

Influenza Prevention: Predicting Nebraskans' Intent to Get Flu Shot



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Abstract

Healthcare inequalities in Nebraskan rural communities lead to further disparities in health outcomes, making this research crucial (Wang, 2012). For the 2017-18 Influenza season, there were 414 inpatient hospitalizations and 46 deaths related to Influenza in the state of Nebraska (NE DHHS, 2017). In collaboration with TRPHD, an online survey of 79 adult Nebraskans found that response efficacy and previous diagnosis of the Influenza predicted intent to vaccinate against the Influenza. The results provide insight into promoting Influenza vaccination (i.e., the flu shot) in rural areas.

Introduction

Protection Motivation Theory (PMT). PMT predicts that an individual's motivation and cognitive appraisal will affect their likelihood of engaging in health-related behaviors like getting the Influenza vaccine (Gaston & Prapavessis, 2009; Rogers, 1975).

- **Threat appraisal:** includes perceived vulnerability (PV; the perception one will contract a disease) and perceived severity (PS; the seriousness of the disease).
- **Coping appraisal:** includes self-efficacy (SE; the belief that an individual can perform a task successfully) and response efficacy (RE; the perceived effectiveness of a suggested health behavior like getting the Influenza vaccine).

Neuroticism. A personality trait consisting of high self-consciousness and vulnerability. An individual high in neuroticism may perceive themselves to be at a greater risk for disease, leading them to get the Influenza vaccine (Ellington & Wiebe, 1999).

Accessibility. The level of ease that services can be reached from a certain location. Accessibility includes spatial factors (e.g., distance) and non-spatial factors (e.g., age or sex; Wang, 2012).

- **H1:** PV, PS, RE, general SE, and neuroticism will predict intentions to vaccinate.
- **H2:** There will be a negative correlation between distance traveled one way to reach a primary health care provider and intent to vaccinate.
- **H3:** Women will report greater intent to vaccinate than men.
- **H4:** Sex and previous diagnosis of Influenza will predict PV; women who were diagnosed with Influenza last year will report the highest PV.
- **H5:** Having a primary health care provider and level of income will be related to Influenza vaccination rates.

Method

Approval. This project was approved by the UNK IRB (#011118-1).

Participants. 79 Nebraskan adults were recruited with cooperation of TRPHD. The majority were White (93.7%) and female (79.7%), with ages ranging from 20-82 ($M = 42.06$, $SD = 13.97$). 58.2% reported receiving the Influenza vaccine, and only 10 participants reported contracting Influenza in the past year.

Materials

- **Neuroticism** ("Am easily disturbed") was measured with 10-items ($\alpha = 0.81$, Goldberg et al., 2006).
- **PMT** was measured using 16-items (Gaston & Prapavessis, 2009).
 - **PV** ($\alpha = 0.89$), **PS** ($\alpha = 0.79$), **RE** ($\alpha = 0.91$), and **SE** ($\alpha = 0.68$)
- **General Self-Efficacy** ("I can handle whatever comes my way") used 10-items ($\alpha = 0.87$; Schwarzer & Jerusalem, 1995).
- **Intent to vaccinate for the 2017-18 Influenza season** was measured as yes/no.
- **Demographics**

Procedure. After providing informed consent, participants completed an online survey in February-March 2018. The first 50 participants got a \$5 Amazon Gift Card.

Results

H1: PMT will predict intent to vaccinate

Five continuous IVs were assessed with respect to the logit of the DV via the Box-Tidwell (1962) procedure. Only one of the five variables was statistically significant: RE. Therefore, a participant with a one unit score greater in RE would be 4.59 times more likely to get the Influenza vaccine. H1 was partially supported.

