

March 1, 2022

# Building rapport and credibility with an AI chatbot

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The Vaccine Acceptance Research Network (VARN)  
VARN2022 March 1-2, 2022

Rose Weeks, MPH

# Challenge: Sticky Misinformation

**HEALTH  
MISINFORMATION  
IS BAD FOR  
OUR HEALTH.**



[surgeongeneral.gov/healthmisinformation](https://surgeongeneral.gov/healthmisinformation)

## The Chatbot Advantage

Self-service  
tool

Scalable

Non-  
judgmental

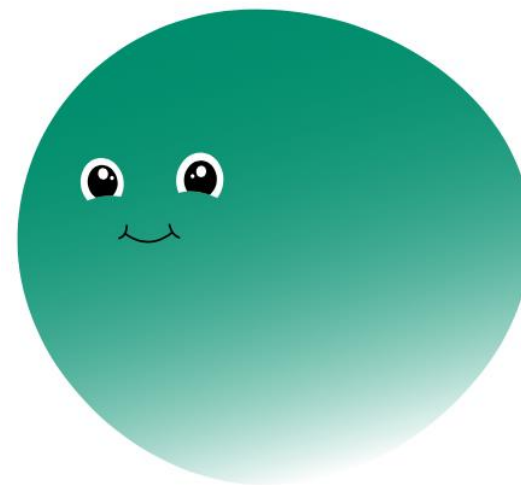
User-centered

Entertaining

Two-way  
communication



# Meet VIRA



# VIRA is a chatbot from Johns Hopkins that answers COVID-19 vaccine questions.

CHAT NOW!

Get access to evidence-based answers pre-vetted by Johns Hopkins vaccine scientists.



You're chatting with VIRA!

[Menu](#)

Hey, I'm VIRA, an informational chatbot. 🙋

Ask me your questions about COVID-19 vaccines! See [terms of use](#).

Thanks for joining! Please note that VIRA chatbot is designed for people in the U.S. Before we get started, please select what brought you here today.

[I came to find information about COVID-19 vaccines.](#)

[I'm looking for resources to share with others.](#)

[I'm concerned about the vaccine.](#)

[I'm curious about this chatbot.](#)

[None of the above.](#)

Type here

Send

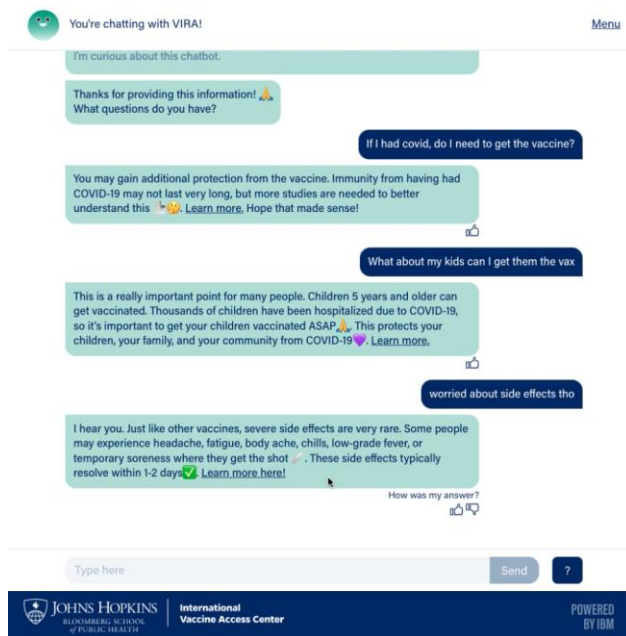
?



