PREDICTION OF H1N1 VACCINE UPTAKE

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INTRODUCTION

Influenza is a disease caused by influenza viruses

It is a respiratory disease that is airborne

Vaccines against some influenza viruses exist e.g

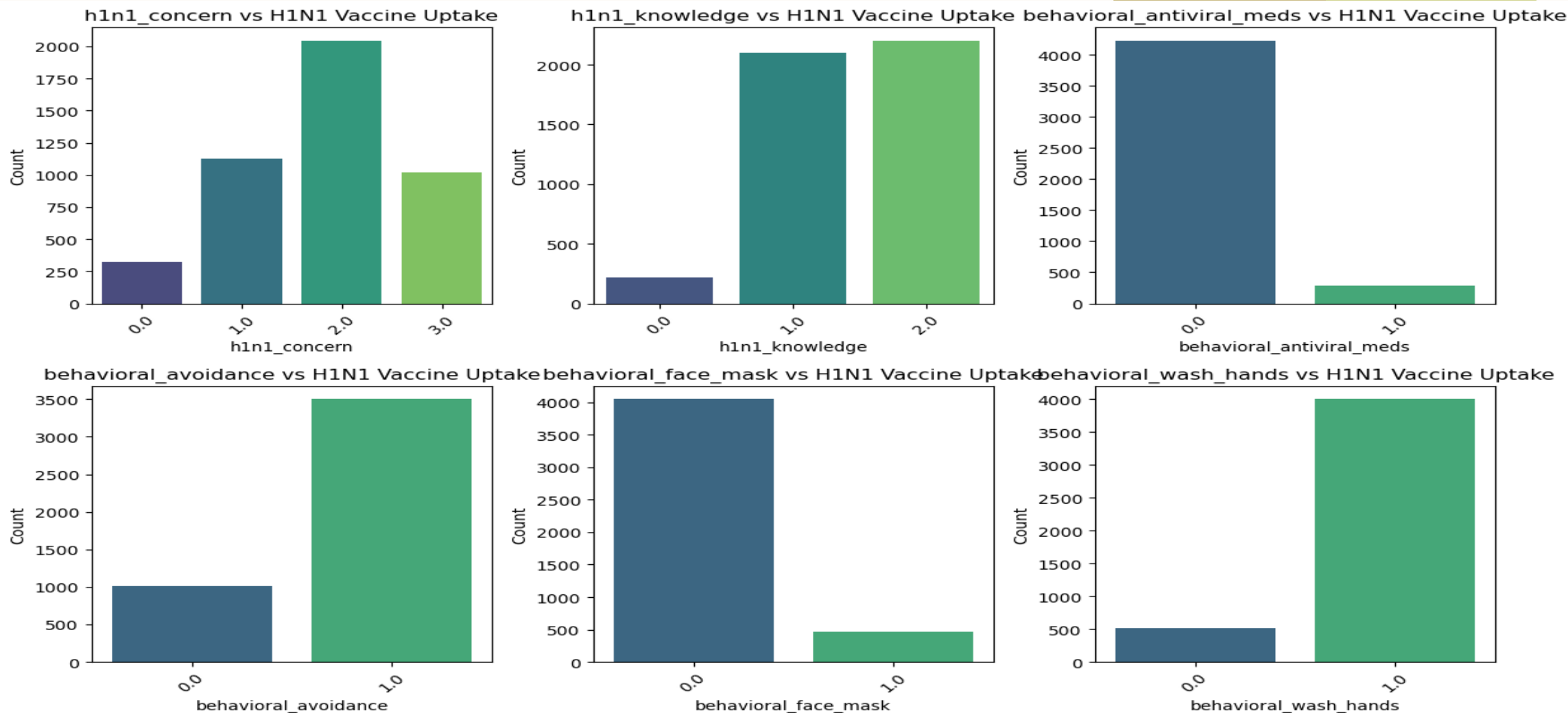H1N1 and seasonal flu vaccines.

ISSUES FACING VACCINATION

The WHO and CDC recommend flu vaccination every year for individuals 6 months and older.