H2: Distance traveled and intent to vaccinate

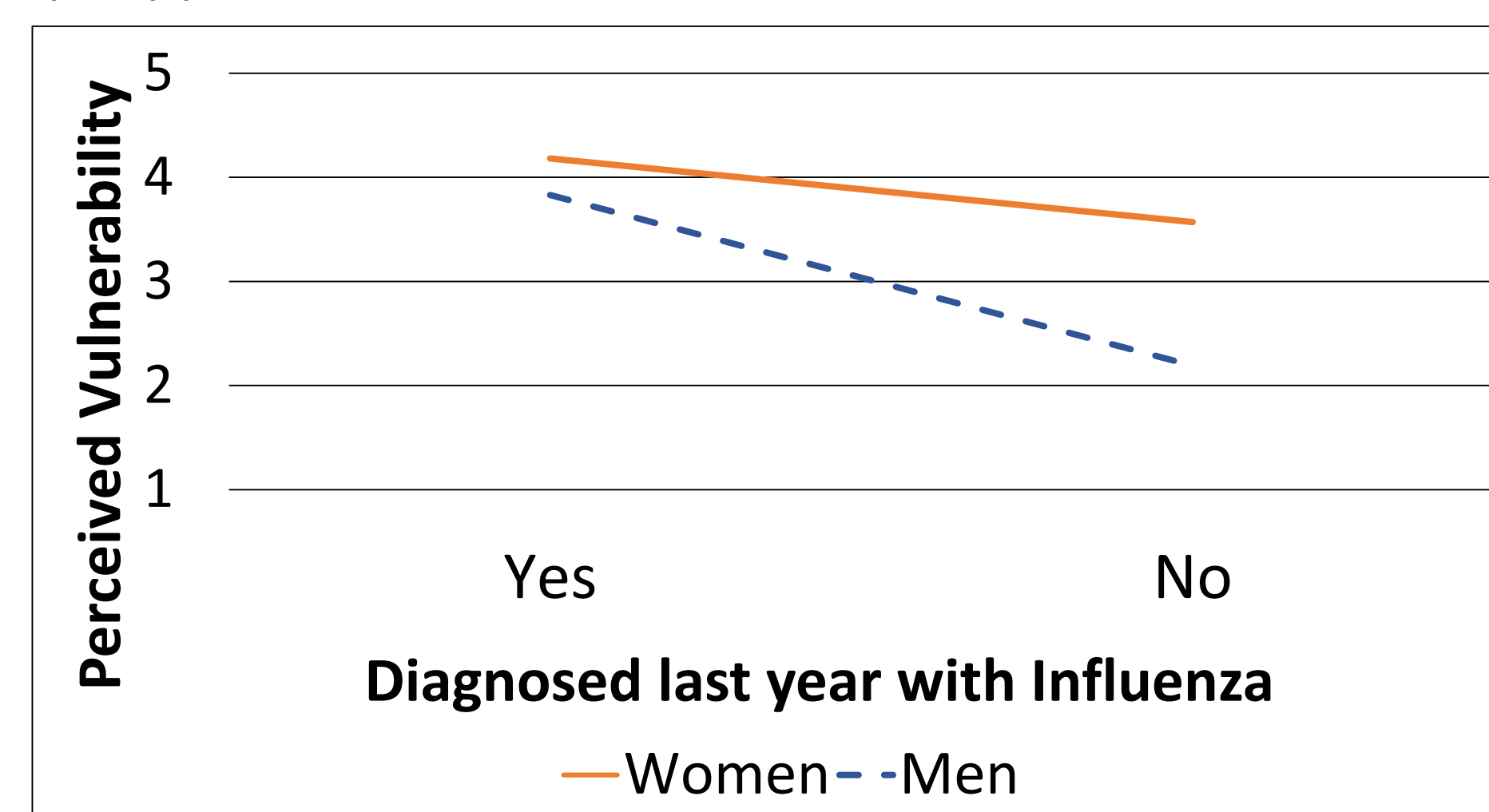
A point-biserial correlation between distance and intent to vaccinate found no statistically significant relationship ($r = .15$, $p = .21$). H2 was not supported.

H3: Sex and intent to vaccinate

A Chi-square test for independence indicated no significant association between sex and receiving the Influenza vaccine for the current Influenza season. H3 was not supported.

