

# Analyzing the Influence of Cancer, Government Trust, and Education on Parental HPV Vaccine Hesitancy

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## ABSTRACT

Aside from the innate immune system, vaccines are the best defense against a multitude of diseases. However, vaccine hesitancy and refusal has become a significant public health problem—as unvaccinated children pose a serious threat to herd immunity. In this study, I use data from the Health Information Data Trends Survey to analyze whether (1) a past history of cancer, (2) trust in health-related governmental information, and (3) education influence individuals' hesitancy towards the HPV vaccine. Based on past literature, I hypothesize that 1) a previous cancer diagnosis corresponds with decreased hesitancy, 2) deteriorating governmental trust is associated with increased hesitancy, and 3) higher education levels are attributed to increased hesitancy. Results from an analysis of variance (ANOVA) test reveal that a past cancer experience is not associated with HPV vaccine hesitancy. However, respondents with higher levels of trust in the government and higher education had significantly lower rates of vaccine hesitancy. For example, 63.47 percent of respondents who reported having “a lot” of trust in the government said they would administer the HPV vaccine to their daughter—compared to only 43.56 percent among those who had no trust in the government. These findings show that beliefs about vaccines may be based more on varying ideologies—rather than past medical experiences and educational attainment. Nonetheless, understanding the sources of vaccine hesitancy have important implications for public health researchers and practitioners. Such knowledge impacts how vaccine messages are conveyed with regards to government vaccine programs, community health efforts, and patient education.



## BACKGROUND

- Vaccines are our best defense against infectious disease, aside from natural barriers such as our skin.
- In the United States today, there exists a growing trend in parents not having their children receive vaccinations, posing a threat to herd immunity.
- Some potential reasons include the growing number of uninsured, the inherent limits of Medicaid, a lack of trust in healthcare providers, deficient access to healthcare facilities, and cultural barriers.
- HPV Vaccine has experienced low uptake rates, despite its proven significance and impact regarding the prevention of HPV-related diseases, including several cancers.
- Results from the 2010 National Health Interview Survey revealed that only 14% of 11-17 year old girls in the U.S. are fully vaccinated against HPV.

## PURPOSE

- To investigate whether there is a connection between a previous personal cancer diagnosis, trust in health-related governmental information, and level of education, and whether or not a parent would have their daughter vaccinated against HPV.

