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A case study investigating perceptions of the COVID-19 vaccine in Cato Manor and Chesterville

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SIT Study Abroad

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Consent to use: See Appendix 4
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It takes a village to raise a child.

I have both many people and places to thank for their contributions to my research as well as for uplifting my mental health and wellbeing. Without the help of my village, I would not be able to present my research or speak about my experiences with such pride.

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Abstract

Despite countries all over the world transitioning to life post COVID-19, there are still many aspects of the pandemic that remain controversial and hot topics of debate. Perhaps among one of the most debated subjects is the question of whether vaccinations are necessary and if they truly had an impact on eliminating the virus. The concept of vaccine hesitancy has become a growing concern and threatens the health of communities around the world.

This project employed a mixed-methodology research design to investigate attitudes towards the COVID-19 vaccine constructed by community members living in the townships of Cato Manor and Chesterville. Through community engagement involving the distribution of surveys (n=30) and semi-structured informational interviews (n=11), this study identified how the lived experience of South Africans through the pandemic has informed aspects of their vaccine hesitancy. Moreover, by asking questions related to behaviors, beliefs, and associations to the COVID-19 vaccine, this study drew quantitative and qualitative conclusions regarding reasons for hesitancy through the eyes of community members residing in Cato Manor and Chesterville.

Findings from this study concluded that participants had several reasons for choosing to either vaccinate or not vaccinate themselves. Among vaccinated individuals, their reasons included protection from the virus and to protect other community members; whereas unvaccinated individuals were more concerned with the side effects of the vaccine as opposed to catching COVID-19. Information between the two groups was received from similar sources but levels of trust and skepticism separated how the groups decided what information was valid or not. Either way, this study helped understand what perceptions were prevalent during the pandemic and the factors that drove vaccine hesitancy.

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Frequently Used Terms

1. COVID-19 – also known as Coronavirus disease. It is an infectious disease caused by the SARS-CoV-2 virus that spreads from an infected person's mouth or nose in the form of small liquid particles when they cough, sneeze, speak, sing or breathe.
2. Vaccine hesitancy – used to describe people's reluctance to receive vaccination(s) despite availability. Hesitancy may be attributed to several factors such as confidence, complacency, or convenience.
3. Pandemic – an epidemic that has spread across multiple countries or continents.

Introduction

Vaccine hesitancy has been a prevalent issue even before the COVID-19 outbreak. In fact, the World Health Organization (WHO) identified vaccine hesitancy as one of the ten main threats to global health in 2019.[1] As of June 2022, more than half of South Africa's adults aged 18 and above have received at last one dose of the COVID-19 vaccine, according to the National Department of Health.[2] The milestone was achieved 15-months after the first vaccine was distributed but the nation remains unlikely to reach their 70% target by the end of 2022.[3] Despite lack of optimal vaccination rates, the government recently destroyed 8.5 million doses of the Pfizer vaccine at the end of October 2022; there are also some 10.1 million stockpiled doses of the Johnson & Johnson vaccine which will expire between June and September 2023.[4] Clearly, vaccine supply was high but the demand for receiving the vaccine was not matched.

While the South African government ran many campaigns pushing people to protect themselves against COVID-19, the vaccine remained an issue for many people and not enough research was conducted to pinpoint why citizens were hesitant to get the vaccine. Thus, one of the motivations for completing this research was to give the people of South Africa, especially ones from marginalized communities such as in Cato Manor and Chesterville, a voice and platform to provide academics, healthcare workers, and other South Africans with insight on how information and care needs to be distributed equitably and equally. Through listening to these perceptions responsible for constructing these narratives, insight into some of the reasons that stopped individuals from getting vaccinated as well as some of the reasons that did work will provide insight for the creation of more engaging and inclusive strategies promoting vaccinations in the future.

Research was conducted in the townships of Cato Manor and Chesterville located in the province of Kwa-Zulu Natal, South Africa. Given South Africa's lower COVID-19

[1] World Health Organization and Akbar, "Ten threats."
[2] UNICEF, "UNICEF welcomes."
[3] UNICEF, "UNICEF welcomes."
[4] Ho, "Binning 8.5m Covid."

vaccination rates, I was interested in studying vaccination rates on a smaller scale. Moreover, I was particularly fascinated by the close physical proximity and strong community atmosphere which characterizes many of the families residing in Cato Manor and Chesterville. To achieve a greater understanding of the perceptions and living circumstances members of Cato Manor and Chesterville endured during COVID-19, my study involved a collection of both quantitative and qualitative data. Surveys were taken by all participants to collect demographic information as well as develop a baseline understanding of the factors contributing to vaccine hesitancy. The semi-structured interviews were done with some of the participants and built upon the questions asked of the survey. The goal of the interviews was to provide a more in-depth perception of the attitudes unearthed in the survey questions and draw upon any common themes felt by participants.

Context

A. Diversity in South Africa

South Africa is a fascinating location due to its classification as a low and middle-income country (LMIC). In an editorial by Khan et al., the authors address and question the dichotomies created by language responsible for separating wealth, cultures, and people into distinct categories of their own. Terminology describing countries based on income originates from the World Bank classification for lending based on GNP per capita.[5] Khan et al. describes LMICs as a "very heterogenous group" of the world's population that is also an "enormous fraction that is very diverse."[6] South Africa's diversity not only encapsulates its wealth inequities but also and perhaps most importantly comes from its identities, peoples, and cultures.

From the outside, foreigners and those who do not understand South Africa's history of oppression and apartheid associate the country with safaris, starving children, and indigenous cultures. While there are some parts of the country and continent which hold

[5] Hamadeh, Van Rompaey, and Metreau, "New world bank."
[6] Khan et al., "How we classify," 2.

true to these associations, the intersectionality of the country is much more complex. Moreover, the country's history of apartheid separated races through a hierarchical system which oppressed non-white citizens creating unequal opportunities, racial tension, and violence. Though apartheid ended in 1994, the years of racial segregation and disparities in economic and social development have had a rippling effect on the growth and development of society in South Africa that can be felt to this day.

B. COVID-19 and the Vaccine in South Africa

South Africa is often described as a "cocktail of four colliding epidemics" which includes a combination of maternal, newborn and child health; HIV/AIDS and TB; NCDs; and violence and injury.[7] The recent COVID-19 pandemic wreaked havoc across the globe and exasperated many pre-existing health conditions included in South Africa's already existing "cocktail." While COVID-19 was a global pandemic, the burdens of the disease inflicted populations all over the world in various manners. For those residing in South Africa, the "blunt instrument" of hard lockdown included the restriction of many daily activities and prohibition of alcohol and tobacco. [8] Though the lockdowns implemented by the government did prove to have some positive public health implications, the intensity and severity with which the government enforced those restrictions was a point of tension for many residents. Moreover, the rapid spread of the disease coupled with constant new information contributed to skepticism of whether COVID-19 was real and other such rumors.

Rollout of the COVID-19 vaccine in South Africa was officially initiated in February 2021 with Johnson and Johnson (single dose) and the Pfizer (two-dose) vaccine used in the national prioritization framework.[9] Distribution of the vaccine was handled in phases with Phase 1 targeting healthcare workers; Phase 2 including essential workers, people over the age of 60, adults with underlying diseases, and people living in overcrowded settings; and Phase 3 was given to the rest of the adult population.[10] The aim of the

[7] NCOP Health and Social Services, "Burden of Health."
[8] Mishra, "Covid-19: WHO."
[9] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 922.
[10] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 922.

national rollout was to vaccinate 67% of South Africa's 60 million population to achieve herd immunity.[11] However, with already increasing levels of vaccine hesitancy for other diseases in addition to COVID-19, it has proven difficult to encourage the South African population to receive the vaccine. It is also debatable whether distribution of the vaccines was cost-efficient and truly helped mitigate the spread of the disease to a reasonable extent given the findings and experiences from community members in Cato Manor and Chesterville.

C. Communities of Study

This study will focus on the perspectives of residents from the townships of Cato Manor and Chesterville in KwaZulu-Natal where the virus has disrupted daily life and spread misinformation among community members. There has been little to no research gathered on how Cato Manor and Chesterville community members lived through the pandemic and how that has affected their perception of the disease. My research will inform other South Africans, as well as international scholars, on how Cato Manor and Chesterville residents experienced the pandemic and what perceptions they have carried with them. My research has the potential of informing public health professionals on how they might handle future pandemics with greater consideration of a community-wide context.

Respondents participating in the study came from the townships of Cato Manor or Chesterville. Both communities are situated in eThekwini Ward 29 with a population of 37,622 according to the 2011 Census.[12] The median age of residents in this area is 25 years old with 66% of the total population aged 18 to 64 and the primary language of 82% of families being isiZulu.[13] Understanding the identities and circumstances of participants was a crucial component when considering the reasons for hesitancy amongst this population. Furthermore, similar language and culture connecting many of these residents together highlighted the prevalence of common themes amongst people of similar vaccination status.

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[11] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 922.
[12] Wazimap, "eThekwini Ward 29 (59500029)."
[13] Wazimap, "eThekwini Ward 29 (59500029)."

Family structure and the function of intergenerational support within households is a core and unique feature of these communities. Families often consist of a "gogo" or granny that heads the household and takes care of the children with male fathers or figures often absent from the family picture. Moreover, given that 26% of the population is between the age of 20-29 and the median age is 25, this suggests a relatively young population living in the community and within each household.[14] Moreover, this age demographic is more likely to be attracted and highly susceptible to information disseminated by media. In general, TV and radio are considered staple components to receiving news and entertainment for many families in these communities. Since multiple generations of families often live together in the same households, the spread of information is often transmitted from media to those close or living in near proximity.

Literature Review

A. Defining Vaccine Hesitancy

Crucial to this study on perceptions of the COVID-19 vaccine is an understanding of how vaccine hesitancy is defined. The SAGE Working Group on Vaccine Hesitancy (WG) established in 2012 concluded that "vaccine hesitancy refers to delay in acceptance or refusal of vaccination despite availability of vaccination services."[15] A study specifically done in collaboration with the Cato Manor and Chesterville communities is essential given the paucity of studies addressing the scope of COVID-19 vaccine hesitancy in countries such as the Middle East and North Africa, Sub-Saharan Africa, Eastern Europe, Central Asia, Middle and South America.[16] Moreover, the lack of smaller scale studies on isolated communities such as the townships of Cato Manor and Chesterville are crucial; especially considering the disparity in terms of quality and availability for public and private sector healthcare provided in South Africa.

[14] Wazimap, "eThekwini Ward 29 (59500029)."
[15] MacDonald and the SAGE Working Group on Vaccine Hesitancy, "Vaccine hesitancy: Definition," 4161.
[16] Sallam, "COVID-19 Vaccine Hesitancy Worldwide," 9.

Equally as important to understanding vaccine hesitancy is defining the individuals belonging and contributing meaning to that term. Vaccine-hesitant individuals are a "heterogenous group who hold varying degrees of indecision about specific vaccines or vaccines in general."[17] To understand the construction of these motivations, my research is guided by the "3 Cs" framework proposed to the WHO EURO Vaccine Communications Working Group. The model characterizes three concepts responsible for vaccine hesitancy: (1) confidence, (2) complacency, and (3) convenience. Confidence is defined by the trust in safety and effectiveness of the vaccine, the system responsible for delivering the treatment, and motivations of policymakers. Complacency relates more to the individual and their understanding of the risks associated with the disease and how necessary vaccinations are. Lastly, convenience describes accessibility to the vaccine in terms of factors such as location, affordability, availability.[18] These three categories were constructive in the creation of survey and interview prompts aimed at identifying how members of the Cato Manor and Chesterville community have responded to the COVID-19 vaccine. Categorizing questions and responses was useful when analyzing what aspects of the model were most prevalent amongst these communities. Ultimately, studying vaccine hesitancy is crucial for government and public health officials to understand how they can prevent and mitigate the spread of deadly disease outbreaks such as COVID-19.

B. Vaccine Hesitancy in South Africa

In a review of surveys conducted on potential acceptance of the COVID-19 vaccine by Cooper, van Rooyen, and Wiysonge, the authors articulated several determinants of vaccine hesitancy amongst South Africans. Through evaluation of nine different surveys distributed prior to 15 March 2021, the authors found acceptance or non-acceptance of the vaccine was related to age, employment status, urbanicity, and geographical location. Acceptance of the vaccine varied from 52% to 82% between surveys and each attributed hesitancy to a unique characteristic or motivation. However, Cooper, van Rooyen, and Wiysonge acknowledged variations in the surveys because of limitations to

[17] Troiano and Nardi, "Vaccine hesitancy in the era of COVID-19," 245.
[18] WHO EURO Working Group on Vaccine Communications in MacDonald and the SAGE Working Group, "Vaccine hesitancy: Definition," 4162.

the study, lack of representation in populations studied, and change in the public's perception of the vaccine overtime.