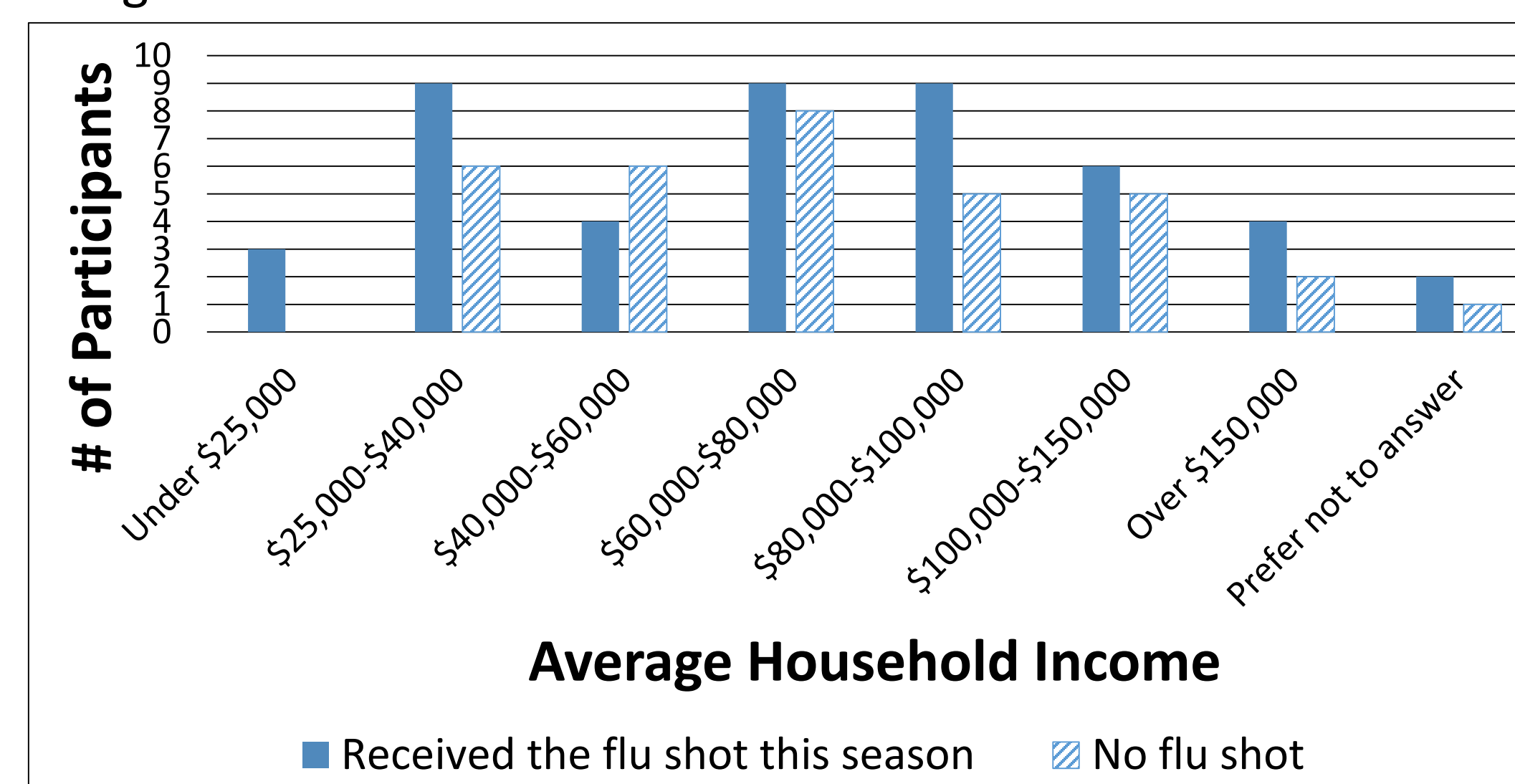
H4: Sex and previous Influenza diagnosis to predict vulnerability

A two-way between groups ANOVA compared the effects of sex and previous diagnosis of the Influenza on PV. Only the main effect of previous diagnosis of the Influenza in the past year was statistically significant, $F(1,75) = 5.29$, $p = .02$. H4 was partially supported.

