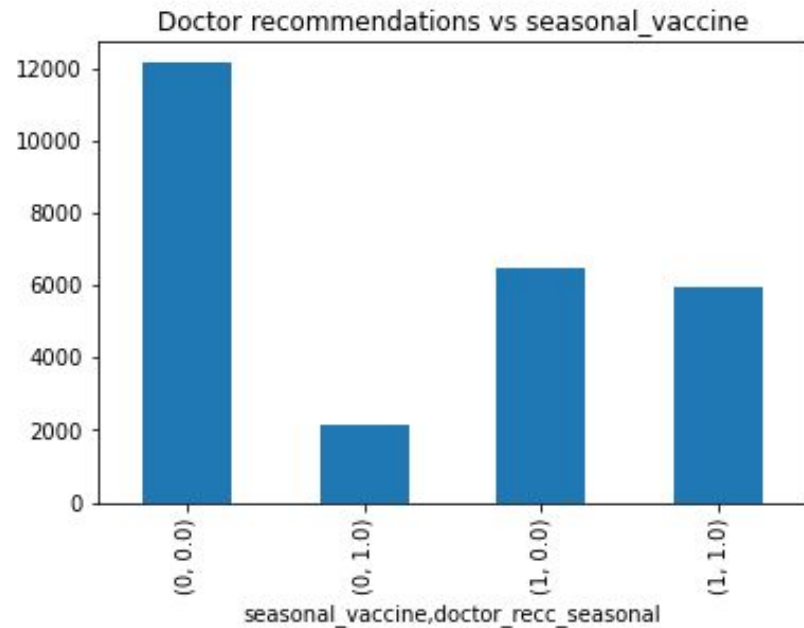
Correlation between race and H1N1 vaccine



Correlation between race and seasonal_vaccine

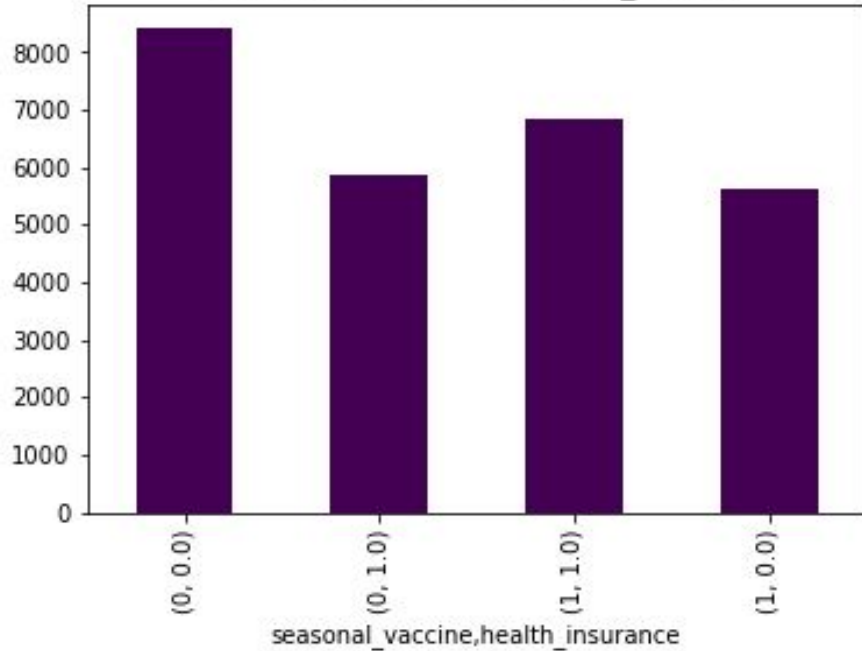


A greater proportion of white individuals received both vaccines compared to individuals from other racial groups.