However, many factors influence vaccine uptake

These include opinions on vaccine risk, whether a doctor recommended it, presence of chronic conditions among others

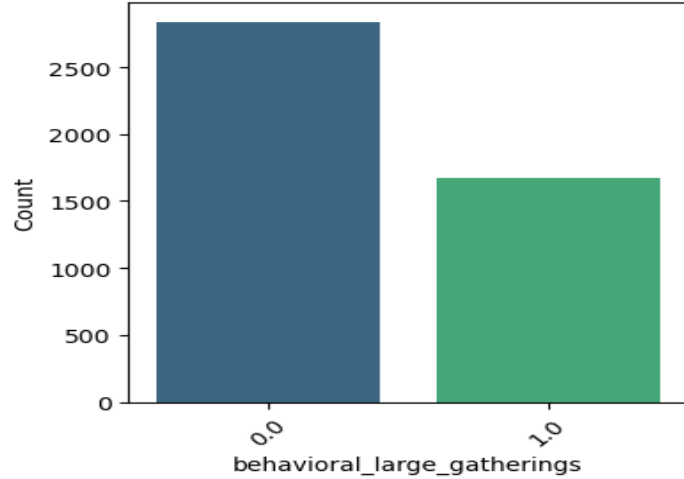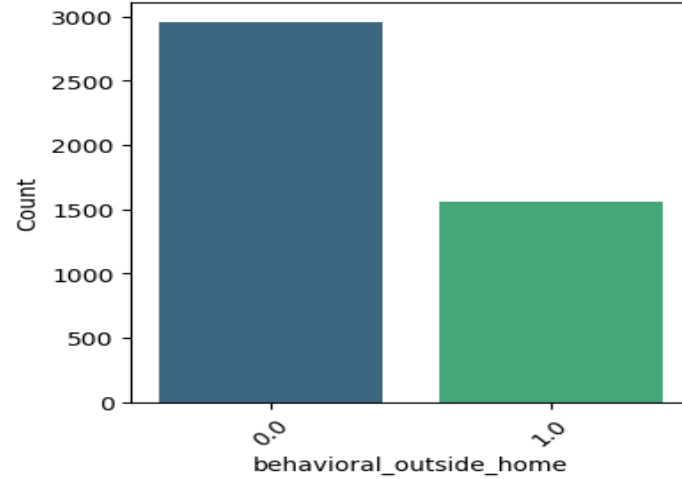# EXPLORATORY