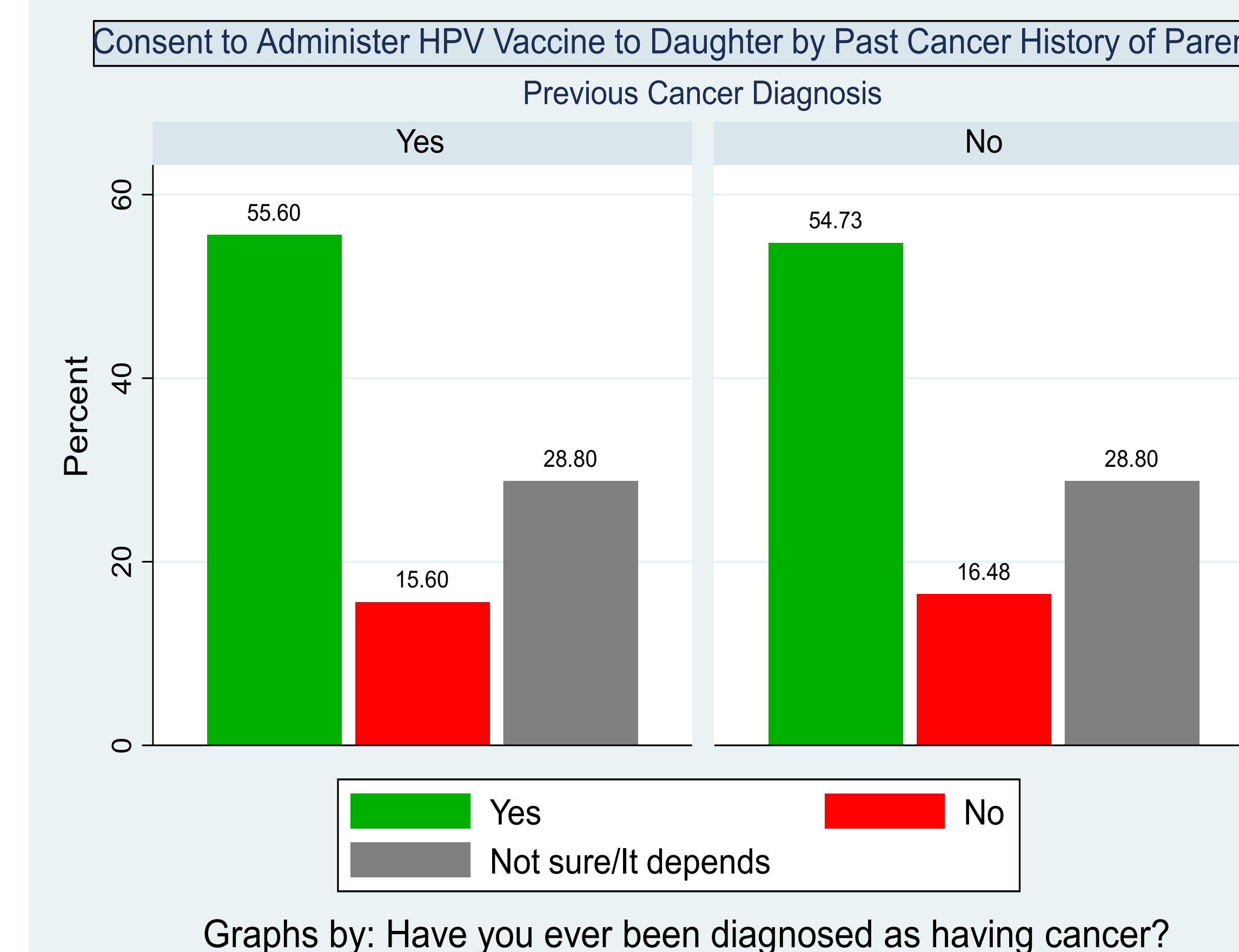
## HYPOTHESES

- H1: **Previous personal cancer diagnosis** will increase the likelihood that someone would have their daughter vaccinated against HPV.
- H2: As **trust in health-related governmental information** deteriorates, individuals will be less likely to act upon recommendations regarding HPV vaccine.
- H3: **higher levels of education** (i.e., college graduation) will be associated with increased HPV vaccine hesitancy.