JOHNS HOPKINS  
BLOOMBERG SCHOOL  
of PUBLIC HEALTH

International  
Vaccine Access Center

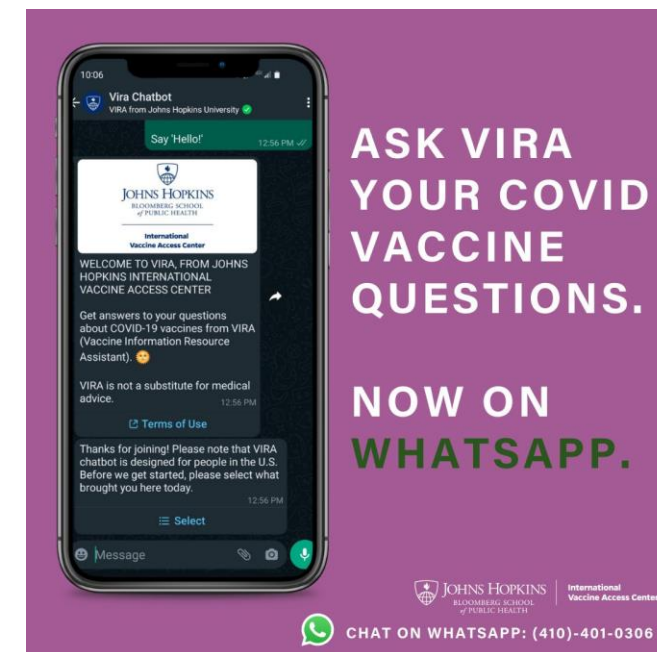
POWERED  
BY IBM



## 1. VaxChat.org



## 2. Embedded Code

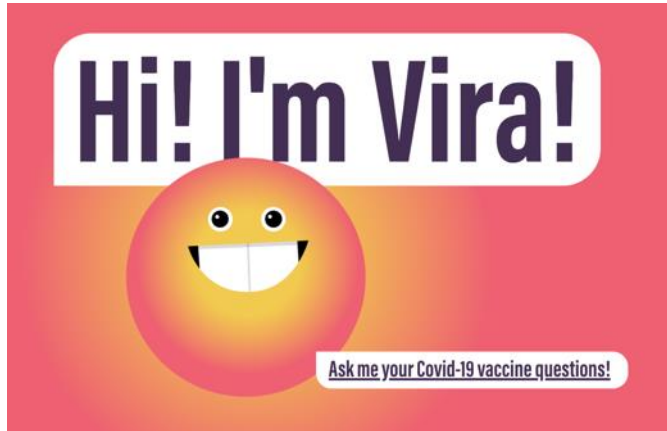


## 3. WhatsApp

# 3 Ways to Use VIRIA Chatbot



# Chatbot Message Testing & Usability



n=76 health workers, people 18-28 in diverse, mid-Atlantic U.S. regions

- Most were vaccinated
- Focus groups, Personality & demographic questionnaire, Interviews
- Usability questionnaire



## VOLUNTEERS NEEDED

Help us develop a web tool to support COVID-19 vaccine decision making! Earn \$20 per activity.

### The Study

We're developing a chatbot, a web app you can have a conversation with in real-time!

You can participate in:

- Zoom focus group to discuss key messages (60 minutes)
- Online questionnaire on how the chatbot works (20 minutes)
- Chatbot design feedback interview (60 minutes)
- Online questionnaire about how the website looks and works (30 minutes)

[Bit.ly/VaxChat](https://bit.ly/VaxChat)



**MORE**

### Eligibility

- Are you age 18-28?
- OR do you work in vaccine distribution/outreach?

### Contact Us

Sign up to learn more at [Bit.ly/VaxChat](https://bit.ly/VaxChat) (case sensitive)

International Vaccine Access Center  
Johns Hopkins School of Public Health | 415  
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MD 21231

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IRB approval: IRB00015714





# Chatbot Message Testing: Example

**“I’m young and healthy, so why do I need to get vaccinated?”**

**Factual only**

A: Although you are less likely to be hospitalized or die because of COVID-19, people in their 20s, 30s and 40s can still catch the virus and develop severe and lasting symptoms. The risk of COVID-19 isn’t worth it.

**Testimonial**

B: Scott Solomon, a Harvard physician, says, “while the vast majority of young adults who get COVID-19 are not going to require hospitalization, those who do have really high risk for adverse outcomes.” A vaccine can prevent severe illness, even if you're young and healthy.

**Empathy-Factual**

C: A lot of people ask me that. Here’s what you need to know: young adults have had some of the highest rates of COVID-19 during the pandemic, with many requiring hospitalization or suffering long-term side effects. A COVID-19 vaccine is the best way to prevent you from getting very sick.