DATA ANALYSIS
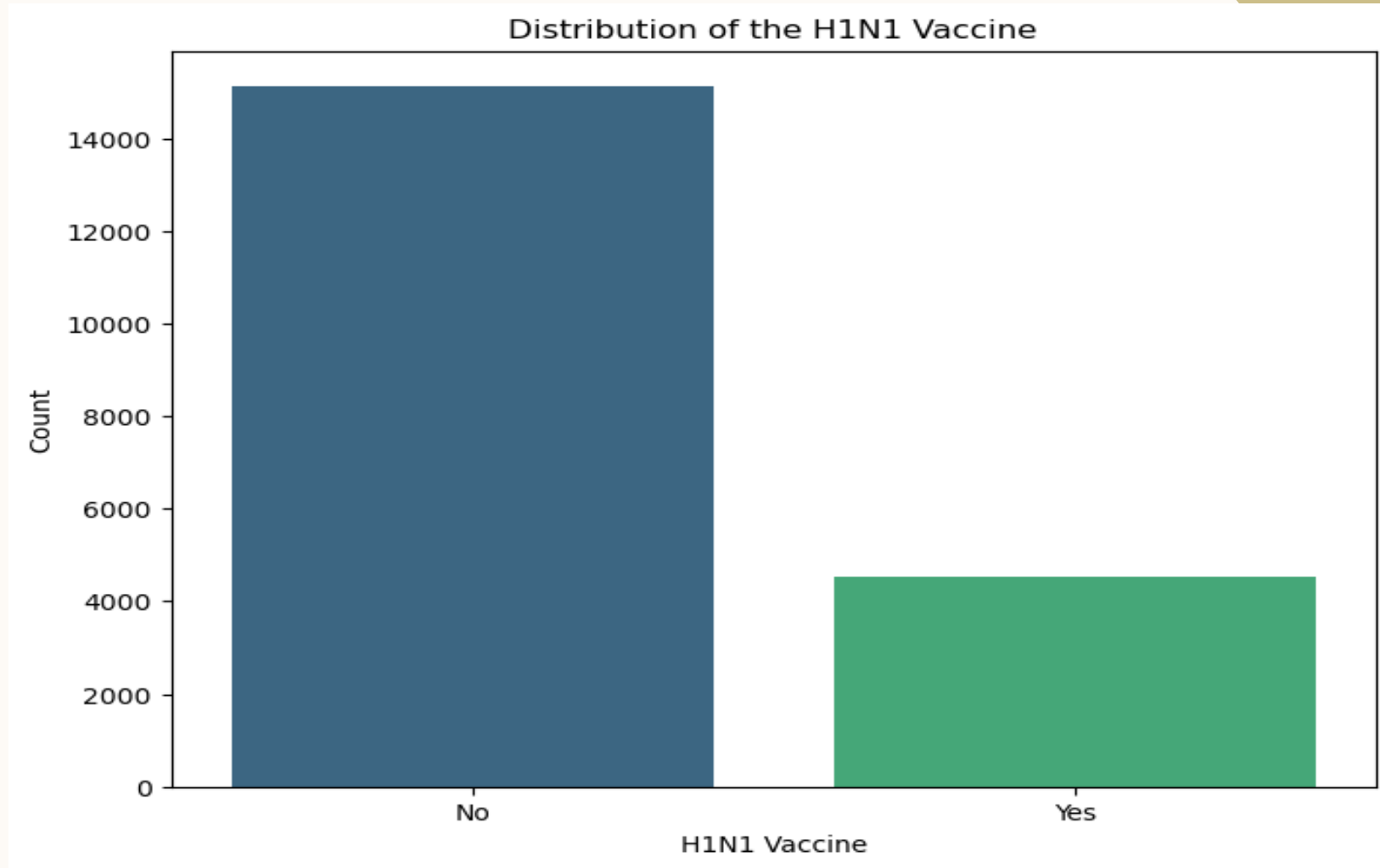
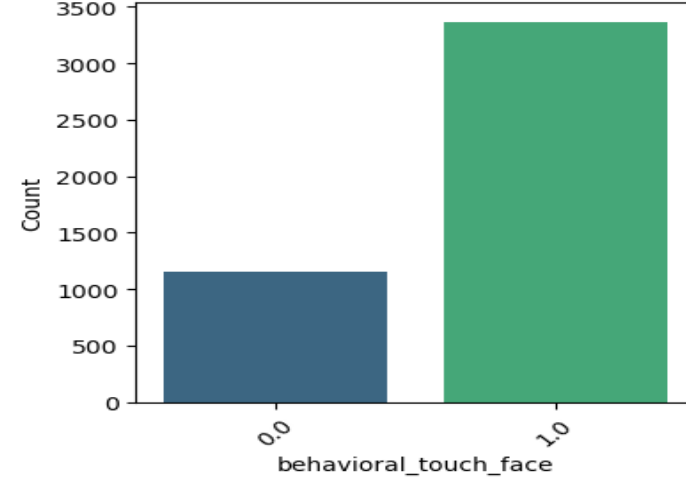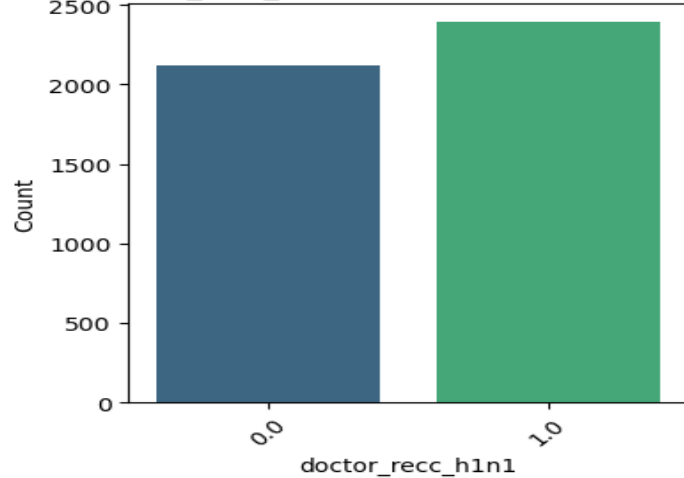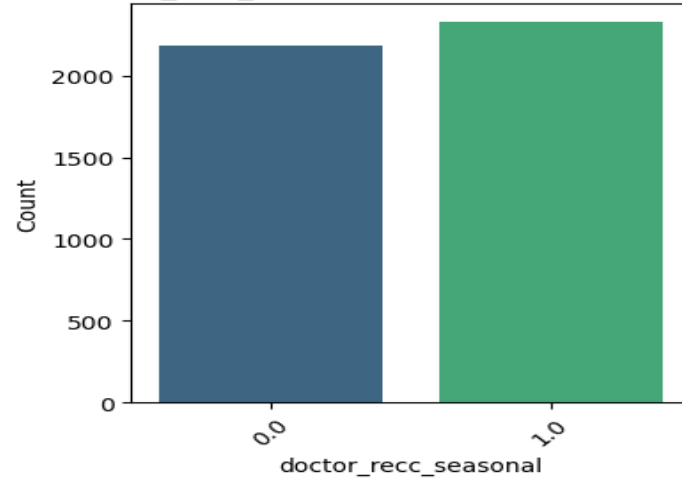# EXPLORATORY DATA ANALYSIS