Both the COVID-19 Democracy and Council for Medical Schemes (CMS) COVID-19 vaccine surveys found that politics largely contributed towards shaping opinions on the vaccine. Specifically, a positive attitude of the government was associated with a higher uptake of the vaccine. Similarly, the CMS survey also found that lack of the government's ability to assure that the vaccine was safe and effective, and believing that politics played too much of a role in developing the vaccine contributed to 14% and 8% of the total reasons for not wanting to get vaccinated.[19] However, the top two reasons for not wanting to get vaccinated according to the CMS survey was concern that the vaccine was too new and worrying about the side effects of the vaccine.[20]

Age was another factor that influenced support of the vaccine. The COVID-19 Democracy survey concluded that vaccination support increased with age; 74% of those aged 55 years and older were in support of the vaccine whereas only 63% of those aged 18 to 24 supported the vaccine.[21] In terms of sex, results from the Ask Afrika study suggested that women were potentially less hesitant to receive the vaccine than men. However, Cooper, van Rooyen, and Wiysonge noted that this finding contradicted with other studies that found women to be more hesitant than men when it came to receiving the vaccine.[22]

C. Hesitancy Related to Ethnicity

In a narrative review facilitated by Troiano and Nardi, their review found that Black and African people generally had a lower acceptance of the COVID-19 vaccine which supported a previous study showing that African Americans had higher degrees of skepticism and mistrust of the flu vaccine. Their review also highlighted that unemployed people and those with lower income or education tended to have lower

[19] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 929.
[20] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 929.
[21] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 926.
[22] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 929.

acceptance rates in most cases.[23] Collection of demographic information in the surveys asked participants to identify their race but did not ask any questions related to education or employment status to avoid generalizing. All participants who took part in the study identified as Black; however, given the location of the study, the consistency of this demographic makes sense. Additionally, knowing the demographics of the study population prior to engaging in the study was another driving factor in my choice to research COVID-19 vaccine hesitancy.

D. Side Effects of COVID-19

With any substance that the body ingests or consumes, there is always a cause and effect that may be wanted, unwanted, or unprecedented. Around the world, many people cited their concern with the side effects of the COVID-19 vaccine as one of the reasons why they chose not to be vaccinated. However, fear of the side effects is not always informed with proper information or a correct understanding of how vaccines are processed in the body.

According to WHO, "vaccines contain weakened or inactive parts of a particular organism (antigen) that triggers an immune response within the body."[24] While vaccines contain fragments of the disease organism itself, it is not harmful and helps the body learn how to defend itself if it were to encounter the actual virus. Some vaccines, such as the COVID-19 vaccine, require multiple doses so the body may build up memory of the pathogen and remember how to defend itself in the future. Vaccines are regularly monitored for safety and side effects from vaccines are minor and typically go away within a few days.[25] The most common side effects of the COVID-19 vaccine according to the National Institute for Communicable Diseases are mild and include pain, swelling or redness at the injection site, mild fever, chills, fatigue, headache, and muscle or joint aches.[26]

[23] Troiano and Nardi, "Vaccine hesitancy in the era of COVID-19," 249.
[24] World Health Organization, "How do vaccines."
[25] Centers for Disease Control and Prevention, "Possible Side effects."
[26] National Institute for Communicable Diseases. "COVID-19 Vaccine Side-Effects."

In graphics developed by the South African Government, they outline the kinds of adverse reactions not expected and the procedures citizens should report if having an adverse reaction. Noted adverse possible reactions include death, inpatient hospitalization, and persistent or significant disability/incapacity. The government warns citizens that they should not assume such events are due to receiving the vaccine. Adverse events following immunization (AEFI) are not expected with uncommon severe and serious reactions occurring <1%, rare reactions at <0.1%, and very rare reactions at 0.01%.[27]

Methodologies

A. Research Design

This case study employed a mixed-methodology approach to obtain an understanding of how Cato Manor and Chesterville community members developed an understanding of the COVID-19 vaccine. It was determined a combination of quantitative and qualitative research would best provide a well-rounded discussion of the findings. In other words, a dual-faceted approach would confirm how findings supported or contrasted one another. Specifically, a survey was distributed to collect demographic information and quantify the findings of participants while semi-structured interviews were conducted to complement the findings found from the surveys and provide a more descriptive analysis to the research. The aim of both research tools was to develop the best possible understanding of community perspectives without introducing bias as an outside researcher.

B. Sampling Procedure

To collect survey and interview data, convenience sampling was used to recruit participants for the study. With the help of SIT student support advisor and community liaison, Thando Mhlongo, Thando helped organize and coordinate a time and location for participants to meet and complete a survey and/or interview. Many of the participants were people Thando was familiar with or had completed a study for another

[27] South African Government, "Adverse effects of."

SIT student in the past. Some participants were people in the Cato Manor community we had interacted with previously during the four-week homestay. With that being said, the sampling was not entirely representative of the community. However, the study did strive to best represent the populations of Cato Manor and Chesterville in terms of gender, age, and vaccination status. In total, there were 30 participants who took part in the study; specifically, 30 surveys and 11 interviews were conducted. The 11 participants who completed a survey and interview did so in their home or a location near their home within the Cato Manor or Chesterville community. The other 19 participants only completed a survey which was distributed by Thando. For the participants taking the survey when I was present, I assisted in clarifying the response procedure or meaning of the question if asked.

C. Limitations in Sampling Procedure

As mentioned above, since most of the participants previously knew Thando Mhlongo, they might have similar opinions or ideas on certain topics as she does. Thus, this introduces potential sources of bias to the study as participant responses might be more reflective of Thando's perceptions. Additionally, this preliminary research project had a relatively small population of only 30 total participants. Such small numbers, especially given the potential bias brought in with Thando's connections, leave room for certain beliefs to be exposed more often than others or even not at all. A larger study would have benefitted the overall results as they would have been more conclusive given more results to analyze and draw relationships between. While participants varied in age, gender, and vaccination status, participants all identified as Black and did not represent any other race demographics. Though 97% of the population living in Ward 29 are Black African, 2% of the population identifies as Indian/Asian.[28] In a bigger study, inclusion of their input to this study would have better represented the community and provided insight into how those individuals perceived the vaccine.

[28] Wazimap, "eThekwini Ward 29 (59500029)."

D. Data Collection

Prior to collecting any information that was used for the actual study, a pilot study was rolled out to assess the clarity and usefulness of questions. For the pilot study, I had two participants who were not involved with the actual study fill out a survey and answer the interview questions. Receiving feedback from community members provided preliminary insight on how the actual sample population would respond to the questions and how well they understood the questions asked of them. Substitution of language for several of the questions was altered to maximize clarity and obtain the most accurate possible answers. The most crucial suggestion provided for the survey was adjusting the measurements of the Likert scale. A Likert scale is "used to measure respondents' attitudes to a particular question or statement."[29] Originally, I had a scale with options ranging from "Strongly disagree" to "Strongly agree." One of the pilot study respondents suggested it would be helpful to include numbers on a scale of 1-5 to accompany each of the options. Thus, I associated "Strongly disagree" with the number "1" and had each subsequent number associated with a greater level of agreement. During the interview portion of the pilot study, I read aloud my questions to the participants and asked them to briefly respond to the question itself while also assessing whether the question was relevant to the overall goals of the study.

Since this was a case study employing a mixed-methodology method, multiple data collection instruments were used. As mentioned above, for the quantitative research, a survey instrument was used to collect demographic information from participants as well as develop a baseline trend. The first eight questions asked for demographic information such as age, gender, and race so I could understand the population of study. The next 12 questions had participants utilize a Likert scale to rate how much they agreed or disagreed with a statement. The statements were adopted from the SAGE Working Group on Vaccine Hesitancy's "3 Cs" model which categorized motivations for hesitancy according to confidence, complacency, and convenience.[30] Questions were adopted and sorted according to the model while also striving to consider the social,

[29] University of St. Andrews, "Analysing Likert Scale."
[30] MacDonald and the SAGE Working Group on Vaccine Hesitancy, "Vaccine hesitancy: Definition," 4162.

political, and economic environments of Cato Manor and Chesterville. A baseline from the survey results was used to generate key themes or ideas that assisted in creating the interview guide. Although the survey questions were primarily collected for quantitative analysis, it should be noted the findings were not used to create generalizations or stereotypes towards the Cato Manor or Chesterville communities. Rather, the numerical analysis allowed me to better understand how I could prompt my interviewees to produce qualitative responses that supported or contradicted those survey findings.

The other data collection instrument used in my study was an interview guide. This tool provided qualitative findings supplemental to the quantitative research. Furthermore, these conversations provided greater context to the responses received from the surveys and assisted in constructing narratives representing the lived experiences of those living in Cato Manor and Chesterville. Like the survey questions, the interview prompts were generated according to the "3 Cs" model with an emphasis on how individuals perceived their hesitancy or lack thereof. Overall, the interviews were an excellent opportunity to push participants to expand upon their responses from the survey and recognize what caused their hesitancy and where that hesitancy originated from if it existed.

E. Participants

In total, there were 30 participants that contributed to this study on vaccine hesitancy in the Cato Manor and Chesterville communities. Specifically, there were 30 participants who filled out the survey with 11 of those participants also completing a semi-structured interview afterwards. In terms of gender, 8 males and 22 females completed the study. All participants identified as Black.

Age	**Male**	**Female**	**Number of Participants**
18-24	3	11	14
25-35	2	2	4
36-54	3	8	11
55-64	0	0	0
65+	0	1	1

Figure One: Table displaying breakdown of participant age and gender.

F. Limitation in Data Collection

While my study aimed to preserve the honest and true responses of participants, my positionality and bias as an outside researcher from the US were attributes that inevitably contributed to the study. Specifically, during the interviews I tried to keep a formal yet conversational tone with my participants to make them feel comfortable responding as their true selves to me. However, there were times when I may have incorporated my own views on the COVID-19 vaccine which could have potentially made participants respond in a way they felt validated or reassured by my response. Additionally, I was only present with the 11 participants who also completed an interview. The other 19 surveys were distributed amongst Cato Manor and Chesterville community members by Thando and were done when I was not present. Thus, those participants who completed the survey on their own time were not able to ask any questions if they had any and may not have answered as confidently if they were unsure of how to respond.

G. Data Analysis

To address the driving research question influencing this study, I completed an articulate yet extensive analysis of the findings that relied on the quantitative and qualitative findings. Though data is largely number-based, an analysis of both the quantitative and qualitative findings was completed to develop a well-rounded assessment of perceptions on the COVID-19 vaccine and hesitancy amongst both communities.

After collecting all survey data, I utilized a combination of Excel and RStudio to code my results. I input all participant responses into Excel prior to uploading the results into the integrated development environment (IDE) known as R. Using these two programs allowed me to group responses and conclude the presence of any trends. Moreover, making note of these findings allowed me to produce corresponding graphics and tables to visualize the results which will be discussed in the “Findings” section. In R, “tidying” or “cleaning” the dataset is always the first step. The process of tidying data involves

renaming columns, reformatting answers, and consolidating variables. Since I manually entered in respondent's answers into Excel after collecting their responses, there was not much cleaning necessary. However, I did rename variables (column names) for the purpose of being able to easily identify the questions I wanted to analyze. For instance, for the question asking, "What is your age?" I changed the variable name to "Age." Many of these questions contained key words which I used as an identifier for the new column name. The only answer that I recoded was for the question regarding participants vaccination status. The options included "Yes," "Partially," and "No." Only one participant had indicated they were partially vaccinated so I recoded their response to a "Yes" for the purposes of being able to visually represent their answer for other responses and as an ethical precaution to ensure their identity was concealed.

To construct the full picture, I also transcribed the interviews I conducted to establish any evident relationships between the numerical findings and the interviews. After transcribing interviews, I identified key words and phrases allowing me to identify themes among the vaccinated and unvaccinated populations. Weaving together both aspects of the study provided substantial evidence and confirmed that the conclusions drawn were logical and evidence-based. Overall, the data analysis for this study involved an investigation of the relationships and themes formed between the quantitative and qualitative findings together and separately.

H. Limitations in Data Analysis

I tried my best to use all available data provided by participants to develop the best possible perceptions of the COVID-19 vaccine. However, some respondents left answers blank on the survey which left discrepancies in the overall results. Additionally, during the interview, some participants had difficulty understanding the questions being asked of them which led them to answer not as confidently or to only answer the question partially.

Ethics

Prior to engaging with this project and any of the participants, the ethics of my topic and proposed study were carefully reviewed and approved by the SIT local review board. The ethical clearance forms are in Appendix 5 on page 58. A copy of the consent form for participants can also be found in Appendix 3 on page 55. Before participants participated in any part of the study, I made sure to read over each section of the consent form regardless of whether a participant had previously completed another student's ISP study. The consent form outlined my research and ensured that participants would not endure any form of harm while I conducted the study but would have the ability to receive counseling from SIT if necessary. Participants were also notified that they did not have to fill out any part of the survey or answer a question during the interview if they felt uncomfortable or upset and would not be penalized for doing so. While explaining the form to participants, I made sure to emphasize they would be compensated for their contributions to the study regardless of how many questions or responses they gave.