**Principled Reasoning**

D: Many people in the US are still getting sick with COVID-19. Even if you, your family, or your friends haven’t experienced it firsthand, that doesn’t mean COVID-19 isn’t a threat. Getting vaccinated can protect you and our community against the COVID-19 pandemic.

**Humor**

E: SPOILER ALERT: People who had COVID-19 should get the vaccine but only after they get well.



# Chatbot Message Testing: General Results

Straight factual responses were # 2 favorite ☒

Testimonials were not selected

Empathy-led, factual messages rated #1 ☒

Principled reasoning was not selected

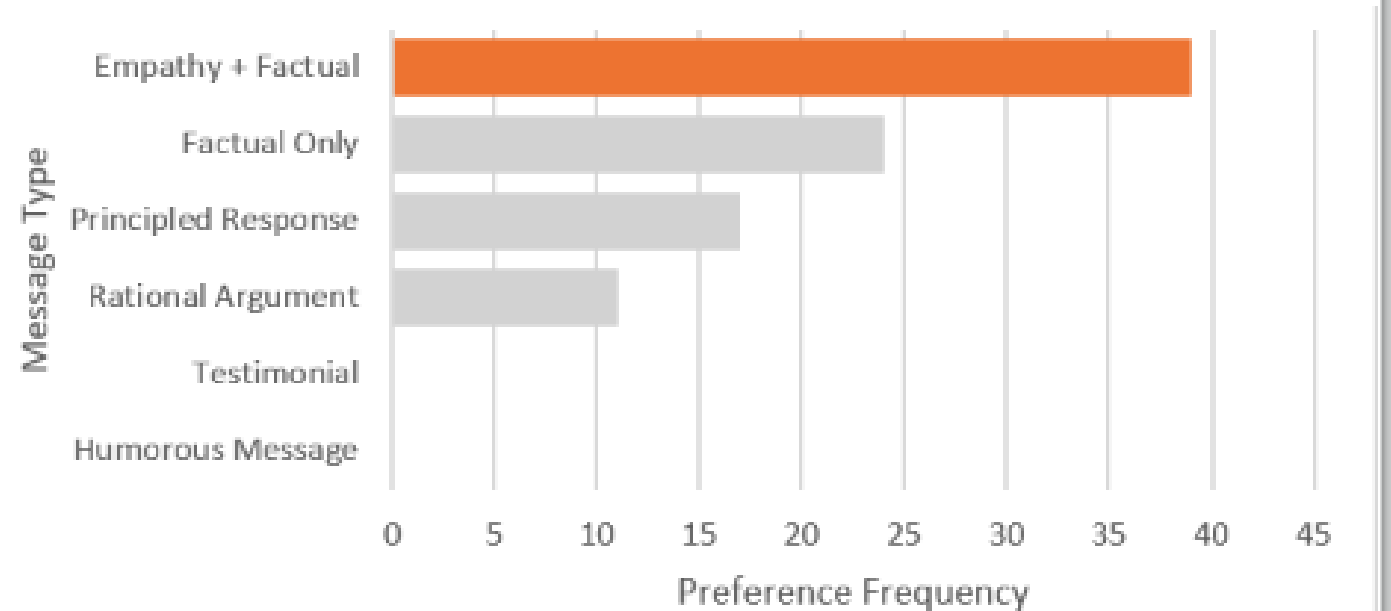
Humorous messages tested poorly ☐





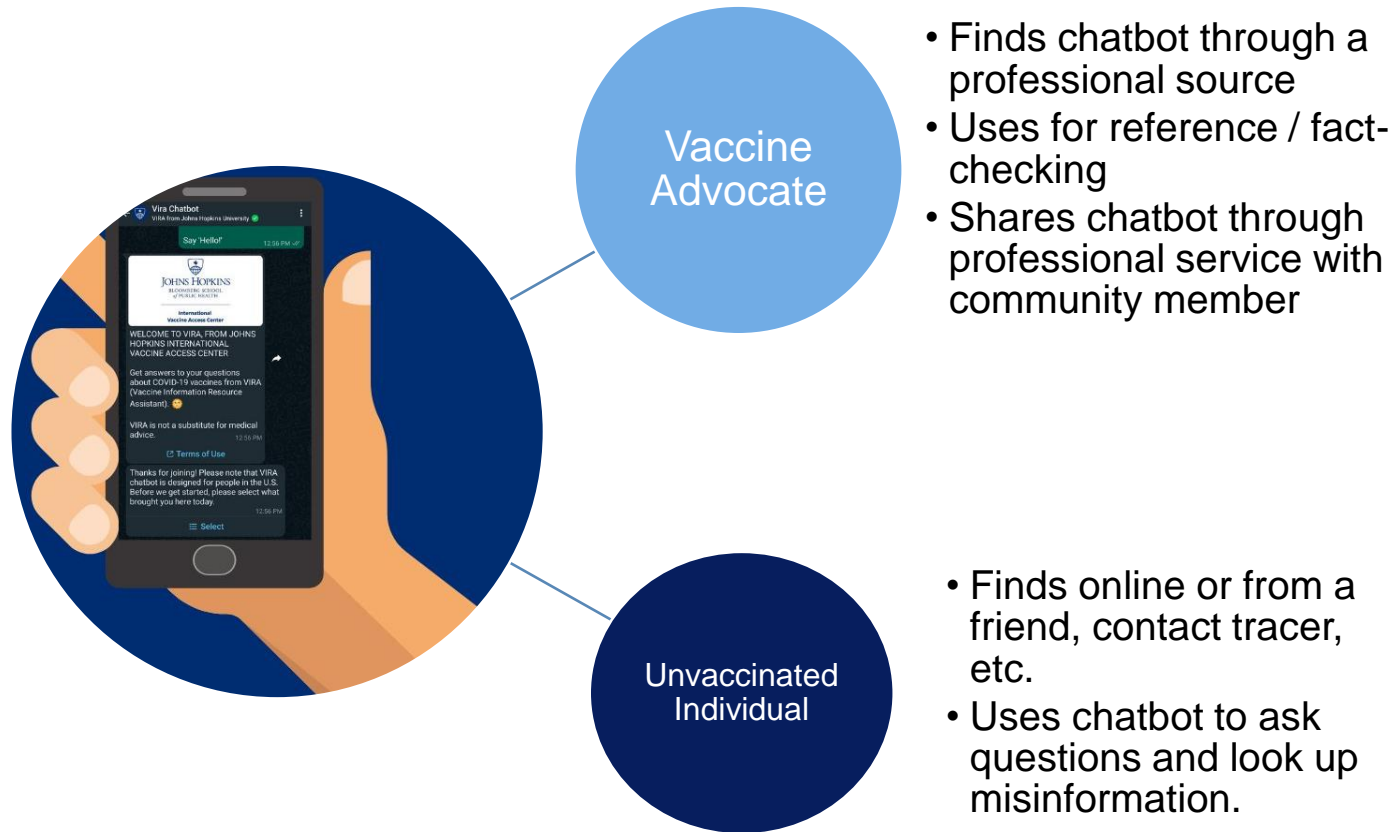
# Message Preference Frequency

- *Empathy + Factual* messages received 50% more votes than *Factual Only*
- No votes for *Testimonial* or *Humorous* messages





# Feedback: VIRA Chatbot Use Cases



**“As a contact tracing coordinator, I've gotten really backlogged with the amount of people that have called. A chatbot could probably streamline a lot of those [questions].”**

**“I don't think I would feel any kind of pressure to watch my words up with the chatbot”**

**“Sometimes talking to someone can be a little scary”**



# Upcoming Research

Using user-centered design principles to develop motivational interviewing components

How real-time use of chatbots may reveal messaging style and framing preference

Measure programmatic value of chatbots for strained public health staff

Evaluate usability in diverse audiences



**GET YOUR  
VACCINE  
QUESTIONS  
ANSWERED,  
JUDGEMENT  
FREE**

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of PUBLIC HEALTH International  
Vaccine Access Center

**VAXCHAT.ORG** **CHAT ON WHATSAPP: (410)-401-0306** 

# Thank you ...

Johns Hopkins COVID-19 Training  
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**WhatsApp**

**Bloomberg  
Philanthropies**



**VaxChat.org/Chat**