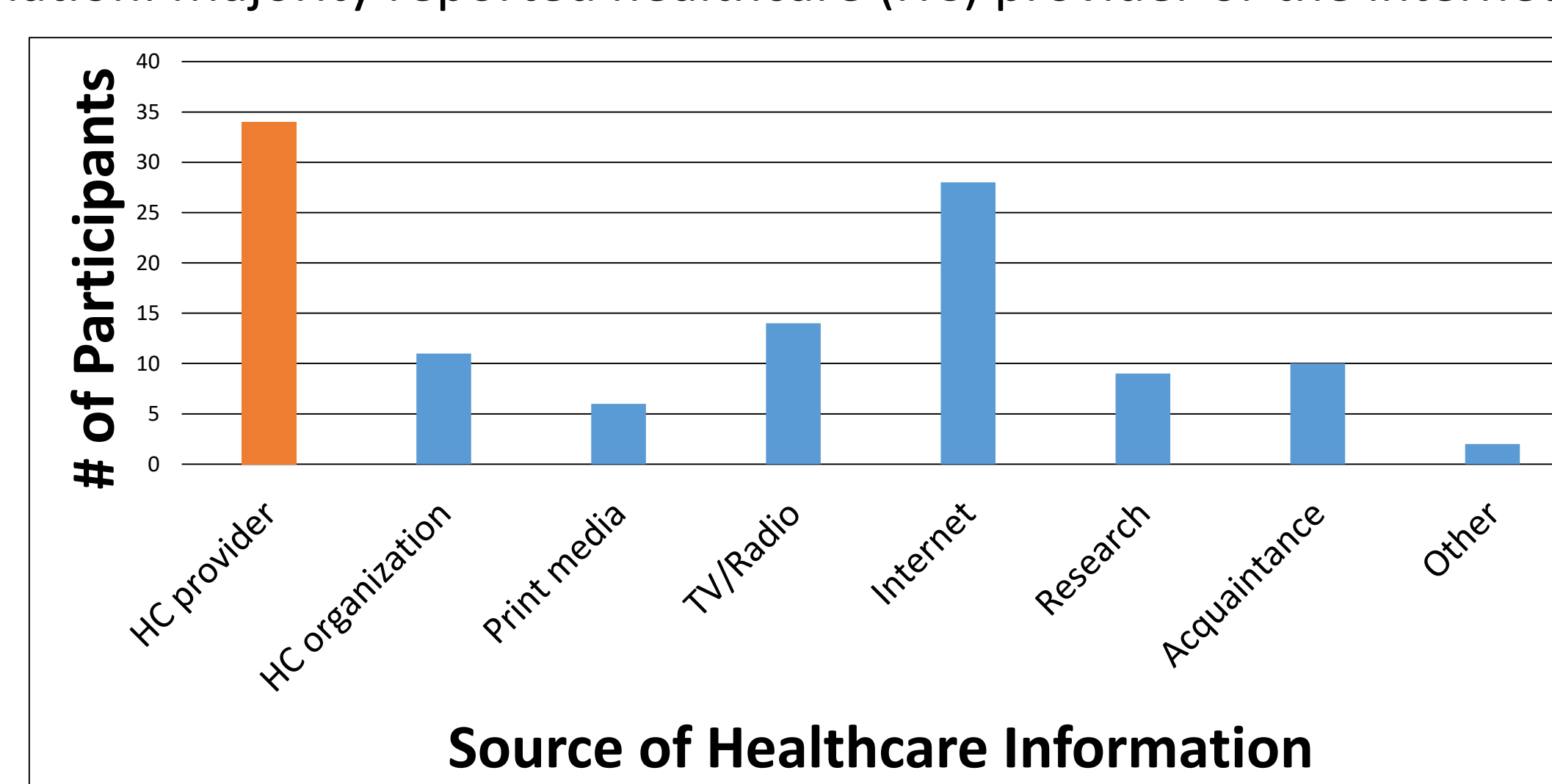


H5: Demographic factors and the intent to get the Influenza vaccine

H5b explored the relationship between average household income and intent to vaccinate against the Influenza.



H5c analyzed where participants received the majority of their healthcare related information. Majority reported healthcare (HC) provider or the internet.



Discussion

General Discussion

Objective: To examine factors that influence an individual's likelihood of obtaining the Influenza vaccine. Interestingly, data collection occurred during press releases that were informing the public that the 2017-18 Influenza vaccine was only 36% effective against the virus (Flannery et al., 2018).

- Graham et al. (2006) also found that RE predicted exercise intentions as a way to lower one's risk of colon cancer, meaning that if an individual believes that the Influenza vaccine is effective in preventing the virus, then they are more likely to get the vaccine.
- Previous research suggests that rural populations do experience disparities in access to healthcare services (Valet et al., 2009). In the case of this study, the mean distance traveled one way to reach a health care provider was 22.04 miles, implying that our sample did not see that distance to be a distance too large to overcome for care.
- H3 found that sex did not predict intent to get the vaccine. Previous research is mixed, meaning gender is a good area for future research.
- H4 found that individuals who had been sick with the Influenza perceived themselves to be at a greater risk for the getting the Influenza again. Further analysis between PV and income found that the more money people made, the lower PV was reported. This means that the greater the income, the better the individual understood how immunity works.
- H5 explored demographic factors. Participants under age 26 (possibly on their parents' healthcare plan) and making under \$25,000 all reported receiving the Influenza vaccine ($N = 3$). Other income brackets were distributed evenly between yes/no. Also, the majority of participants received healthcare information from healthcare providers.

Limitations

These include: sample size, using a cross-sectional survey (which precludes causal effects of the IVs), low reliability on the PMT SE measure, and the general timing of the survey distribution.

Future Research

Vaccines are critical to the prevention of deadly outbreaks (Kilbourne, 2006). With the increasing anti-vaccination movement across the United States (Horne et al., 2015) and the healthcare inequalities in Nebraskan rural communities, this research is even more crucial to maintain vaccine uptake percentages (Plans-Rubió, 2012).

Selected References

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Acknowledgements

This study was supported by the University of Nebraska at Kearney Undergraduate Research Fellowship program and the Two Rivers Public Health Department.