Participants provided their signature to acknowledge that they were 18 years or older and understood the scope of the study at the time they took the survey or interview. Two additional signatures were provided if the participant consented to let me quote their words from the interview and to be audio recorded while the interview took place. After the consent forms were signed, participants completed the survey. If participants were also taking part in the interview, I made sure to confirm with them that they were okay to continue with an interview after and they were comfortable being audio recorded for transcribing purposes later. In addition to having participants consent to completing an interview, I also made sure they knew that their answers and the audio recordings were stored on my phone and transcriptions were kept on my computer. Both devices are password protected and I was the only one always accessing either device. The audio recordings and transcriptions will be deleted upon completion and submission of this study.

Findings

In the following section, I will discuss findings from the surveys and interviews. Findings will be separated by those who are vaccinated and those who are not. Separating participants into categories will allow me to discuss themes associated with vaccination status. However, before this discussion I will introduce findings found with all participants and their demographics.

A. All Individuals

According to the survey distributed, 53% of participants indicated they had been fully or partially vaccinated and 47% answered they hadn't been vaccinated. As discussed above regarding the tidying process, only one individual had indicated they were partially vaccinated but for visualization purposes, I recoded their answer from "Partially" to "Yes." Age and gender of participants varied though all individuals identified their race as "Black." Specifically, age was separated into five options ranging from 18 to above 65. Many participants indicated they were between the ages of 18-24 or 36-54, specifically, 47% and 37% of participants in the study respectively. In terms of gender, more females participated in the study than males but distribution of vaccinated and unvaccinated individuals was split almost evenly; 55% of females and 50% of males from the study were vaccinated at the time they took the survey.

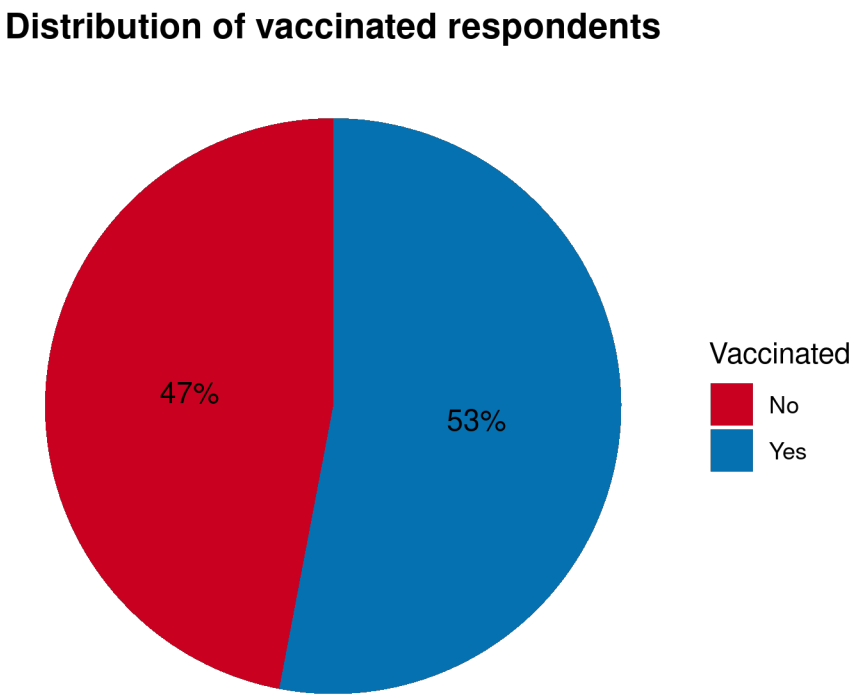

Figure Two: Pie chart showing vaccination status of individuals who took part in the study.

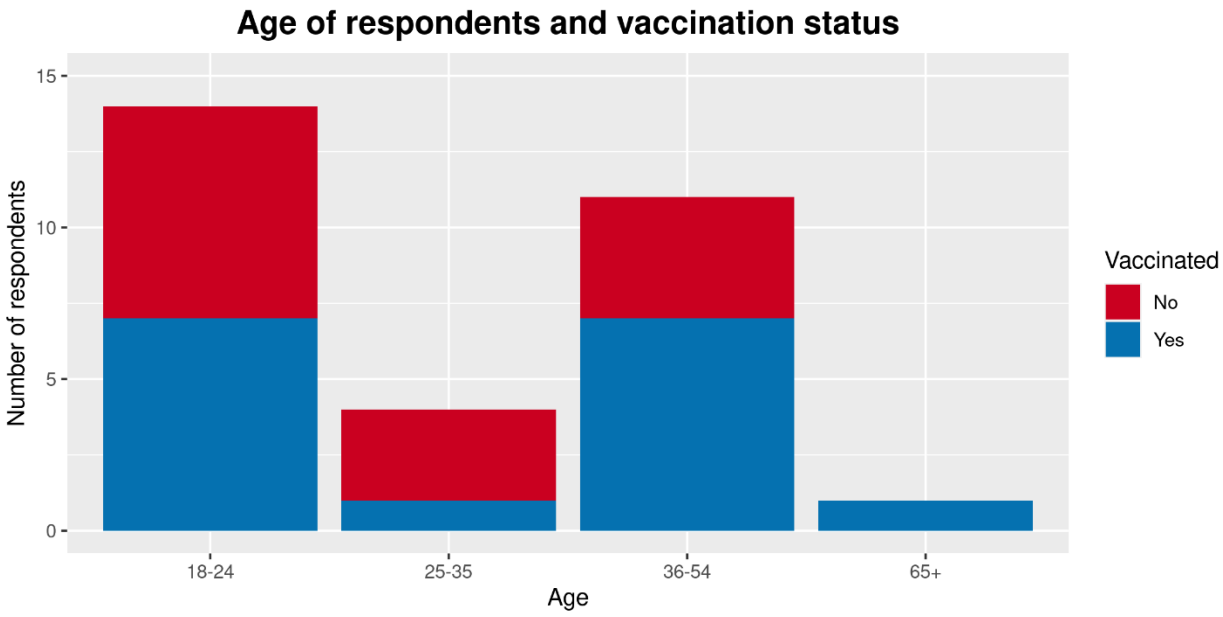

Figure Three: Grouped bar graph showing vaccination status with breakdown of age.

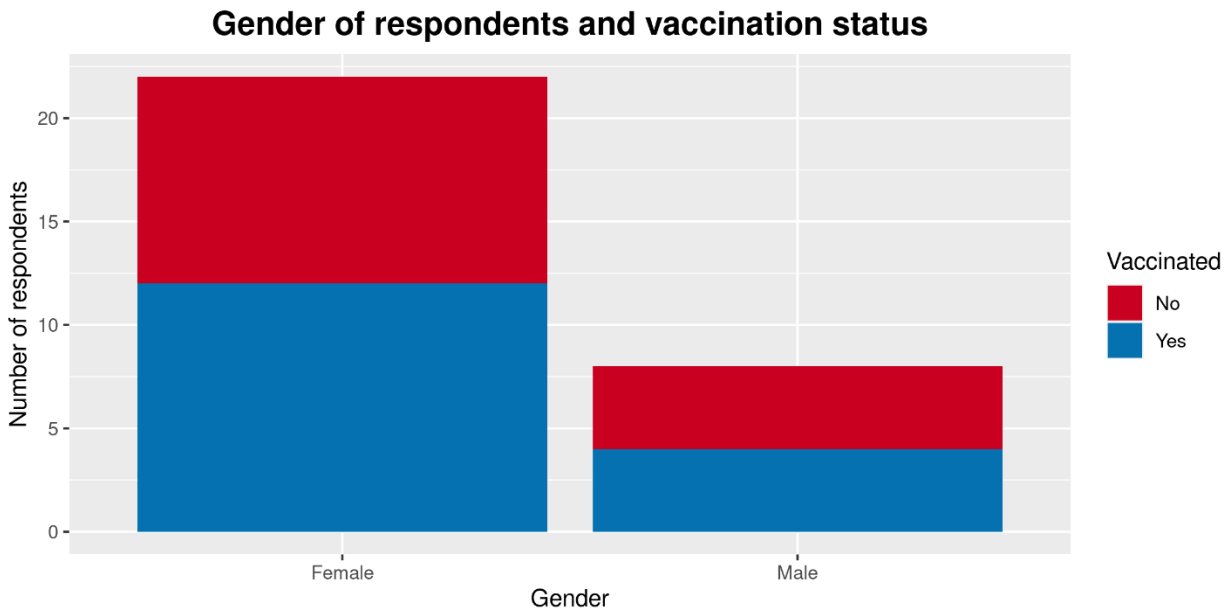

Figure Four: Grouped bar graph showing vaccination status with breakdown of gender.

B. Vaccinated Individuals

i. Protection

One of the themes found amongst vaccinated individuals was the idea of protection. Specifically, whether getting the vaccine was a way of protecting those getting the vaccine or from those who had not received the vaccine. Vaccinated respondents who answered this question in the survey either agreed or disagreed with the statement: "It is necessary to get the COVID-19 vaccine to protect others." Most respondents who had received the COVID-19 vaccine either answered "Agree" or "Strongly agree."

During interviews, participants were asked if they believed they were protecting their community if they received the vaccine. Several participants agreed and spoke about how receiving the vaccine was a responsibility they had to protect those they surrounded themselves with. For instance, Participant 3 was a female in the 65+ age category who decided to vaccinate themselves to prevent catching COVID-19 but also because they knew they were living in a household with other family members who worked or went to school.

> *I think it was more doing it for the community because it wasn't just that, it wasn't just for me because I do go with other people, there are other people I live with at home so I thought it was a good idea to get vaccinated.* (Participant 3 2022, November 8).

Similarly, Participant 6 was a male between the age of 18-24 who had been vaccinated. When also asked about protecting his community, he initially responded getting the vaccine was more of a way to protect himself but then spoke about the influence he had on his own social spheres of influence.

> *I think you are protecting yourself more because if now, okay, let's just say we're living in this house and I get the vaccination and I'm most definitely gonna influence you to get the vaccination and influence others to get the vaccination so that I feel like that if I get the vaccination everybody would have to get the vaccination because obviously they believe that I, I'm not gonna die from COVID and they're gonna die from COVID so as soon as they start getting sick they start getting worried and go get the vaccination.* (Participant 6 2022, November 9).

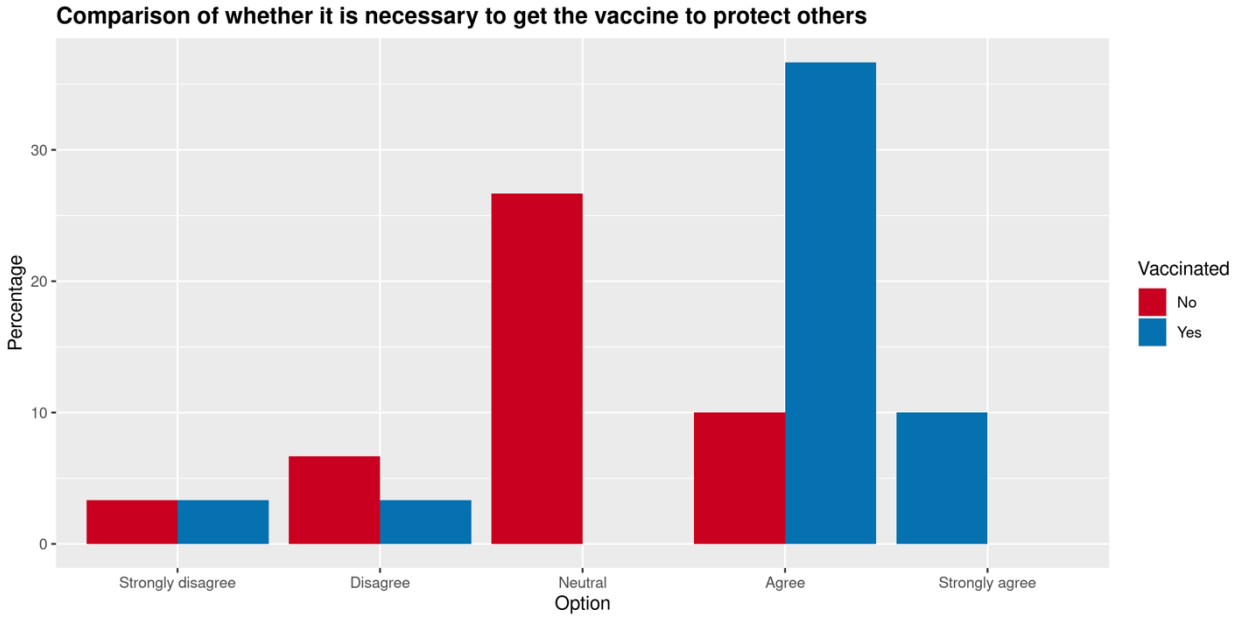

Figure Five: Grouped bar graph showing respondents answering the statement: "It is necessary to get the COVID-19 vaccine to protect others."