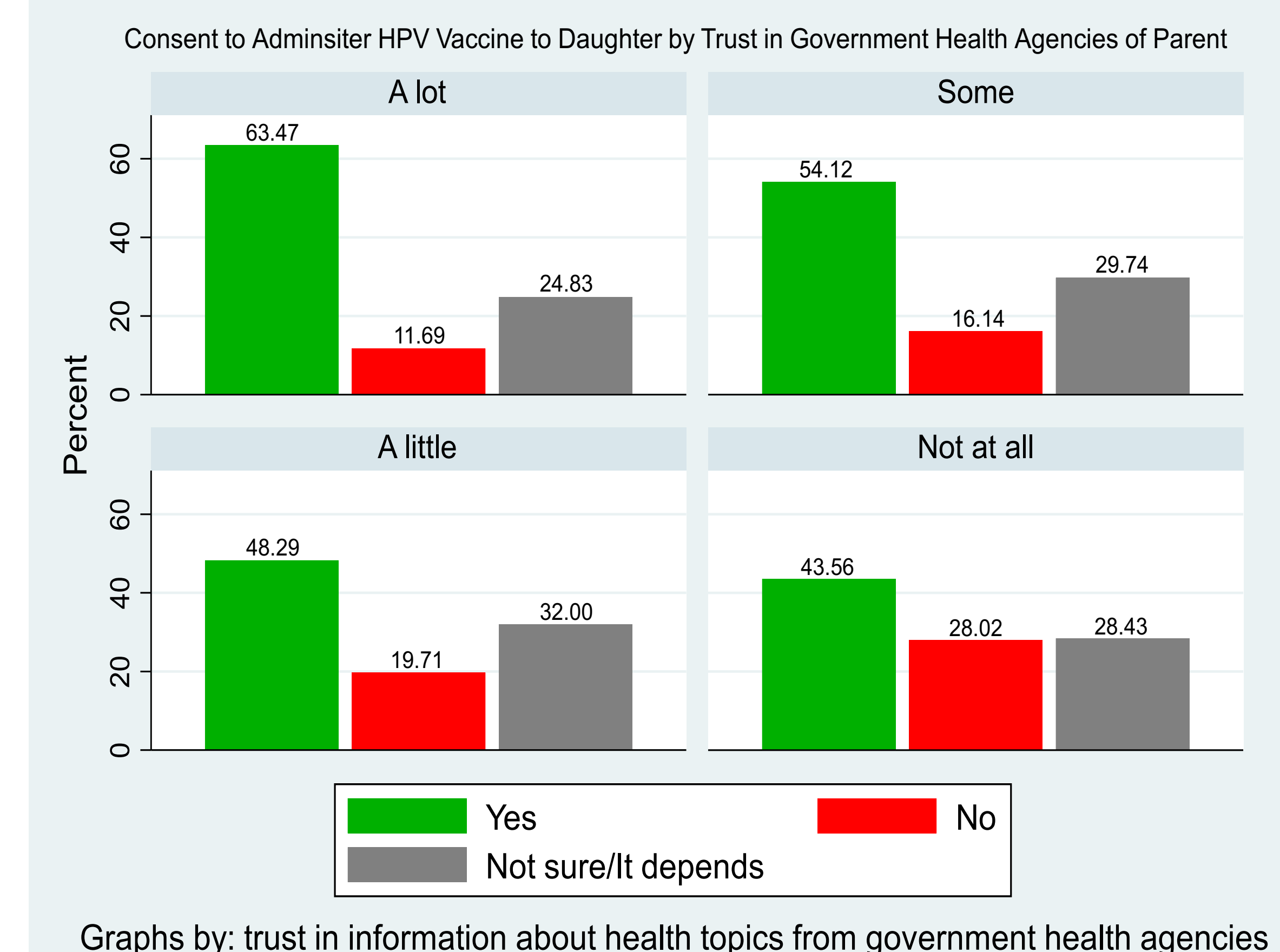
## METHODOLOGY

- Utilized survey data from the Health Information Data Trends Survey from 2007.
- Two methods: by telephone (using random digital dial) and by mail (using a paper and pencil questionnaire).
- Respondents were asked a series of questions regarding health-related information, such as personal views on medical information and research and usage of healthcare services.
- Question of focus: “A vaccine or shot that protects against HPV, a virus that can cause cervical cancer, was recently recommended for girls. If you had a daughter that age, would you have her get it?”
- Possible answers: “yes”, “no”, “not sure/it depends”, “refused”, and “don’t know.”