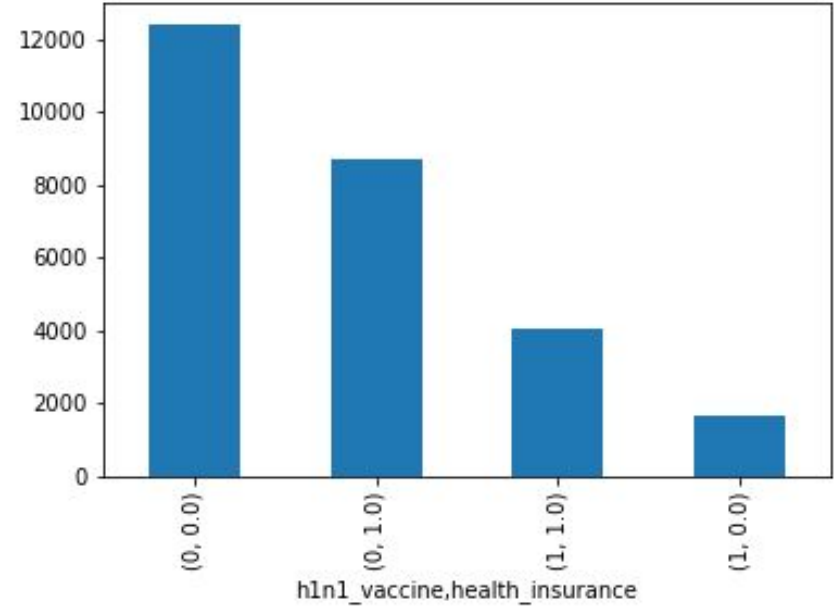


More individuals sought the seasonal vaccine based on the recommendation of their doctor compared to those who sought the H1N1 vaccine.

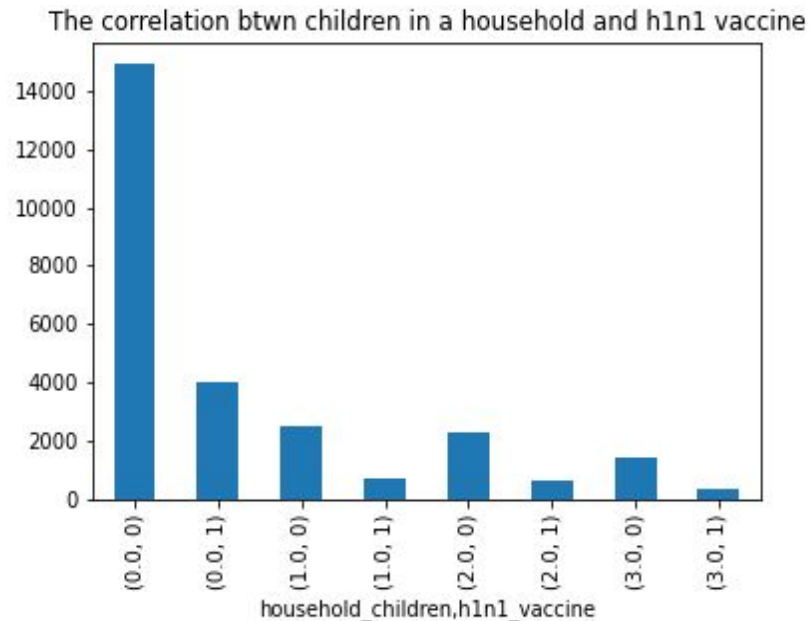
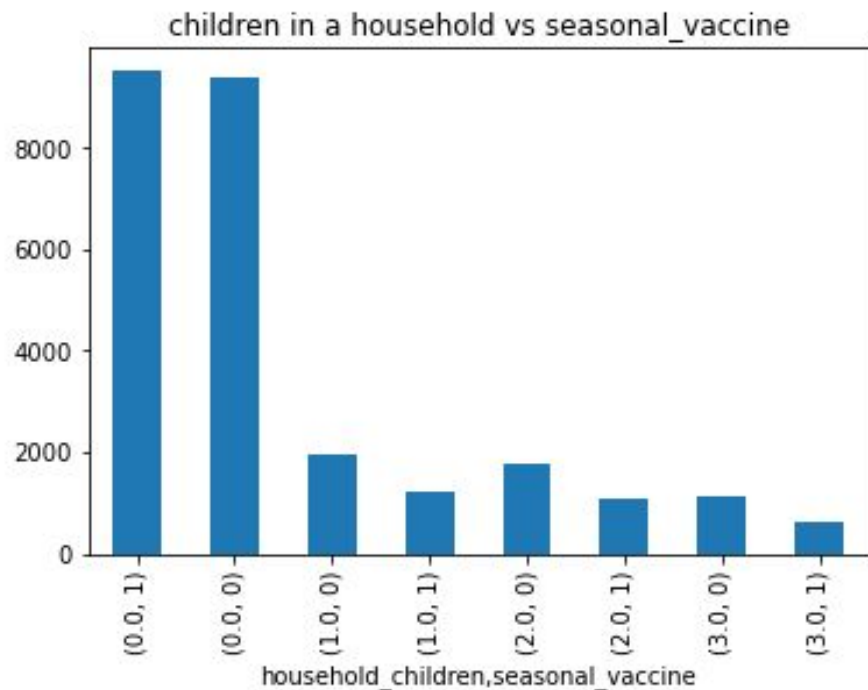
Health Insurance vs seasonal_vaccine



Health Insurance vs H1N1 Vaccine



A relatively small number of individuals with health insurance received both vaccines, while the majority of those without health coverage did not get vaccinated.