Overall, participants in both the survey and interview portion of the study seemed to indicate that the COVID-19 vaccine served as protection for both their own self and the community.

ii. Trust

Another theme found with vaccinated individuals was their trust in the information they received from the COVID-19 vaccine. According to the survey, respondents who had been vaccinated seemed to trust the information they received more often compared to those who were not vaccinated. In another survey questions asking respondents where they received their information, TV, social, media, government, and internet were most frequently ticked off. Whether participants decided to trust that information regardless of its credibility will be discussed further in the "Analysis" section.

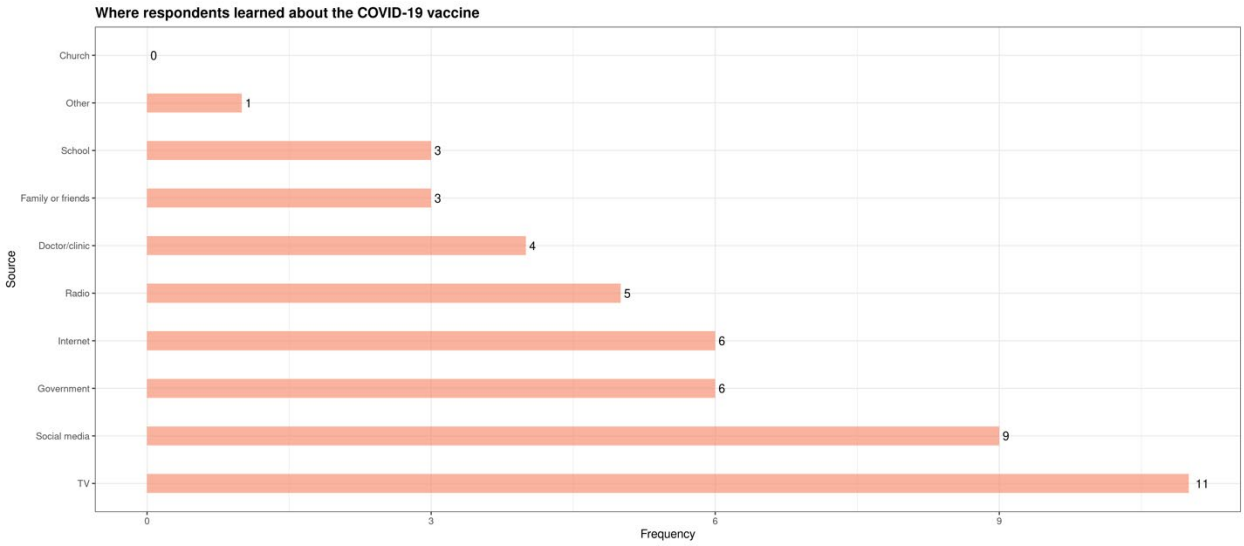

Figure Six: Horizontal bar graph showing frequency of where respondents received information about the COVID-19 vaccine

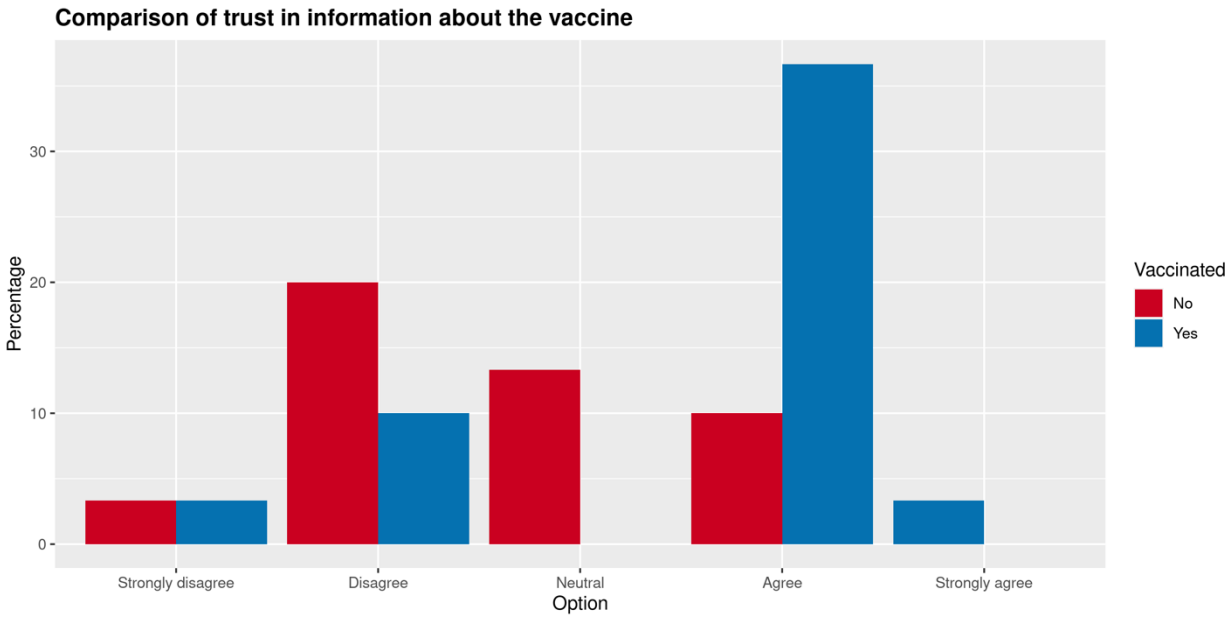

Figure Seven: Group bar graph showing respondents answering the statement: "I trust the information I receive about the vaccine."

Interviews with participants also seemed to confirm this trend of trusting news and information about the COVID-19 vaccine. Participant 6 answered that he received information about the COVID-19 vaccine from multiple sources including the government.

> *Yeah, if, it's very hard to trust the government now. But yeah, I did trust because it's the government, who doesn't trust the government but it's very hard to trust the government. It's just messed up, eh?* (Participant 6 2022, November 9).

Participant 8, a male in the 25-35 age category had strong views on the case of vaccinating. He admitted to hearing both the good and bad sides of the vaccine but ultimately decided to go with his gut and decide for himself what information he would trust.

> *It's just that the way it came out, people like to choose whether it's good or bad because of like the internet, everything people are seeing or hearing, so it made*

> *it quite difficult for people to decide and stuff like that so. But for me it was easy because I don't believe what anybody said, especially with the virus so for me it was real easy. I didn't let anybody to tell me what to do.* (Participant 8 2022, November 9).

This participant said that he received most of his information online from COVID-19 Facebook pages but would also watch the news occasionally.

C. Unvaccinated Individuals

i. Side Effects

One of the biggest concerns for unvaccinated individuals was the side effects of the COVID-19 vaccine. In the survey question asking respondents to tick off the box that aligned with how concerned they felt about the vaccine, responses from unvaccinated individuals were distributed amongst each of the options. However, interviews with participants revealed the true gravity of concern they held regarding the aftermath of receiving the vaccine.

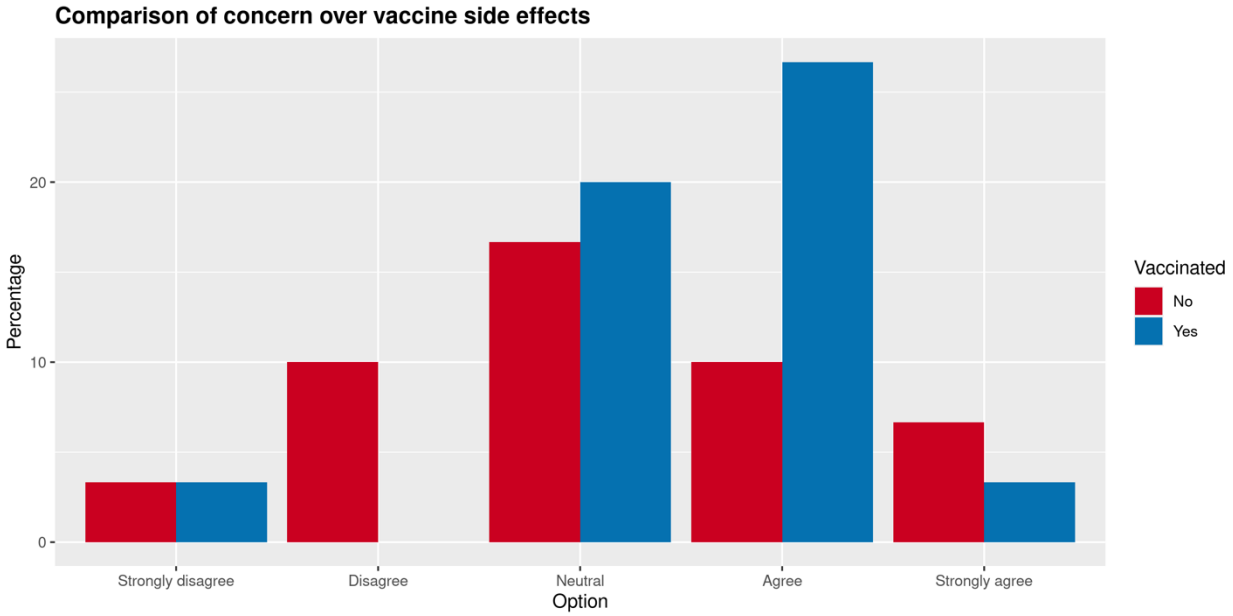

Figure Eight: Group bar graph showing respondents answering the statement: "I am worried about the side effects of the COVID-19 vaccine."

Participant 1, a female in the 36-54 age category hopes to travel overseas soon but said that the side effects were the one obstacle preventing her from getting vaccinated.

> *I'm scared of the side effects but I don't know them. The most people that I'm close to who are vaccinated did not have any side effects, you know? Any, any, any, anything that was like kind of making me scared there was nothing that I saw that okay then it would make me scared now. There was nothing that I would say aye she's vaccinated and she's feeling sick, no. Everybody that I know that I'm close with who is vaccinated they're fine.* (Participant 1 2022, November 8).

Participant 7, a male in the 18-24 age category was also not vaccinated and spoke about the side effects he'd heard of which he gave as one of the reasons why he did not want to get the vaccine.

> *Because, because, they said if, if you get COVID they would say your symptoms about dizzy, getting worse and worse. But those symptoms I was used to it because before COVID I was used to getting those symptoms.* (Participant 7 2022, November 9).

During his interview, Participant 7 said he did not want to face the side effects of the COVID-19 vaccine but was also not concerned with the symptoms of contracting COVID-19 itself.

ii. Accessibility

People's understanding of how the COVID-19 vaccine worked and where they could receive a vaccine was quite different looking at the vaccinated and unvaccinated populations. In a survey question asking participants to rate how much they agreed with the statement, "Finding and accessing a place to get the COVID-19 vaccine is difficult," an equal percentage of unvaccinated individuals answered "Agree" or "Disagree." However, during the interview when asked if the government made it easy to access the

vaccine, many of the unvaccinated respondents were unsure of where to receive the vaccine or if it would cost money to purchase a vaccine.

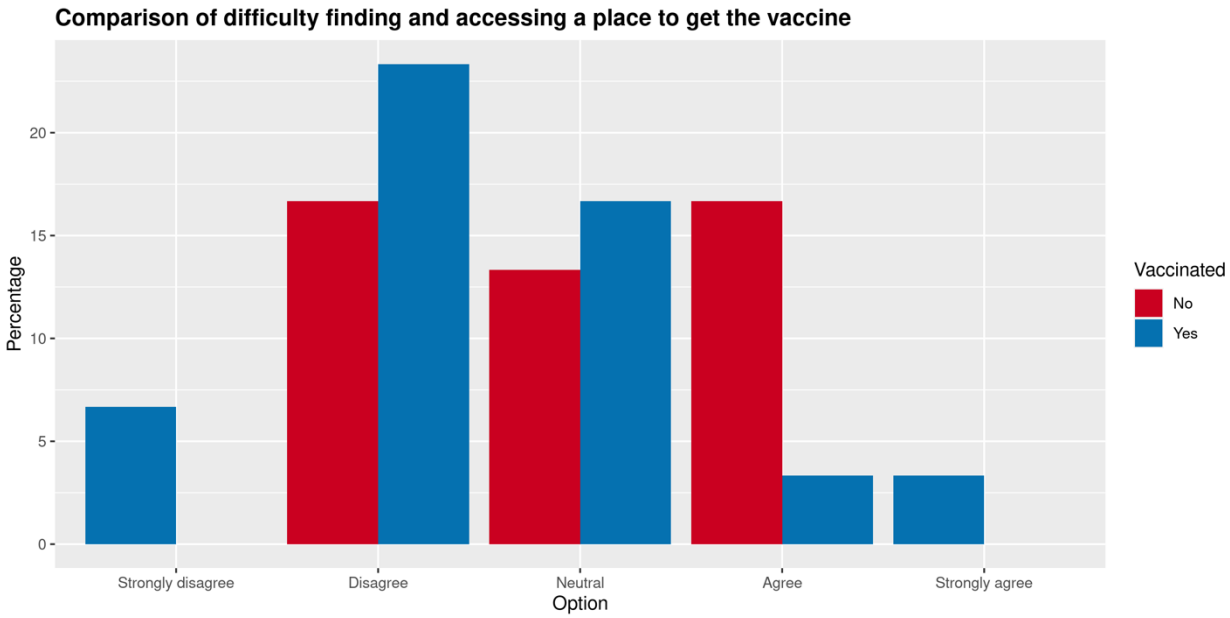

Figure Nine: Group bar graph showing respondents answering the statement: "Finding and accessing a place to get the COVID-19 vaccine is difficult."

