



# Understanding Influenza Vaccination Declination in Adults in a Primary Care Setting in Mid-Michigan

**Authors: Aleena Hajek B.S.<sup>1</sup>, Rachel Hollander B.S.<sup>1</sup>, Katie Ryan MD<sup>1,2</sup>, Jenny LaChance M.S.<sup>1</sup>, Mark Trottier Ph.D<sup>1</sup>, Belinda Cook MM, BSN, RN<sup>2</sup>**

**Author Affiliations: Michigan State University College of Human Medicine<sup>1</sup>, Sparrow Health System<sup>2</sup>**

## Introduction

- Vaccinations are essential to public health and are generally available and affordable resources. Investigating patient reasoning for declination can aid in understanding vaccine uptake rates.
- The Michigan 2019-2020 influenza mortality rate was 12.8 per 100,000 people with a vaccination rate of 31.4%<sup>1,2</sup>.
- The World Health Organization cited “vaccine hesitancy,” “weak primary health care,” and “global influenza pandemic” as three of the “Ten Threats to Global Health in 2019”<sup>3</sup>.
  - Vaccine hesitancy, defined as a “delay in acceptance or refusal of vaccination despite availability of vaccination services”<sup>4</sup> is rising.
- Many misconceptions about vaccines exist today, surrounding the overarching themes of complacency, confidence, or lack thereof, and convenience<sup>4</sup>.
- In order to understand vaccine hesitancy and influenza vaccination declination, the health belief model (HBM) is utilized. HBM delineates reasoning behind vaccine declination and seeks to understand behaviors related to preventative health, including “attitude, beliefs, and knowledge”<sup>5</sup>.
- Research Aim 1:** Understand patient demographics as it relates to influenza vaccination declination.
- Research Aim 2:** Characterize and categorize reasons for vaccine declination to develop theories and strategies to increase vaccine uptake.

## Methods

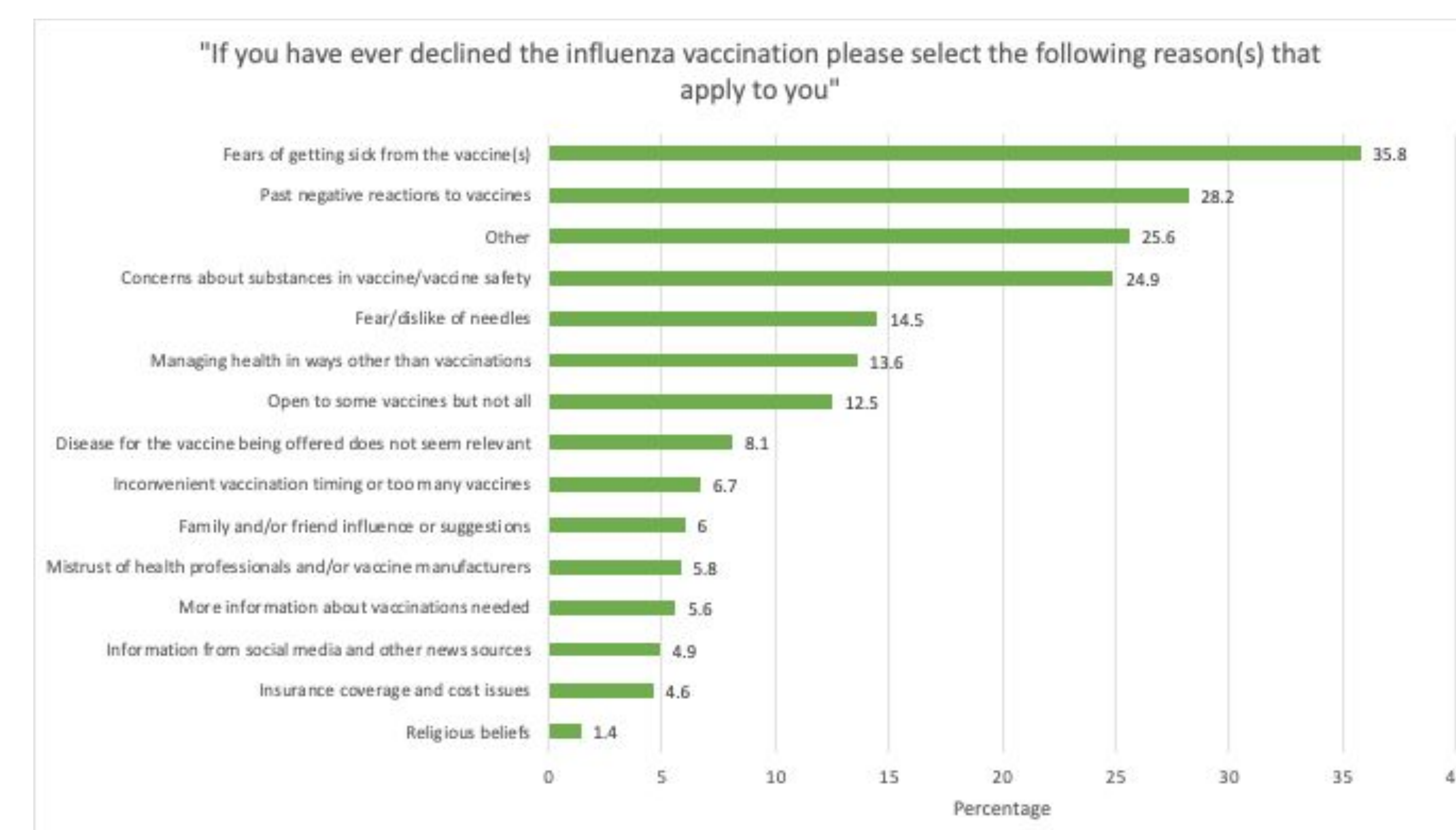
- This research took place at Sparrow Medical Group St. Johns and Dewitt, MI Family Medicine and Internal Medicine clinics.
- A validated questionnaire was provided to patients.
- Patients were to provide demographic information, information regarding previous and current vaccine acceptance, and select or provide written reason(s) for influenza vaccine declination.
- Questionnaires were provided December 2019- February 2020.
- The vaccine declination reasons were chosen based on previous authors primary research and literature review.
- 1,398 questionnaires were administered, 1,104 were returned and deemed valid (79%).
- Analysis included descriptive and Chi-square analysis.
- Quantitative: Response rates, demographic information, reasons for vaccination declination
- Qualitative: Vaccination declination overarching theme analysis