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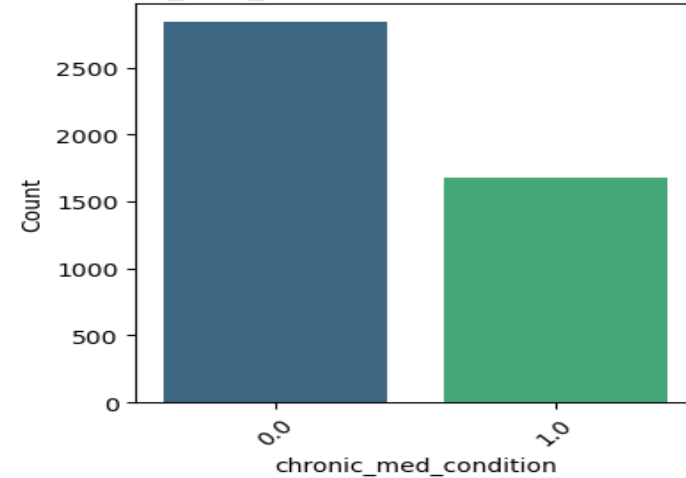
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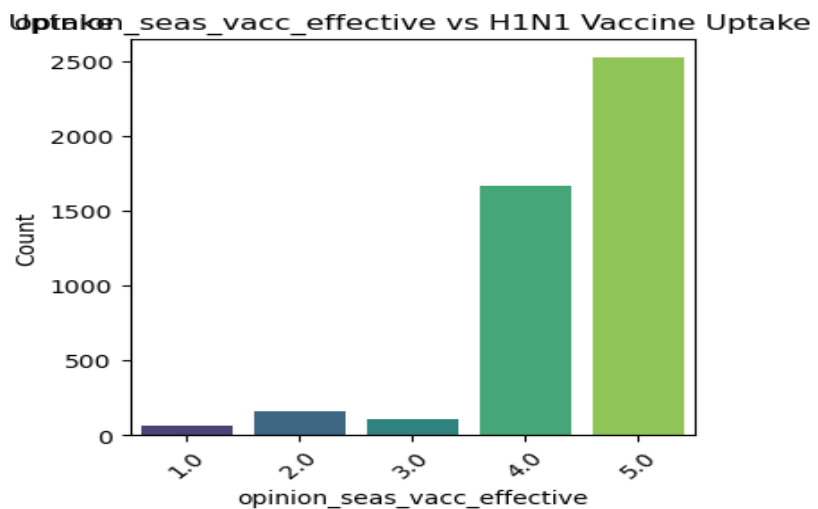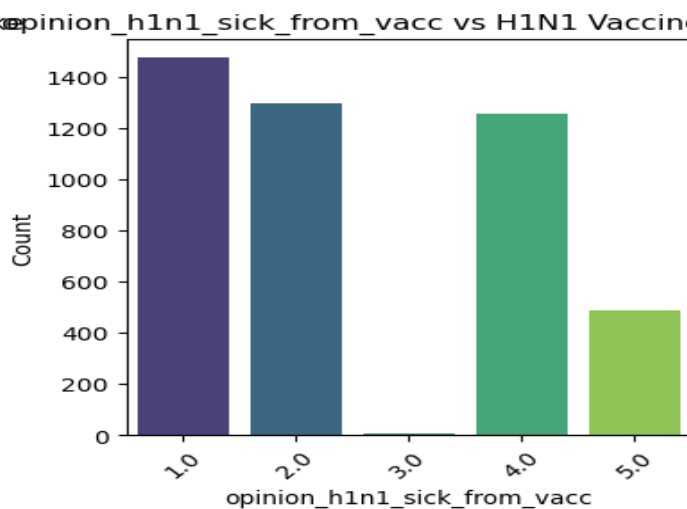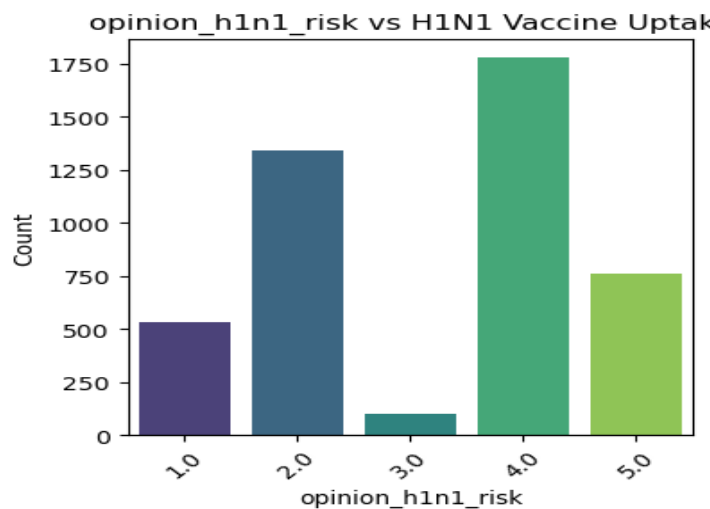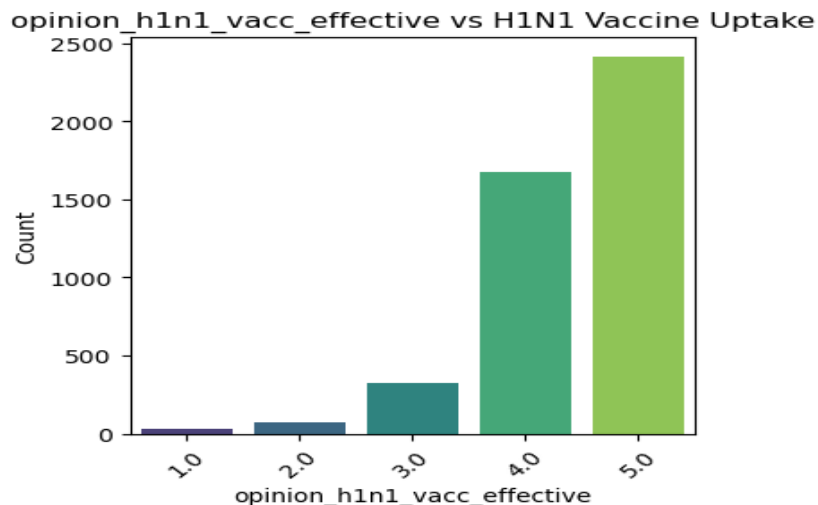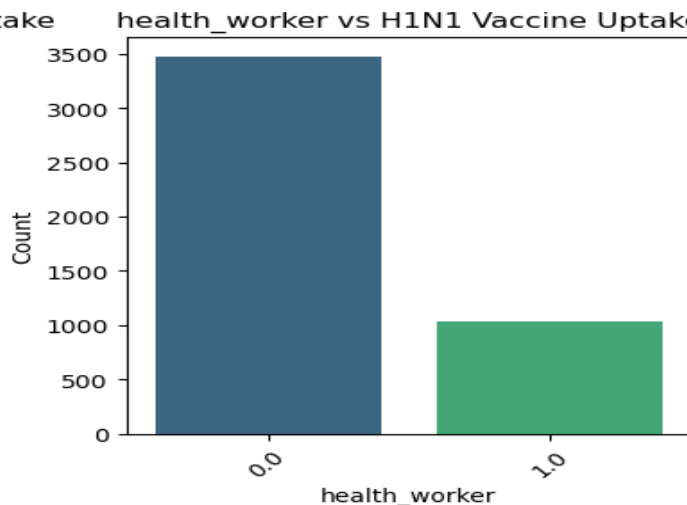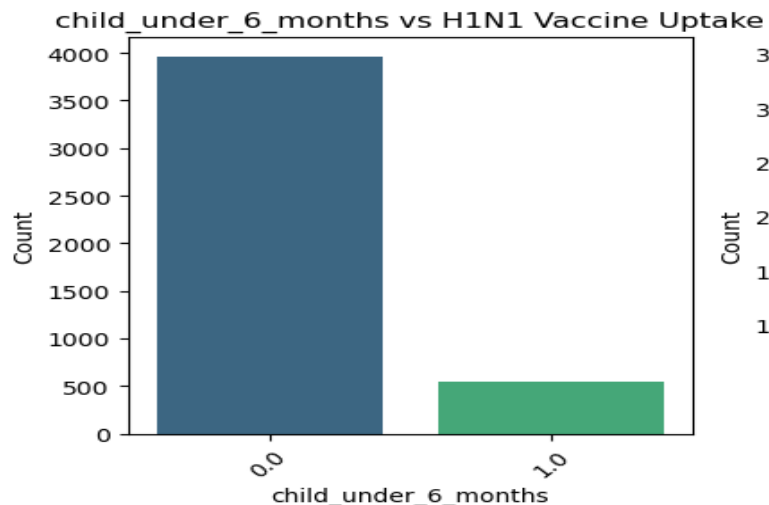
MACHINE LEARNING MODELS

- Logistic Regression

- Decision Trees

- K Nearest Neighbour

LOGISTIC REGRESSION

Logistic Regression accuracy: 0.82

Logistic Regression with SMOTE resampling:

0.78

DECISION TREE

- Decision Tree accuracy: 0.74

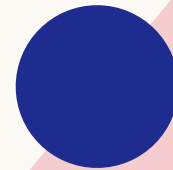- Decision Tree accuracy after hyperparameter tuning: 0.78

K NEAREST NEIGHBOUR

- K Nearest Neighbour accuracy: 0.63

CONCLUSIONS

- The best model is logistic regression
- The most relevant factors for vaccine uptake, as per the decision tree feature importance are:
  1. Doctor recommending H1N1 vaccine
  2. Individual opinion on the effectiveness of the H1N1 vaccine
  3. Opinion of the risk of H1N1
  4. Whether an individual is a health worker
  5. H1N1 knowledge
  6. H1N1 concern.

RECOMMENDATIONS

1. Encourage doctors to recommend vaccines to their patients.
2. Public Health Education on the safety of vaccines.
3. Public Education on H1N1.