Respondent 10, a male in the 18-24 age category answered that it was difficult.

> *It was too hard to get the vaccine because you had to go and apply for the vaccine*. (Participant 10 2022, November 9).

I followed up with his response and asked where he would have to apply to which he told me pharmacies such as Clicks and DisChem were available for applications.

Participant 11, a male in the 36-54 age category who was also not vaccinated and asked the same question responded with comments insinuating the process was difficult too.

> *It wasn't like that, right? It wasn't like, you had to go to certain places for the vaccine, it wasn't all over, like especially here, in Chesterville or elsewhere, the place that I remember it was in town where they vaccinate. I mean I think you*

> *had to pay for the vaccine right? They pay you for vaccinating? I heard that they had to pay people to vaccinate, why is that?* (Participant 11 2022, November 9).

Several unvaccinated interviewees were unclear about how and where they could receive a vaccine whereas vaccinated individuals were well aware of several locations they could receive a vaccine.

iii. Rumors and Concern for Safety

While all participants shared rumors they had heard about the COVID-19 vaccine, only the unvaccinated individuals had shared with me that they believed in those. The rumor brought up most frequently was that COVID-19 did not exist. Rather, the pandemic was a ploy directed by the government to reduce and regulate the population in addition to being a money-making strategy for the government and medical companies. Additionally, concerns regarding the safety and efficacy of the vaccine were also shared.

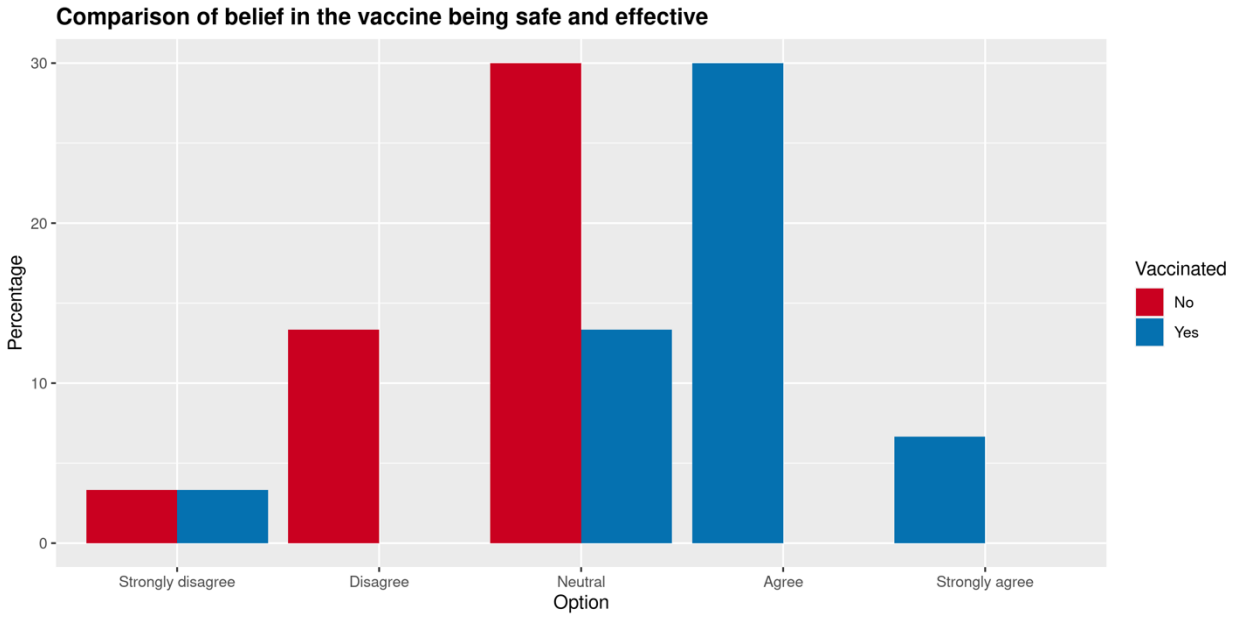

Figure Ten: Grouped bar graph showing respondents answering the statement: "The COVID-19 vaccine is safe and effective.

At the beginning of my interview with Participant 11, he shared with me that he did not believe in the pandemic right off the bat.

> *My issue was, first of most I did not believe in corona as a whole, right? To me, I believe it was just a money scam or whatever government or whatever population they were trying to reduce or whatever situation it might be.* (Participant 11 2022, November 9).

This same participant shared with me that he was also hesitant of the vaccine because of how quickly it was introduced.

> *I mean the period alone when they introduced this virus they told us and then within that short period of time then there was a vaccine and the vaccine wasn't tested, you get what I'm saying? It wasn't 100%, it was less than 100%, I think it was 80%.* (Participant 11 2022, November 9).

Participant 7 as mentioned above was not concerned about catching COVID-19 because the symptoms were similar to a cold or flu. He claimed this was the reason for not vaccinating in the first place but also shared that he did not even believe in the pandemic when asked about whether he trusted information from the government on COVID-19.

> *They were telling us that there's this, there's something called COVID disease but there's no disease.* (Participant 7 2022, November 9).

Analysis

Responses from vaccinated and unvaccinated respondents revealed several themes, both similar and different. Regardless, understanding similarities and differences in perceptions on the COVID-19 vaccine for all individuals is key to mitigating and working towards the elimination of resistance to receiving necessary vaccines. As seen with the townships of Cato Manor and Chesterville, both communities have tight knit circles in

respect to their physical proximity and social relationships with one another. Thus, gaining insight into the ways of knowing and perception of these individuals is key given the way information and influence is spread. The following section will draw upon previous research to analyze findings concluded from the previous section with an understanding of the community-wide context.

A. Analysis of Vaccinated Individuals

i. The Role of Government

One aspect of trust I was interested in developing further through this study was how the level of trust community members had in the government may have influenced their capacity to trust and receive information on the COVID-19 vaccine. As shown in the "Findings" section above, respondents most often cited the television, social media, government, and internet as sources where they most often received information on the COVID-19 vaccine from. My study found that 47% of all respondents had some level of agreement that they trusted information they received with 40% of those in agreement being vaccinated individuals.

In an edition of the *Expert Review of Vaccines*, Cooper, van Rooyen, and Wiysonge reviewed several surveys distributed throughout South Africa in a two-year period addressing COVID-19 vaccine hesitancy. In the COVID-19 democracy survey, it was found that demographics in addition to "political discontent or disillusionment was found to influence attitudes towards COVID-19 vaccination."[31] Moreover, the study found that "respondents who thought the President of the Republic and the national government were doing a bad job were less likely to want vaccination, compared to those who thought the President and national government were doing a good job (36% versus 73%)."[32] While I did not directly ask participants their political affiliation or how they currently perceived the government, I asked questions aimed at understanding the role the government may or may not have played in deciding to trust information they received on the vaccine. Although statistics from my study did not exactly match up to

[31] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 926-27.
[32] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 927.

the ones from the COVID-19 democracy survey, vaccinated individuals overall had more trust than those who did not.

Furthermore, many of the vaccinated respondents during the interview portion spoke about the government's role in other capacities. For example, Participant 8 drew up an analogy to compare the ease the government made it to access the vaccine with making a reservation for a table at dinner.

> *It's like, like you know when you book for a table, like to go eat dinner at a table like tomorrow? It's like that. You can just go to the mall, go up to one of these stores they got there and sign up and maybe they tell you to come back tomorrow and you do it.* (Participant 8 2022, November 9).

In another survey question asking participants whether the government had kept them safe during the pandemic, 50% of the total respondents were in some sort of agreement the government successfully kept them safe with 40% of those responses coming from vaccinated individuals. Likewise, the CMS survey found that "not trusting the government's capability in ensuring that the vaccine is safe and effective" accounted for 14% of the total reason for choosing to not vaccinate.[33] Generally, responses from most vaccinated individuals seemed to indicate relative satisfaction in safety ensured by the government and trust in information they received on the vaccine from the government and other sources.

Questions related to Ttrust formed a small portion of the study but was interesting to investigate how participants viewed trust in the government in terms of distributing the vaccine and managing the pandemic. While the aim of this study was to understand vaccine hesitancy, trust in the government's ability to handle the pandemic is an aspect of trust contributing to an understanding of how participants might have also felt about the safety of receiving the vaccine.

[33] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 929.

ii. Social Responsibility

Another emerging theme from the study was how participants viewed receiving the vaccine as a social responsibility. The COVID-19 democracy survey revealed that the most common explanations for wanting to vaccinate was to protect oneself (29%) and to protect others (25%).[34] Through this study, I hoped to understand how individual's saw this responsibility as a duty to themselves but also to their community. Regarding the survey question asking participants whether it was necessary to get the COVID-19 vaccine to protect others, approximately 57% of respondents agreed it was necessary with about 47% of those respondents being vaccinated. In general, many respondents answered they felt getting the vaccine was a contributor to keeping the community safe with a majority of those responses coming from people who had vaccinated themselves.

Furthermore, during an interview with Participant 3, she expressed her frustration with conversations she'd had with friends where they refused to vaccinate for COVID-19 despite previously receiving other childhood vaccinations.

> *We were vaccinated for chicken pox, polio, at our times. So we've been getting all those shots all our lives, so why not now? There used to be flus, there used to be TB, we used to get, um, vaccinated for those sicknesses to prevent them from affecting you, so why not now? You know when we were growing up, doctors used to come to our schools and we would get vaccinated, so why not now? Nothing happened then, nothing will happen now.* (Participant 3 2022, November 8).

Participant 3's response was given after being asked if she would advise people to receive the COVID-19 vaccine. She was particularly passionate about the vaccine as a simple method for protecting herself and community, no different from the vaccines she would receive as a child. In other words, she perceived the COVID-19 vaccine as another responsibility to keeping herself and her community healthy and protected.

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[34] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 927.

Participants in Cato Manor and Chesterville not only came to understand social responsibility during the pandemic as receiving the vaccine but also to sanitize regularly, limit everyday movement, and isolate if feeling sick. Participant 2, a female in the 18-24 age category who was initially hesitant to receive her vaccine, spoke about the strict enforcement of lockdown restrictions in her community when asked if her community took the pandemic seriously.

> *Yes, I think, I think people took it very seriously, more than I expected. People followed the rules, people stayed in their homes, people were wearing their masks, they were adhering to the rules that were put in place at that time but now it's like everyone has forgotten about COVID, as if it doesn't exist anymore.* (Participant 2 2022, November 8).

Though restrictions have loosened since the pandemic has eased up, community members who decided to vaccinate also showed more signs of taking protocol seriously. However, it was interesting to find that during interviews, both vaccinated and unvaccinated participants claimed that their communities took the restrictions seriously by social distancing and isolating themselves from their neighbors. Divergence of following those safety precautions seemed to happen when people were given the choice to vaccinate themselves or not.

iii. Employment

While government and community concern were great motivators in getting individuals to vaccinate, the promise of employment and maintenance of socio-economic status was also on the line. Participant 5, a female in the 18-24 age category attributed her vaccination status to the pressures of wanting a job.

> *I did vaccinate because I went looking for a job because they told us you wouldn't get a job until you got vaccinated. I think it was because of South Africa if you want a job you have to vaccinate.* (Participant 5 2022, November 9).

Jobs were not required to mandate their employees be vaccinated but many companies around the world made vaccinations a requirement. The new guidelines instituted by Minister of Employment and Labour, Thulas Nxesi, follows that "employers and employees must treat each other with mutual respect" while placing a premium on "public health imperatives, the constitutional rights of employees and the efficient operation of the employer's business."[35] This now requires employers to include a risk assessment outlining whether vaccinations are compulsory.