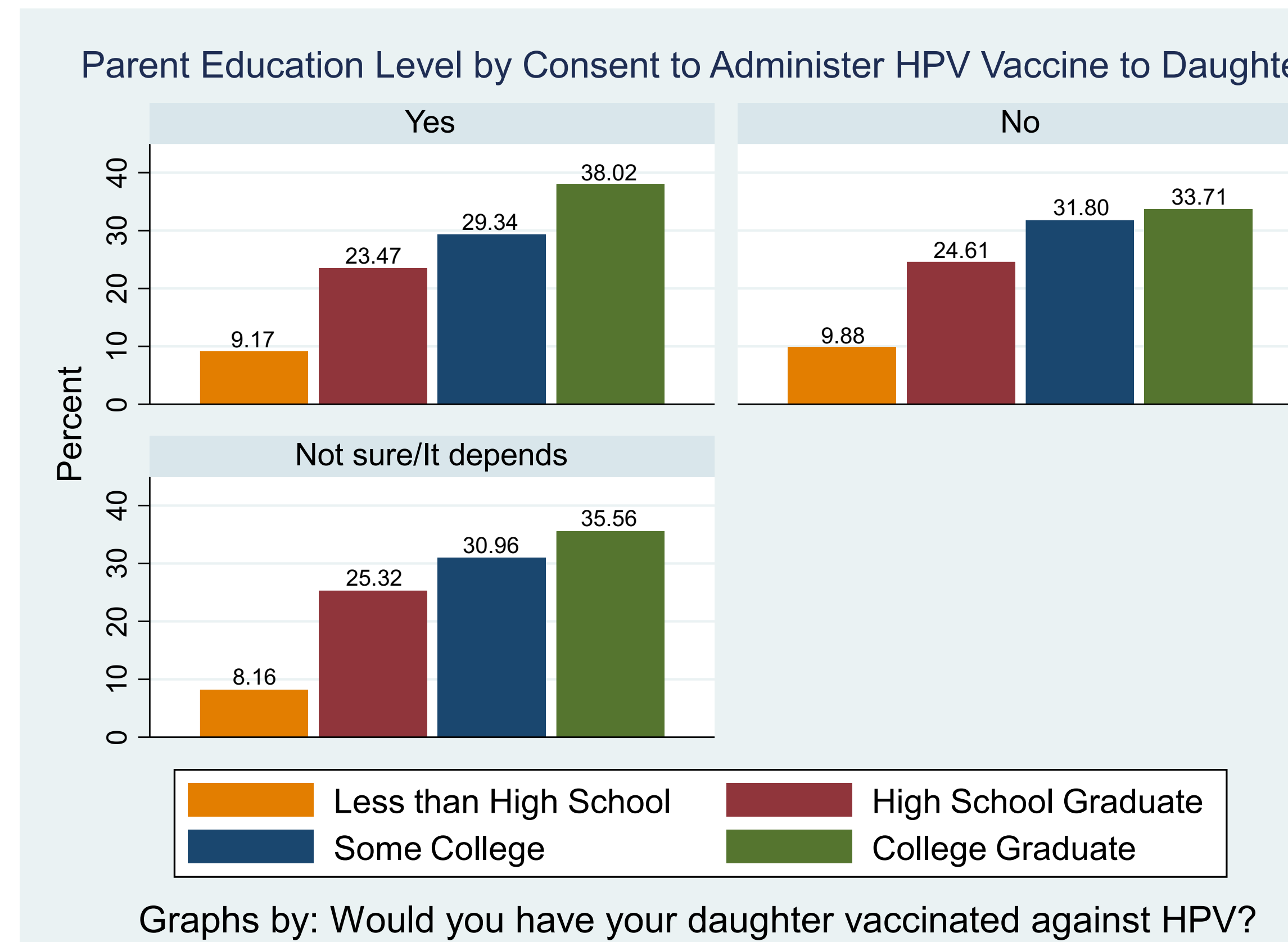
## RESULTS



**Figure 1. Cancer History vs. Parental Vaccine Hesitancy**  
P-value: 0.788  
Cramer's V: 0.0084



**Figure 2. Trust vs Parental Vaccine Hesitancy**  
P-value: 0.000  
Cramer's V: 0.1018

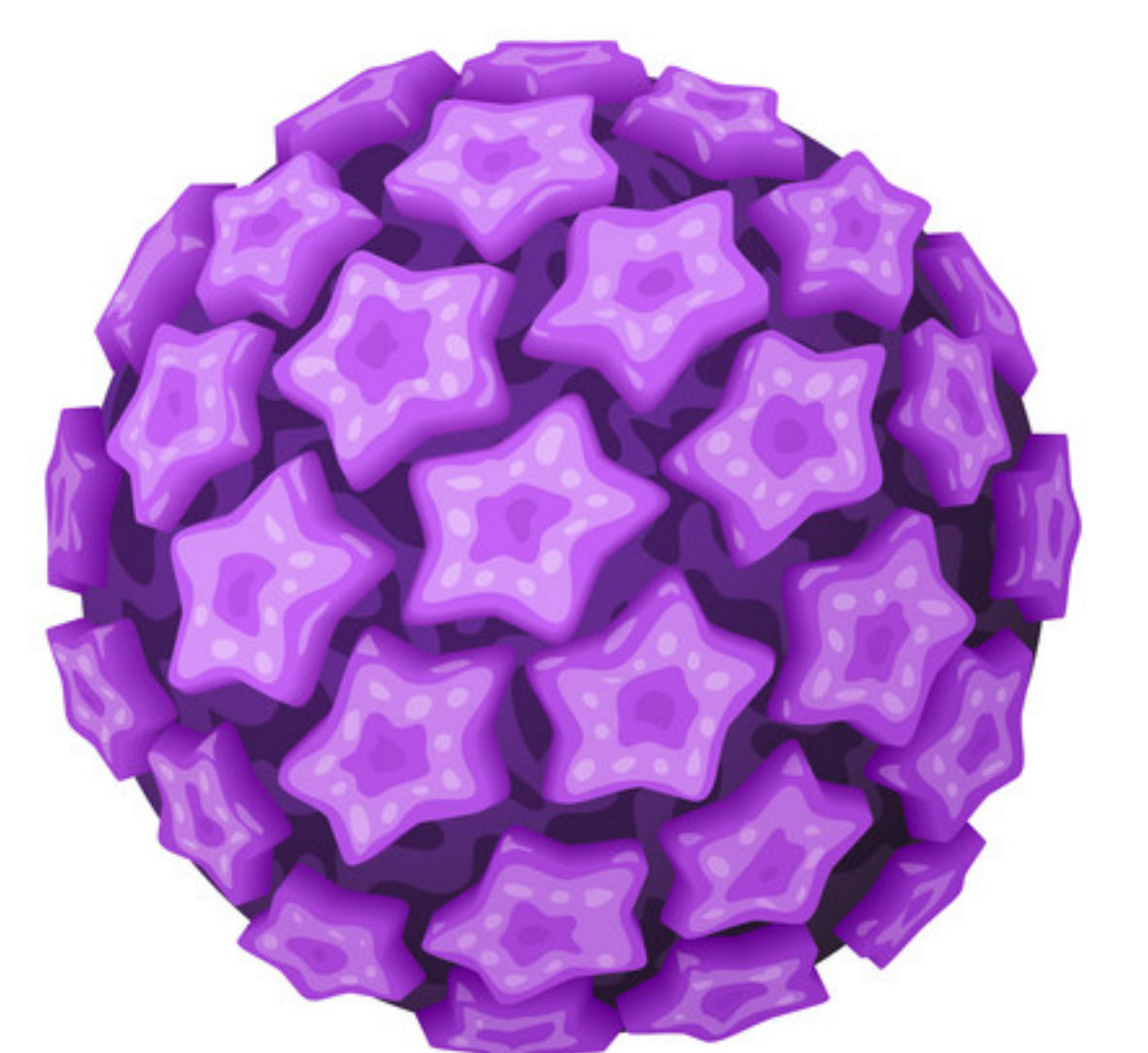


**Figure 3. Education Level vs Parental Vaccine Hesitancy**  
P-value: 0.054  
Kendall's Tau-b: 0.0167

## DISCUSSION

- As trust in health-related governmental information deteriorates, the percentage of respondents that would have their daughter vaccinated decreased.
- A past cancer experience does not appear to have a statistically significant difference on parental HPV vaccine hesitancy.
- For those that would allow their daughter to receive the vaccine, the gap between having graduated from college and just completing some college was much larger than for those that would NOT allow for HPV vaccination

Human  
papillomavirus  
(HPV)



## CONCLUSIONS

- Vaccine research is an area within public health research that is continuing to evolve and take shape as more and more data is being collected on vaccine rates and vaccine hesitancy
- Better understanding how HPV vaccine recommendations are received influences health policy and patient education
- Vaccine beliefs may be shaped more by ideology than past experiences
- Direct experience with a sexually-transmitted infection may hold more weight than an experience with other diseases, such as cancer