## Results

	N	Valid Percent
Age	18-64 years	554 73.2
	65+ years	203 26.8
Gender	Male	367 33.5
	Female	728 66.5
Race/Ethnicity	Asian	5 0.5
	Black	14 1.3
	Caucasian	970 91.9
	Hispanic/Latinx	26 2.5
	Native American	21 2
	Mixed	18 1.7
	Other	1 0.1
Annual Household Income	\$0-24,999	143 14.3
	\$25,000-49,999	230 23.1
	\$50,000-74,999	197 19.8
	\$75,000-99,999	158 15.8
	\$100,000-149,999	164 16.4
	\$150,000-199,999	69 6.9
	\$200,000+	36 3.6
Education	Did not graduate high school	32 2.9
	High school graduate	238 21.9
	Some college	337 31.1
	Associate degree	134 12.4
	Bachelor degree	209 19.3
	Graduate school or higher	135 12.4
Insurance	Private Insurance	643 61.8
	Medicare	179 17.2
	Medicaid	60 5.8
	No Insurance	9 0.9
	Private Insurance, Medicaid	7 0.7
	Private Insurance, Medicare	143 13.7
Chronic Disease	Yes	356 34.1
	No	689 65.9

**Table 1:** Quantitative patient demographic information

- 93.6% of participants have received one or more vaccinations of any kind in the past.
- 44.1% of participants have declined at least one vaccination of any kind in the past.
- 61.7% of participants have received at least one influenza vaccination in the past.
- Of the participants who have not received the influenza vaccination in the past, 75.2% stated they do not plan on receiving the influenza vaccination this year.
- If a respondent has never denied vaccines in the past, they are 7.68 times more likely to receive a influenza vaccination in the future.
- Patients who have not received an influenza vaccine in the past who have a chronic condition are 1.69 times as likely to say they would get an influenza vaccine this year.
- Women are more likely to have received an influenza vaccination in the past.



**Figure 1:** Patient cited reasons for influenza vaccination declination

## Conclusion & Discussion

**Interpretations:** The rationale for vaccine declination can ultimately be broken down into three overarching themes: *factors intrinsic to the vaccine, extrinsic societal forces, and perceived risks and benefits.* Intrinsic factors are those such as mistrust of vaccine components, fear of needles, and concerns of vaccine safety. Extrinsic forces include social media, family and friend influence, a well as inconvenient vaccine timing and insurance cost. Lastly, the theme of perceived risks and benefits is the patient’s evaluation of the worth of the vaccine as it relates to their health. Patients may be attempting to manage their health other ways, not understand the true threat of the illness, or have had past negative reactions to the vaccine.

**Implications:** Ideally, individual patients would have one simple reason for vaccine declination, but for most, it is a combination of all three themes listed above. These results underscore the importance of using the guiding principles of the Health Belief Model to promote vaccine uptake. This data is consistent with previous research in regard to low influenza vaccine uptake, common reasons for vaccine declination, and demonstrating the need for understanding vaccine declination as a multifaceted and individualized entity.

**Limitations:** This study was conducted in rural Michigan where the population is majority Caucasian and English speaking. Our questionnaire was provided only in English. The questionnaire was administered at primary care offices, thus we were unable to reach those who lack a primary care physician, making this a convenience sample. The staff was trained in questionnaire administration, but we are unable to validate the consistency of protocol. The questionnaire was collected for two months, creating a selection bias for those who had appointments during that time. These factors make it more difficult to generalize to other populations.

**Future Directions:** Extrapolate commonly provided reasons for influenza vaccination declination to create evidence-based and patient-centered initiatives to increase influenza vaccination acceptance.

## References

<sup>1</sup>Stats of the States—Influenza/Pneumonia Mortality. (2021, February 11). [https://www.cdc.gov/nchs/pressroom/sosmap/flu\\_pneumonia\\_mortality/flu\\_pneumonia.htm](https://www.cdc.gov/nchs/pressroom/sosmap/flu_pneumonia_mortality/flu_pneumonia.htm)

<sup>2</sup>MDHHS - County Immunization Report Card. (n.d.). Retrieved April 13, 2021, from [https://www.michigan.gov/mdhhs/0,5885,7-339-73971\\_4911\\_4914\\_68361-321114--,00.html](https://www.michigan.gov/mdhhs/0,5885,7-339-73971_4911_4914_68361-321114--,00.html)

<sup>3</sup>Ten health issues WHO will tackle this year. (n.d.). Retrieved April 25, 2021, from <https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019>

<sup>4</sup>MacDonald, N. E. (2015). Vaccine hesitancy: Definition, scope and determinants. *Vaccine*, 33(34), 4161–4164. <https://doi.org/10.1016/j.vaccine.2015.04.036>

<sup>5</sup>Cheung, K. W., & Mak, Y. W. (2016). Association between Psychological Flexibility and Health Beliefs in the Uptake of Influenza Vaccination among People with Chronic Respiratory Diseases in Hong Kong. *International Journal of Environmental Research and Public Health*, 13(2), 155. <https://doi.org/10.3390/ijerph13020155>