Participant 8 was also passionate about getting his community to vaccinate themselves. He recognized his influence on many of his friends and tried persuading them to vaccinate if they wanted a chance to find work.

> *I actually advised them besides the virus if you looking for a job you won't get it, stuff like that. Sometimes you gotta give your friends real talk, like, bro you looking for a job right now? Yeah, you won't get it right now, you know that? Why? You're not vaccinated bro. Like look at me I'm vaccinated and nothing happened to me stuff like that, I'm looking for a job right now and Imma get it tomorrow and I'm hired.* (Participant 8 2022, November 9).

iv. Social Media

In the era of technology, media is always right at our fingertips. Whether that has caused more harm than good is a controversial topic, especially with a disease as new as COVID-19. The topic of social media's role in trust regarding the vaccine and pandemic surfaced during two interviews with vaccinated individuals who both identified as female but in different age categories. Participant 3 belonged to the 65+ category and brought up the role of social media in instigating rumors that younger generations, such as the age of her own children, often fell susceptible to.

> *I think so too, that's why elderly people were vaccinated because we're not on social media, you see. Most of your age, yes, you're always on social media.*

[35] South African Government, "Employment and Labour."

> *With us, we don't go on social media so you just follow your heart. The young ones from this thing. Because they haven't seen anything happen but they believe if I do it, I will be the first one that it happens to, so.* (Participant 3 2022, November 8).

Participant 2 was a part of the 18-24 cohort and admitted to finding mixed messages from the internet and social media when asked about the risk of getting vaccinated compared to catching COVID-19.

> *So people just decided not to get it altogether but I think it would be better to get the vaccine than have bad COVID. I learned that through the internet, like social media but I didn't know how true it was because social media. People get on there and say whatever they want to say so you don't really know the truth of something*. (Participant 2 2022, November 8).

Both vaccinated participants showed awareness of the misinformation found on social media and the difficulties of being able to regulate what information they received. In fact, Cinelli et al. attribute social media for the "shift from traditional news paradigm profoundly impacts the construction of social perceptions and the framing of narratives."[36] Also considering the variety of information spread on COVID-19, Cinelli et al. finds when "polarization is high, misinformation might easily proliferate."[37] A further study investigating what makes certain individuals more susceptible to trusting or wanting to believe information from social media has the potential to inform government and public health officials on how they can disseminate truth from false information. Role of the "infodemic" and its contributions to perceptions created by unvaccinated individuals will be covered in the following section.

[36] Cinelli et al., "The COVID-19 social," 1.
[37] Cinelli et al., "The COVID-19 social," 1.

B. Analysis of Unvaccinated Individuals

i. Fear and Uncertainty

Side effects of the COVID-19 vaccine was among one of the most popular answers respondents gave for not wanting to receive the vaccine. Many participants cited they had heard from media or people they knew that side effects were common after being vaccinated. Ipsos, a multinational market research and consulting firm based in Paris, conducted three rounds of online surveys using its Global Advisor online survey platform back in 2020 with a sample in South Africa. During the first round of surveying distributed between July-August, only 64% of respondents from South Africa said they would receive the vaccine compared to the global average at 74%. South Africans indicated worrying about side effects (53%), doubts about its effectiveness (24%) and general opposition to vaccines (23%) as reasons for vaccine hesitancy.[38] Respondents from Cato Manor and Chesterville responded similarly during interviews. For instance, Participant 4, a female in the 18-24 age category decided not to vaccinate herself due to fears of the side effects.

> *Yeah, because I was so scary, some people were getting sick after vaccinated so having headaches, cramps, and they were also bleeding so I wasn't sure that I must vaccinate or you know*. (Participant 4 2022, November 9).

When participants were asked if they thought it was more dangerous to receive the vaccine or remain unvaccinated and catch bad COVID-19, responses were mixed. Vaccinated individuals were confident that receiving protection from the virus outweighed possible side effects from the vaccine. On the other hand, some unvaccinated individuals admitted that there wasn't anything wrong with the vaccine but their concern of those accompanying side effects outweighed reasons for receiving it. Participant 10 had nothing against the vaccine but feared getting the shot and the side effects.

[38] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 926.

> *It's safe to get vaccinated but not safe to get vaccinated when you don't like to be vaccinated*. (Participant 10 2022, November 9).

In the Ask Afrika COVID-19 tracker study distributed by independent South African market research company, Ask Afrika, they found that safety and efficacy of the vaccine accounted for 44% and 22% of the most important aspects of the vaccine as recorded by participants.[39] Participant 11 was skeptical of the vaccine due to the limited amount of information and testing that had been conducted on the vaccine.

> *I think to get a vaccine, my perspective was like, it was too soon to get a vaccine and it wasn't tested. If it was tested, it wasn't 100%*. (Participant 11 2022, November 9).

Both Participant 10 and 11 voiced their concern about uncertainty regarding the vaccine and its side effects. Considering how information on the side effects of the vaccine that vaccinated and unvaccinated individuals received is yet another aspect of interest. As described in the "Literature Review" section, many resources included information on possible side effects, so it was interesting to hear how participants weighed the risks of getting vaccinated with possible side effects or catching COVID-19 at all based on information they had.

ii. The COVID-19 "Infodemic"

WHO Director-General Tedros Adhanom Ghebreyesus at the Munich Security conference said of the COVID-19 outbreak, "We're not just fighting an epidemic; we're righting an infodemic."[40] The WHO defines an "infodemic" as an "overabundance of information—some accurate and some not— that occurs during an epidemic" that "spreads between humans in a similar manner to an epidemic, via digital and physical information systems."[41] The spread of information on the COVID-19 pandemic and vaccine on local, national, and worldwide scales spread like wildfire. The four thematic

[39] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 927.
[40] Epidemic and Pandemic Preparedness and Prevention, "An ad hoc," vii.
[41] Epidemic and Pandemic Preparedness and Prevention, "An ad hoc," vii.

areas where trust in wrongful information can be found include "the cause and origin of the disease; its symptoms and transmission patterns; available treatments, prophylactics and cures; and the effectiveness and impacts of interventions by health authorities or other institutions."[42]

The Cato Manor and Chesterville communities were no exception to the spread of misinformation. Although no questions on the survey addressed rumors or possible sources of wrong information to avoid possible introductions of bias, the interviews revealed some of those mistruths participants were aware of and/or believed in. Participant 11 was strongly opposed to the idea of COVID-19 ever existing and provided me with his theories on how the disease came about.

> *So with that said, what caused people to panic was the fact that they hear on social media, news, everyone was just panicking, especially when you have an underlying disease, you are eventually gonna panic for the disease. And then you become weak, and when you weak, any flu or any disease will outtake you.* (Participant 11 2022, November 9).

While Participant 11 was correct about stress lowering one's immune system response by decreasing production of white blood cells used to fight off infection, his understanding of the role underlying disease played in contracting COVID-19 was skewed.[43]

> *I mean, panicking and when you have this underlying disease, I'm sure this, that's when people were just starting to panic and whatever underlying disease they had started acting up and it becomes worse, that's what I believe with the corona virus.* (Participant 11 2022, November 9).

Again, Participant 11 was correct about how having an underlying disease increases the likelihood of catching bad COVID-19. However, his resistance to believing in the

[42] Epidemic and Pandemic Preparedness and Prevention, "An ad hoc," vii.
[43] Cleveland Clinic, "What Happens When."

COVID-19 pandemic and how vaccines were especially important to those with pre-existing health conditions were results of the "infodemic." Moreover, after living with members of the Cato Manor community, it is clear that information is accessed from a variety of sources, both true and not due to large consumption of media via TV, radios, and phones.

Included in the WHO's report on the COVID-19 "infodemic" are suggestions of how information can better be disseminated and separated from truth and mistruth. Consequently, division of healthcare in South Africa into a two-tier system is highly inequitable. The public sector is greatly underfunded but serves 71% of the population while the private sector serves roughly 27%.[44] The WHO recommends the most effective national responses are ones that include "multidisciplinary cooperation."[45] However, the current institutional frameworks of South Africa "perpetuate inequality, rather than address it."[46] Given Cato Manor and Chesterville's remote and isolated location in KwaZulu-Natal, greater efforts to improve access to proper information on the pandemic and vaccine would help address misinformation and improve vaccination levels.

C. Analysis Comparing Vaccination Status

i. Risk Perception

The quick onset of the COVID-19 pandemic forced the world to react on its feet without previous knowledge of navigating a disease outbreak. Fatality and morbidity of COVID-19 was unknown due to the relatively new presence of the disease. Hence, decision-making and perceptions of risk were up in the air. Notably, both vaccinated and unvaccinated participants had different perceived ideas of the COVID-19 pandemic which contributed to their reasoning for deciding to vaccinate or not vaccinate themselves as revealed through this study.

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[44] Rensburg, "Healthcare in South Africa."
[45] Epidemic and Pandemic Preparedness and Prevention, "An ad hoc," 2.
[46] Rensburg, "Healthcare in South Africa."

Risk perception refers to "subjective judgements of risk and are often to deviate from numerical risk estimates."[47] Factors including "uncertainty, fairness of risk distribution in society, and emotional reactions to risks also contribute to risk perception."[48] Questions asked during the survey and interview aimed at understanding how participants viewed the vaccine as opposed to the pandemic itself. However, many responses from the vaccinated population indicated that they took the pandemic seriously and were aware of the dangers of contracting COVID-19. For instance, Participant 8 compared the COVID-19 outbreak to the shock that the HIV epidemic created in South Africa.

> *But we knew it was different, everybody knew it was, like some of those viruses. It was like HIV something, you know? It gave that kind of shock like damn, I gotta be safe with this, yeah, it was nothing like flu, hell no, nothing like flu.* (Participant 8 2022, November 9).

On the other hand, unvaccinated participants did not perceive the COVID-19 pandemic as that serious of a threat. When asked if it was more dangerous to receive the vaccine or remain unvaccinated and catch bad COVID-19, Participant 7 answered:

> *I think it's more dangerous to get a vaccine because you never know in 5 years what's going to happen to you.* (Participant 7 2022, November 9).

Here, this participant viewed the risk of getting the vaccine as a greater risk than catching COVID-19 because the long-term side effects of the vaccine were not known to him. However, it could also be argued that the long-term side effects of contracting COVID-19 are not known either. In this same interview with Participant 7, when asked if he was concerned about catching COVID-19 he answered:

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[47] Kortenkamp and Moore, "Psychology of Risk Perception."
[48] Kortenkamp and Moore, "Psychology of Risk Perception."

> *Not really, I'm used to it. It wasn't my first time getting dizzy or getting cough or getting worse but because I'm used to it.* (Participant 7 2022, November 9).

As a follow up, I also asked if he was aware that getting the vaccine would protect him from catching COVID-19 in the first place to which he replied:

> *No, I didn't think I would get it.* (Participant 7 2022, November 9).

Interesting to note, Participant 7 was part of the 18-24 age category whereas Participant 8 fell into the 25-35 group. In a systematic review and qualitative synthesis on risk perception towards COVID-19, Cipolletta, Andreghetti, and Mioni determined that four studies indicated older age was associated with higher risk perception and two studies showed older age was associated with greater engagement in preventative behaviors.[49] This potentially explains why younger populations are more hesitant to receive the vaccine since their risk perception of COVID-19 is not as severe. On that same note, three other studies showed that adolescents and young adults presented a higher risk perception for others and their relatives as opposed to themselves.[50] Though not definitively conclusive or consistent throughout the study I conducted, generally, youth and better health at earlier stages in life may contribute to younger populations not perceiving the risks of contracting and dying from COVID-19 as seriously as those of older age.

ii. Home Remedies

Around 80% of Africa's population relies on traditional medicine for basic health needs.[51] Regardless of vaccination status, majority of participants answered that they would receive care from traditional health practitioners or utilize home remedies to treat COVID-19. During interviews, participants gave me examples of some of the herbs and medicinal items they would use such as garlic, ginger, lemon, honey, peppermint, limes, and black pepper. Common use of these traditional herbs was used in teas or for

[49] Cipolletta, Andreghetti, and Mioni, "Risk Perceptions towards COVID-19," 4.
[50] Cipolletta, Andreghetti, and Mioni, "Risk Perceptions towards COVID-19," 5.
[51] Cooper, "Umhlonyane and COVID-19."

steaming to reduce respiratory symptoms. Respondents had trust in usage of these traditional ailments to alleviate symptoms before receiving help from a clinic or hospital. In addition to use of these traditional methods, many participants shared with me knowledge they had of social distancing, masking around others, and making sure to regularly sanitize.