The number of children who received both vaccines was not as high as anticipated.

Modelling



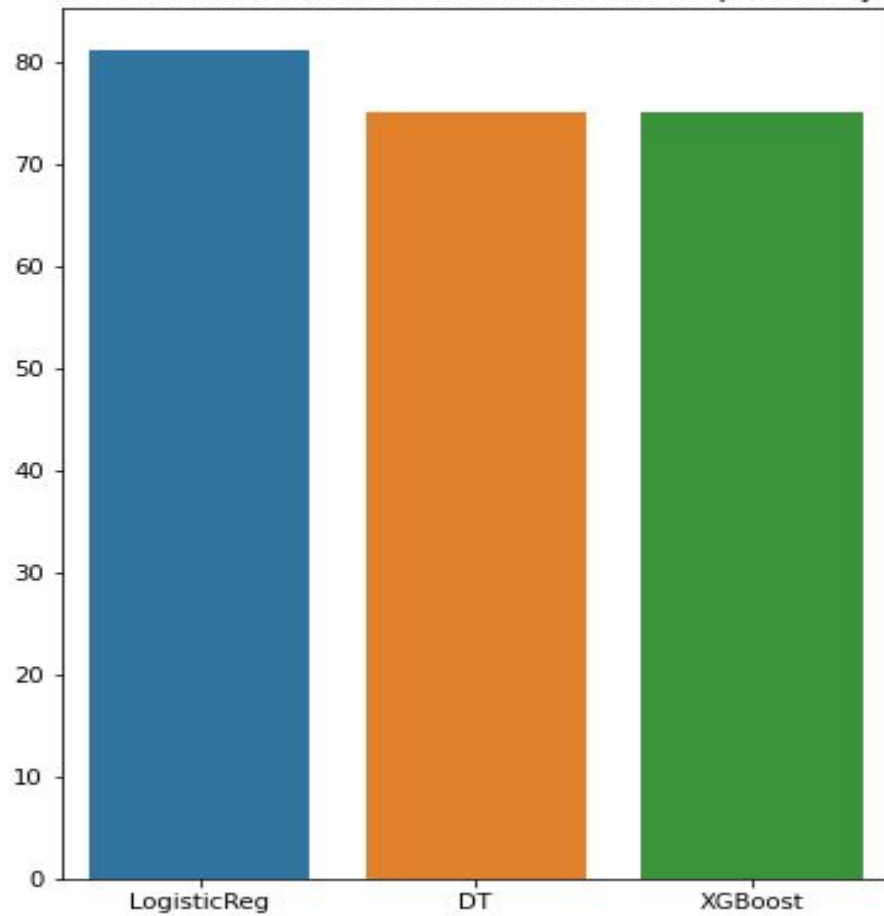
Machine Learning models that were used to predict the probability of one going for both vaccines were:

1. Logistic Regression
2. Decision Tree
3. XGBoost

The best model for the prediction was logistic regression with an accuracy of 81.29%.

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Best model for h1n1 and seasonal vaccine probability



Conclusion



1. People who received the seasonal vaccine outperformed those who received the H1N1 vaccine.
2. Women received both immunizations at a higher rate than males.
3. White folks received both immunizations at a higher rate than other races.
4. People with health insurance chose seasonal vaccines over H1N1 vaccines.
5. More People chose the seasonal vaccine over the H1N1 vaccine based on doctor's recommendations.
6. There were fewer persons seeking both immunizations than predicted.
7. In addition, children were not as well immunized as planned.

Recommendations

Based on the conclusion drawn from the data, here are a few recommendations that could be made:

1. Promote the importance of the seasonal flu vaccine over the H1N1 vaccine, highlighting its higher efficacy and safety record.
2. Encourage greater immunization rates among males and people of other races, perhaps through targeted outreach and education initiatives.
3. Address the issue of access to health insurance, as it appears to impact vaccine choice.
4. Encourage more people to seek recommendations from their healthcare providers, as this seems to be a significant factor in vaccine choice.
5. Address the low immunization rate among children by increasing awareness of the importance of protecting this vulnerable population and providing easier access to vaccines for families with young children.
6. Consider additional strategies to increase overall immunization rates, such as offering incentives or increasing accessibility to vaccines.
7. Further analysis and research may be needed to understand and address the underlying issues more effectively.

THANKS!

Any questions?