Some of the participants told me of an indigenous South African herb called *umhlonyana* in the Nguni language or *lengana*, which is used by Black traditional healers as an "immune modulator and anti-coronavirus therapeutics treatment."[52] Professor Alvaro Viljoen of the National Research Chair in Phytomedicine and Director of the South African Medical Research Council's Herbal Drugs Research Unit at Tshwane University of Technology says that, "Umhlonyane is well-known for the treatment of upper and lower respiratory tract infections – where symptoms include chills, cough, throat infection, cold, fever, swelling of the throat, bronchitis and a blocked nose. Several in vitro studies have confirmed antibacterial properties of umhlonyane extracts, but no antiviral activity has been reported."[53] Though no extensive or recent research has shown that umhlonyane is effective in treating COVID-19, respondents were confident this treatment was proficient as it is also used to treat symptoms of the flu.

iii. Community During the Pandemic

Perceptions of how the community handled the pandemic and how lockdown restrictions were followed varied from participant to participant. During the interview when participants were asked if they thought their community handled the pandemic well, Participant 8 described the gravity of lockdown restrictions in his community.

> *Everybody was woke when they see that. They have to sanitize, everybody was walking around with a mask on, all the small children walked with a mask on, everybody took it serious*. (Participant 8 2022, November 9).

[52] Sobuwa, "Covid-19 research team."
[53] Cooper, "Umhlonyane and COVID-19."

Many community members told me they stayed inside out of fear of contracting the virus and because of how strictly rules were enforced. Specifically, many told me that police officers would patrol the streets and there was even a hotline to call if neighbors saw each other disobeying the rules. However, one of the participants who was vaccinated believed the pandemic was not handled well by his community and even admitted he was part of those not following the rules.

> *Nope. Um, I guess people just don't like being indoors, especially if you like, if you live in a tiny house it's very hard to stay indoors*. (Participant 6 2022, November 9).

This participant was part of the 18-24 age category which may have been why he responded that the community was not following restrictions particularly well because he was also part of that population staying out. As mentioned above in the discussion of risk perception, older age was one of the factors contributing to greater acceptance of the vaccine and following preventative measures such as abiding by the lockdown. However, generally, it seems as if the community handled the pandemic accordingly and kept one another safe.

iv. Individual Autonomy

Another interesting theme picked up from the interviews was how participants perceived people's autonomy in deciding to vaccinate themselves. In other words, participants - both vaccinated and unvaccinated did not seem to have a strong preference of whether those around them should receive the vaccine. In an interview question asking participants how they would respond to someone asking for their advice on whether to receive the vaccine, most participants responded it was up to the individual and how comfortable they felt getting vaccinated. Participant 6 stated that:

> *If you, if they believe the vaccination would help them, then yeah, most definitely go for it but if you don't feel like doing it, nobody is forcing you like, even the president said on national TV, on the news that he not really forced to*

> *actually take the vaccination but it's just for your safety*. (Participant 6 2022, November 9).

While individuals were not strongly opinionated in advising others to vaccinate themselves, some participants told me they tried their best to suggest to friends and family that vaccinating themselves wouldn't hurt. In a survey distributed by the Council for Medical Schemes (CMS) COVID-19 vaccine, the CMS found that 76% of respondents would trust the vaccine if someone close to them received it.[54] When I asked Participant 8 what he would treat the COVID-19 vaccine with, it turned into a fruitful conversation where he explained the way in which the world and his community were changing right before him and even how he was trying to be a part of that positive change.

> *So I kinda wanted everybody to be safe. So I took people in as much as I could, you know what I'm saying. I told people where to go, where I got mine, stuff like that, yeah so. A lot of them are good now, a lot of them aren't scared anymore, because they still handing out vaccines.* (Participant 8 2022, November 9).

All around, participants did not seem to have particularly strong views on whether those around them should be vaccinated but many attempted to be a positive influence on one another. As discussed in an earlier section about social responsibility, individuals seemed to view the vaccine as a choice they decided upon for themselves as a way of protecting themselves and/or their community. However, they did not necessarily see it as a responsibility for them to try and convince others to follow their example.

Conclusion

The primary objective of this study was to understand how and why Cato Manor and Chesterville community members developed perceptions of the COVID-19 vaccine and how that might have motivated them to vaccinate or not vaccinate themselves. A mixed-methodology study involving surveys and interviews was used to demonstrate how the qualitative and quantitative findings interacted with each other. Themes for vaccinated

[54] Cooper, van Rooyen, and Wiysonge, "COVID-19 vaccine hesitancy in South Africa," 928.

and unvaccinated individuals emerged from the surveys and interviews conducted. For vaccinated individuals, those respondents chose to vaccinate themselves to protect themselves from contracting COVID-19 as well as to protect their communities. Those individuals also exemplified greater trust in the information and news they received on the COVID-19 vaccine. On the other hand, unvaccinated individuals shared more concerns about the side effects and safety of the vaccine. Those respondents also claimed to believe rumors about the COVID-19 pandemic being a government ploy to regulate the population while making money. Unvaccinated individuals also answered that they felt accessing the vaccine was difficult.

Another objective of the research was to help other academics and outsiders from the community understand how positionalities change with the different environments and people we surround ourselves with. Communication and engagement with community members served to demonstrate how viewpoints from other communities cannot and shouldn't be used to create assumptions from the biases we take from other contexts. As a preliminary researcher from the US, shifting my mindset from an American to South African focus was essential in understanding and developing conclusions in this new context. Ultimately, this study strove to shed light on these communities whose viewpoints have not previously been shared through research on perceptions of the COVID-19 vaccine in a collaborative yet ethical manner.

Overall, this study should be seen as a learning experience where an exchange of knowledge between the researcher and those sharing information was able to happen on an equitable and safe platform. Moreover, conducting this study in close contact with small communities was a powerful experience which reflected the value of engaging and initiating community conversations for the sake of public and global health. Using frameworks and concepts from previous COVID-19 research, this project strove to understand the complexities of South African communities and how public health can be utilized to achieve an understanding of a greater global good.

Recommendations for Further Study

While my study aimed to address key themes related to COVID-19 hesitancy, there are several areas that could still be expanded upon in future research.

- What rumors were most prevalent during the pandemic?
- How do COVID-19 vaccination trends compare to other vaccinations?
    - Is hesitancy related to the COVID-19 vaccine like other diseases?
- How did South African communities of other demographics respond to the pandemic?
    - Did smaller communities such as Cato Manor and Chesterville react to the COVID-19 vaccine and pandemic in a similar way?
- How could COVID-19 funding been better distributed to reach isolated communities such as in Cato Manor and Chesterville to reduce hesitancy?
- How can healthcare workers and communities work together and/or separately to help reduce COVID-19 vaccine hesitancy?
- How does an individual's responsibility compare to the community when it comes to ending a pandemic?
- Is herd immunity an optimal goal to achieve during a pandemic or is complete vaccination of the population?
- How can long term efficacy of the COVID-19 vaccine be achieved?
- How can greater trust in the government be developed?

References

Centers for Disease Control and Prevention. "Possible Side effects from Vaccines." Last modified April 2, 2020. https://www.cdc.gov/vaccines/vac-gen/side-effects.htm.

Cinelli, Matteo, Walter Quattrociocchi, … and Antonio Scala. "The COVID-19 social media infodemic." *Scientific Reports* 10, (2020): 1-10. https://doi.org/10.1038/s41598-020-73510-5.

Cipolletta, Sabrina, Gabriela Rios Andreghetti and Giovanna Mioni. "Risk Perception towards COVID-19: A Systematic Review and Qualitative Synthesis."

International Journal of Environmental Research and Public Health 19, 4649 (2022): https://doi.org/10.3390/ijerph19084649.

Cleveland Clinic. "What Happens When Your Immune System Gets Stressed Out?" *healthessentials*. Last modified March 1, 2017. https://health.clevelandclinic.org/what-happens-when-your-immune-system-gets-stressed-out/.

Cooper, Allison. "Umhlonyane and COVID-19." *Vuk'uzenzele*. Last modified August 2020. 2nd Edition. https://www.vukuzenzele.gov.za/umhlonyane-and-covid-19.

Cooper, Sara, Heidi van Rooyen and Charles Shey Wiysonge. "COVID-19 vaccine hesitancy in South Africa: how can we maximize uptake of COVID-19 vaccines?" *Expert Review of Vaccines* 20, no. 8 (2021): 921-33.

Epidemic and Pandemic Preparedness and Prevention. "An ad hoc WHO technical consultation managing the COVID-19 infodemic: call for action." *World Health Organization*. Last modified September 15, 2020. https://www.who.int/publications/i/item/9789240010314.

Hamadeh, Nada, Catherine Van Rompaey and Eric Metreau. "New world bank country classifications by income level: 2021-2022." *World Bank Blogs*. Last modified July 1, 2021. https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2021-2022.

Ho, Ufrieda. "Binning 8.5m Covid jabs a 'shocking indictment' of vaccination, says health expert." *Daily Maverick*. Last modified September 14, 2022, https://www.dailymaverick.co.za/article/2022-09-14-binning-8-5m-covid-jabs-a-shocking-indictment-of-vaccination-campaign-says-health-expert/.

Khan, Themrise, Seye Abimbola, … and Madhukar Pai. "How we classify countries and people and why it matters." *BMJ Global Health* 7 (2022). https://doi.org/10.1136/bmjgh-2022-009704.

Kortenkamp, Katherine V., and Colleen F. Moore. "Psychology of Risk Perception." *Wiley Encyclopedia of Operations Research and Management Science*. January 14, 2011. https://doi.org/10.1002/9780470400531.eorms0689.

MacDonald, Noni E. and the SAGE Working Group on Vaccine Hesitancy. "Vaccine hesitancy: Definition, scope and determinants." *Vaccine* 33, no. 34 (2015): 4161-64. https://doi.org/10.1016/j.vaccine.2015.04.036.

Mishra, Ashutosh. "Covid-19: WHO chief calls lockdown 'blunt instrument', advises against vaccine nationalism." *India Today*. Last modified September 5, 2020. https://www.indiatoday.in/world/story/covid-19-who-chief-calls-lockdowns-blunt-instrument-advises-against-vaccine-nationalism-1718812-2020-09-05.

National Institute for Communicable Diseases. "COVID-19 Vaccine Side Effects." https://www.nicd.ac.za/covid-19-vaccine-side-effects-faq/.

NCOP Health and Social Services. "Burden of Health & Disease in South Africa: Medical Research Council briefing." *Parliamentary Monitoring Group*. Last modified March 15, 2016. https://pmg.org.za/committee-meeting/22198/.

Rensburg, Russell. "Healthcare in South Africa: how inequity is contributing to inefficiency." *University of the Witwatersrand Johannesburg*. Last modified July 7, 2021. https://www.wits.ac.za/news/latest-news/opinion/2021/2021-07/healthcare-in-south-africa-how-inequity-is-contributing-to-inefficiency.html.

Sallam, Malik. "COVID-19 Vaccine Hesitancy Worldwide: A Concise Systematic Review of Vaccine Acceptance Rates." *Vaccines* 9, no.2 (2021). https://doi.org/10.3390/vaccines9020160.

Sobuwa, Yoliswa. "Covid-19 research team looking at umhlonyana as one of anti-coronavirus therapeutics." *Sowetan Live*. Last modified July 8, 2020. https://www.sowetanlive.co.za/news/south-africa/2020-07-08-covid-19-research-team-looking-at-umhlonyana-as-one-of-anti-coronavirus-therapeutics/.

South African Government. "Adverse effects of Covid-19 vaccination." https://www.gov.za/covid-19/vaccine/effects?gclid=Cj0KCQiAsdKbBhDHARIsANJ6-jemepKQF4KcD5jO4qX1bGnQGXmZyx5LZKIwPD9j_shiHrfou8VxHzAaAuMzEALw_wcB.

South African Government. "Employment and Labour on new direction with regard to vaccination in the workplace." *Media Statements*. Last modified June 14, 2021. https://www.gov.za/speeches/employment-and-labour-new-direction-regard-vaccination-workplace-14-jun-2021-0000.

Troiano, Gianmarco and Alessandra Nardi. "Vaccine hesitancy in the era of COVID-19." *Public Health* 194, (2021): 245-51. https://doi.org/10.1016/j.puhe.2021.02.025.

UNICEF. "UNICEF welcomes 50 per cent COVID-19 vaccination coverage in South Africa." *UNICEF South Africa*. Last modified June 2, 2022. https://www.unicef.org/southafrica/press-releases/unicef-welcomes-50-cent-covid19-vaccination-coverage-south-africa.

University of St. Andrews. "Analysing Likert Scale/Type Data." https://www.st-andrews.ac.uk/media/ceed/students/mathssupport/Likert.pdf.

Wazimap. "eThekwini Ward 29 (5950029)." https://wazimap.co.za/profiles/ward-59500029-ethekwini-ward-29-59500029/.

WHO Working Group on Vaccine Communications. *Vaccination and trust: How concerns arise and the role of communication in mitigating crises*. Istanbul, Turkey: World Health Organization, 2011.

World Health Organization and Rada Akbar. "Ten threats to global health in 2019." https://www.who.int/news-room/spotlight/ten-threats-to-global-health-in-2019.

World Health Organization. "How do vaccines work?" Last modified December 8, 2020. https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work?adgroupsurvey=%7badgroupsurvey%7d&gclid=Cj0KCQiAsdKbBhDHARIsANJ6-jekVgIwbBSMGEVWGWcFu3OBqzrzOvUyG5Aw2rDHK-JEFoNfIbLTutoaAjn8EALw_wcB.

List of Primary Sources

Participant 1, Age: 36-54, Gender: Female, (2022, November 8), Personal Interview. (C. Chan, Interviewer).

Participant 2, Age: 18-24, Gender: Female, (2022, November 8), Personal Interview. (C. Chan, Interviewer).

Participant 3, Age: 65+, Gender: Female, (2022, November 8), Personal Interview. (C. Chan, Interviewer).

Participant 4, Age: 18-24, Gender: Female, (2022, November 9), Personal Interview. (C. Chan, Interviewer).

Participant 5, Age: 18-24, Gender: Female, (2022, November 9), Personal Interview. (C. Chan, Interviewer).

Participant 6, Age: 18-24, Gender: Male, (2022, November 9), Personal Interview. (C. Chan, Interviewer).

Participant 7, Age: 18-24, Gender: Male, (2022, November 9), Personal Interview. (C. Chan, Interviewer).
Participant 8, Age: 25-35, Gender: Male, (2022, November 9), Personal Interview. (C. Chan, Interviewer).
Participant 9 Age: 18-24, Gender: Female, (2022, November 9), Personal Interview. (C. Chan, Interviewer).
Participant 10, Age: 18-24, Gender: Male, (2022, November 9), Personal Interview. (C. Chan, Interviewer).
Participant 11, Age: 36-54, Gender: Male, (2022, November 9), Personal Interview. (C. Chan, Interviewer).

Appendices

Appendix 1- Interview Questions

1. Why did you decide to vaccinate or not vaccinate yourself against COVID-19?
2. Are you concerned about the side effects the COVID-19 vaccine has? What have you heard?
3. Do you think you are protecting your community if you receive the vaccine? Why or why not?
4. What would you tell someone if they asked you for your advice about whether to get or not get the vaccine?
5. If sick with COVID-19, what would you treat someone with?
6. Would you try some traditional remedies? If yes, what would you try?
7. Do you think your community has handled the pandemic well? Why?
8. Has the government made it easy to get the vaccine?
9. Is it more dangerous to get the vaccine or more dangerous to get bad COVID-19 because you didn't have the vaccine? Why do you think this?
10. Do you trust information about the COVID-19 vaccine that you get from government and health officials? Why?

Appendix 2- Questionnaire

COVID-19 Vaccine Survey

*Hello! Thank you for participating in this survey. Please **do not** write your name anywhere on this survey. All responses will be treated as confidential and anonymous.*

You do not have to answer every question on the survey should you feel uncomfortable and will not be penalized for doing so.

1. What is your age? Select **one**.

☐ 18-24
☐ 25-35
☐ 36-54
☐ 55-64
☐ 65+

2. What is your gender? Select **one**.

☐ Male
☐ Female
☐ Prefer not to say
☐ Other: _____

3. What is your race? Select **one**.

☐ White
☐ Black
☐ Indian/Asian
☐ Coloured
☐ Other

4. Have you received your childhood vaccinations? Select **one**.

☐ Yes
☐ Some
☐ No
☐ Not sure

5. Where did you learn about the COVID-19 vaccine? Select **all** that apply.

☐ Doctor/clinic
☐ School
☐ Government
☐ Church
☐ Internet
☐ TV
☐ Radio
☐ Social media
☐ Family or friends
☐ Other: _____

6. What COVID-19 vaccines are available in your community? Select **all** that apply.

☐ Pfizer
☐ Moderna
☐ Johnson & Johnson
☐ None

7. Are you vaccinated against COVID-19? Select **one**.
☐ Yes
☐ Partially
☐ No

8a. Have you received any COVID-19 booster vaccinations? Select **one**.
☐ Yes
☐ No

8b. If you answered **NO**, why not? Please write your answer below.

Please respond to the following statements based on how you feel now. Only **circle one** option.

8. I am worried about the side effects of the COVID-19 vaccine.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

9. It is necessary to get the COVID-19 vaccine to protect others.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

10. I trust the information I receive about the COVID-19 vaccine.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

11. The government kept me safe during the pandemic.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree

1	2	3	4	5

12. Receiving the COVID-19 vaccine is necessary to end the pandemic.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

13. Finding and accessing a place to get the COVID-19 vaccine is difficult.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

14. Information about the COVID-19 vaccine is easy to understand.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

15. I would prefer to visit a traditional health practitioner or use traditional medicine to treat COVID-19.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

16. The COVID-19 vaccine is safe and effective.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

17. I had to make many changes to my lifestyle during the COVID-19 pandemic.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

18. I feel confident in my knowledge about the COVID-19 vaccine.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

19. I was required to receive the COVID-19 vaccine for school, work, or some event.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

20. Who was the most influential in making you decide to receive/not receive the vaccine? Select the **THREE (3)** most influential.

☐ Doctor/clinic
☐ School
☐ Government
☐ Church
☐ Internet
☐ TV
☐ Radio
☐ Social media
☐ Family or friends
☐ Other: _____

21. Is there something else you want me to know about the COVID-19 vaccine? Please write that down below:

Appendix 3- Consent Form For Participants

PARTICIPANT INFORMED CONSENT

Title of the Study: A case study exploring COVID-19 vaccine hesitancy in Cato Manor
Researcher Name: Caitlin Chan

My name is Caitlin Chan and I am a student with the SIT South Africa: Community Health and Social Policy program. I would like to invite you to participate in a study I am conducting as part of the SIT Study Abroad program in Durban, South Africa. Your participation is voluntary. Please read the information below, and ask questions about anything you do not understand, before deciding whether to participate. If you decide to participate, you will be asked to sign this form and you will be given a copy of this form.

PURPOSE OF THE STUDY
I want to find out what reasons people must get COVID-19 vaccinations or not. I don't want to persuade you to have or not have the vaccine. I am learning how to do research, but I want to put this study on the internet so other researchers can see the reasons why people want to be vaccinated or not.

STUDY PROCEDURES

Your participation will consist of answering a few survey and interview questions. Altogether, this process will require approximately 60 minutes of your time. Interviews will take place in a space organized by Thando Mhlongo and will be audio-recorded if you give me permission. You can still take part in the study even if you do not let me use my recorder.

POTENTIAL RISKS AND DISCOMFORTS
There are no risks to you in this study and no penalties should you choose not to participate; participation is voluntary. During the interview you have the right not to answer any questions or to stop at any time.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO THE COMMUNITY
You might benefit from learning where your worry about vaccination comes from and why it exists. This study also may benefit the community by explaining occurrences of hesitancy in this and similar communities.

PAYMENT/COMPENSATION FOR PARTICIPATION
Participants will receive a payment of R50 per survey and/or interview that they complete. A maximum of R100 will be given to each participant.

CONFIDENTIALITY
Any information I get from you will remain confidential. I will collect and keep your words on my personal laptop which is password protected. Audio-recordings will be written down to study and then deleted after the study is completed. When the results of the research are published or discussed in conferences, nobody will know who said these things.

PARTICIPATION AND WITHDRAWAL
Your participation is voluntary. You can refuse to participate or stop answering. I will not be angry or refuse to pay you for coming. You are not signing to say that your rights are being signed away.

"I have read the above and I understand its contents and I agree to participate in the study. I acknowledge that I am 18 years of age or older."

Participant's signature _____*Date*_____

Researcher's signature _____*Date*_____

Consent to Quote from Interview

I may wish to write down your actual words in my study paper from the interview in the presentations or articles resulting from this work.

Initial one of the following to indicate your choice:
_____ (initial) I agree to let you quote my words
_____ (initial) I do not agree to let you quote my words

Consent to Audio-Record Interview

I may wish to take an audio-recording of the interview to transcribe for later analysis.

Initial one of the following to indicate your choice:
_____ (initial) I agree
_____ (initial) I do not agree

RESEARCHER'S CONTACT INFORMATION
If you have any questions or want to get more information about this study, please contact me at cchan@bates.edu or my advisor Chris McGladdery (christinemcg01@gmail.com)

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION
In an endeavor to uphold the ethical standards of all SIT proposals, this study has been reviewed and approved by an SIT Study Abroad Local Review Board or SIT Institutional Review Board. If you have questions, concerns, or complaints about your rights as a research participant or the research in general and are unable to contact the researcher please contact Zed McGladdery (phone 0846834982 or email john.mcgladdery@sit.edu) or the Institutional Review Board at:

School for International Training
Institutional Review Board
1 Kipling Road, PO Box 676
Brattleboro, VT 05302-0676 USA
irb@sit.edu
802-258-3132

Appendix 4- Consent to Use Form

Consent to Use of Independent Study Project (ISP)

SIT Study Abroad
School for International Training

Access, Use, and Publication of ISP/FSP

Student Name: Caitlin Chan

Email Address: cchan@bates.edu

Title of ISP/FSP: A case study investigating perceptions of the COVID-19 vaccine in Cato Manor and Chesterville

Program and Term/Year: SIT South Africa: Community Health and Social Policy

Student research (Independent Study Project, Field Study Project) is a product of field work and as such students have an obligation to assess both the positive and negative consequences of their field study. Ethical field work, as stipulated in the SIT Policy on Ethics, results in products that are shared with local and academic communities; therefore copies of ISP/FSPs are returned to the sponsoring institutions and the host communities, at the discretion of the institution(s) and/or community involved.
By signing this form, I certify my understanding that:

1. I retain ALL ownership rights of my ISP/FSP project and that I retain the right to use all, or part, of my project in future works.

2. World Learning/SIT Study Abroad may publish the ISP/FSP in the SIT Digital Collections, housed on World Learning's public website.

3. World Learning/SIT Study Abroad may archive, copy, or convert the ISP/FSP for non-commercial use, for preservation purposes, and to ensure future accessibility.
   - World Learning/SIT Study Abroad archives my ISP/FSP in the permanent collection at the SIT Study Abroad local country program office and/or at any World Learning office.
   - In some cases, partner institutions, organizations, or libraries in the host country house a copy of the ISP/FSP in their own national, regional, or local collections for enrichment and use of host country nationals.

4. World Learning/SIT Study Abroad has a non-exclusive, perpetual right to store and make available, including electronic online open access, to the ISP/FSP.

5. World Learning/SIT Study Abroad websites and SIT Digital Collections are publicly available via the Internet.

6. World Learning/SIT Study Abroad is not responsible for any unauthorized use of the ISP/FSP by any third party who might access it on the Internet or otherwise.

7. I have sought copyright permission for previously copyrighted content that is included in this ISP/FSP allowing distribution as specified above.

Caitlin Chan December 5, 2022

Student Signature Date

Withdrawal of Access, Use, and Publication of ISP/FSP

Appendix 5- Ethical Clearance Forms

SIT SCHOOL FOR INTERNATIONAL TRAINING
STUDY ABROAD

Human Subjects Review SARB/IRB ACTION FORM

Name of Applicant: Caitlin Chan **ISP/Internship Title: A case study investigating perceptions of the COVID-19 vaccine in Cato Manor and Chesterville** **Date Submitted: 4 November 2022** **Program: SFH Durban Community Health** **Type of review:** **Exempt** ☐ **Expedited** X☐ **Full** ☐	**Institution:** World Learning Inc. **IRB organization number:** IORG0004408 **IRB registration number**: IRB00005219 **Expires:** 27 September 2024 **SARB members (print names):** Dr Christine McGladdery Mr John McGladdery **SARB REVIEW BOARD ACTION:** X Approved as submitted **SARB Chair Signature:** **Date: 4 November 2022**

SARB Committee Feedback: Inform the AD of any substantive changes

Form below for IRB Vermont use only:
Research requiring full IRB review.

ACTION TAKEN:
___ approved as submitted

_____

_____

IRB Chairperson's Signature

OMB date:

Caitlin conducted a study on attitudes toward covid 19 vaccination with the community of Cato Manor. The paper is generally well-written with only a few awkward of ambiguous phrases therein. The overall structure is logical but the odd statement is placed in the wrong section. (Pg 15 includes demographics of the current study in the literature review). The methodology section is comprehensive and the ethics section

contains all the essential details. The findings and analysis sections successfully weave the quantitative and qualitative data into an informative piece. Depth of analysis could have been improved by going into greater detail on fewer subsections, relating responses more-closely to the local context and/or related studies in the literature. Caitlin's oral presentation was engaging and informative.