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Attitudes Toward the U. S. Medical Care System and COVID-19 Vaccines:

What Do We Know About the College-aged Population?

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Abstract

To understand the attitude of the college-age population towards the U.S. medical care system, the researcher conducted an online survey study with 296 participants. By calculating Pearson's r correlation coefficient, the researcher found the more positive one's past experience with the U.S. medical care system, the more positive one's general attitudes toward the U.S. medical care system. In addition, one's trust level in COVID-19 vaccines was found to be correlated with one's level of trust in the U.S. medical care system. What's more, online information was identified by the majority of the participants as a factor influenced their attitudes toward the U.S. medical care system. The researcher also found Art & Music was the only field of study or work that showed a significant difference with other fields in trust level in both the COVID-19 vaccines and the U.S. medical care system and overall attitudes towards the U.S. medical care system, by conducting t-test. Furthermore, a significant but weak positive correlation was found between older age and trust level in COVID-19 vaccines, while there was no correlation found between older age and one's COVID-19 vaccination decision. Moreover, while there was no significant difference found between African American participants' and Caucasian participants' COVID-19 vaccination decision, African American participants had a significantly lower level of trust in COVID-19 vaccines than their white counterparts. Additionally, the researcher recognized common themes (e.g., more affordable medical expenses and services with better quality) existed among participants' expectations toward the U.S. medical care system, and made corresponding suggestions aiming to help the U.S. medical care system to gain a more supportive attitude. Future study's direction focusing on online information's influence were also put forward by the researcher.

Attitudes Toward the U. S. Medical Care System and COVID-19 Vaccines

Without any warning, the COVID-19 pandemic caught people off guard in 2019. As of 6:00 am Central European Time, April 11th, 2022, COVID-19 has affected 494,587,638 people and claimed 6,170,283 lives worldwide (WHO Coronavirus [COVID-19] Dashboard). Followed by the shocking statistics, the fact that Germany was suffering from the “fourth wave” of COVID-19 since late October 2021 was concerning (BBC, 2021). To stop the numbers from increasing apart from taking the vaccines (e.g., Pfizer-BioNTech, Moderna, Johnson & Johnson’s Janssen, etc), Ministers in Northern Ireland have voted in favor of mandatory COVID-19 vaccine passports (BBC, 2021); furthermore, countries like the United States and Belgium have started to encourage people to take COVID-19 vaccine booster shots (CDC, 2021; Collis, 2021). However, the public’s attitudes toward the policies (i.e., mandatory vaccine passports and booster shots) were mixed. Why such divergent attitudes existed among people towards policies that aim to protect them, one may ask. Can this disagreement on attitudes toward COVID-19 related policies be projected to the whole medical care system? If so, can we understand people’s attitudes toward the medical care system from the scope of how people approach such policies that specifically target COVID-19? Will people have disparate attitudes toward the medical care system as they do for COVID-19 vaccination? What helps form people’s attitude towards the medical care system? What factors could possibly make people change their attitudes? What elements contributed to the development of varying attitudes among people? To answer these questions, the researcher tried to understand the correlation between the factors (age, gender, university enrollment, first generation college students, field of study, ethnicity, and country of origin) and people’s attitudes toward the medical care system. Accordingly, the researcher put forward the goal of this online survey study: to answer 1) what are college-aged individuals’

attitudes toward the U. S. medical care system? 2) What factors are correlated with college-aged individuals' attitude towards the medical care system? 3) Are college-aged individuals' attitudes toward the COVID-19 vaccines correlated to people's attitudes toward the U.S. medical care system? The goal of this study was achieved by investigating multiple hypotheses (listed and explained in the following paragraphs). What age represents the college-aged individual and why focus on only college-aged individuals were also explained in the following paragraphs.

Understanding Attitudes

According to Katz (1960) and Smith, Bruner, and White (1956) (cited in Fazio, Lenn, & Effrein, 1984), "... attitudes serve to organize and structure a rather chaotic universe of objects." It (i.e., attitude) provides "a ready aid in 'sizing up' objects and events in the environment" (Smith et al., 1956, as cited in Fazio, Lenn, & Effrein 1984), and this "ready aid" is very much needed for people to cope with the world where many diverse, even opposite, opinions coexists on the same subject (subject could be an event, a proposal, etc).

An example here will be the COVID vaccine. No matter which brand the COVID-19 vaccine was from, while there were people who believe the vaccine works and helps protect us from getting infected by the COVID-19 virus, there were people questioning the effect of the COVID-19 vaccine, worrying about its known and unknown side effects (Al-Jayyousi et al., 2021; Petravić et al., 2021). Even people who used to trust vaccines and medical professionals preferred to wait until more information was released, when the COVID-19 vaccine first became available (Al-Jayyousi et al., 2021). Also, when COVID-19 has proven to the whole world that it could "evolve" itself to a new variant that is more deadly at any time (e.g., the emergence of the Delta, and Omicron variants), and everyone is always at risk of getting infected by the COVID-19 virus, one never knows if future interaction with the medical care system is

necessary. What one can do, instead, is to have an attitude, a “ready aid” towards the medical care system and COVID-19 to help organize what is happening so they are prepared for what they will be dealing with if they are affected by COVID-19, or, come into contact with the medical care system one day. In this case, having an attitude, a “ready aid” couldn’t be more appropriate for people to have to cope with the COVID crisis.

Clarification: The Three Research Questions

Unfortunately, measuring the “ready aid” for the whole medical care system and all the factors that contribute to it is challenging. Though the interest of the researcher was to focus on people's attitudes toward the medical care system in general, the number of variants that is related to the medical care system globally and the differences between different countries’ medical care system due to various culture background, economic situations, etc, made the global medical care system almost impossible to evaluate through the same standard using the data collected through a single short online questionnaire. Otherwise, the researcher would be a reductionist. Thus, to make the research possible, the researcher narrowed the subject particularly to the U.S. medical care system since the research took place in the United States. Accordingly, the research questions narrowed down from studying the medical care system in general to 1) what are college-aged individuals’ attitudes toward the U. S. medical care system? 2) What factors are correlated with college-aged individuals’ attitude towards the U.S. medical care system? 3) Are college-aged individuals’ attitudes toward the COVID-19 vaccines correlated to their attitudes toward the U.S. medical care system?

In addition, because the COVID-19 situation is changing continuously, policies towards COVID-19 fluctuate. Therefore, due to the flexibility of COVID-19 related policies, asking people’s attitude towards a specific COVID-19 policy implemented to cope with a situation that

existed temporarily could provide only a limited amount of help to understand people's attitudes to the U.S. medical care system. Hence, researchers focused on people's attitude towards COVID-19 vaccination (a policy persisting through the pandemic since COVID-19 vaccine is available) and examined if there is a correlation between people's attitude towards the COVID-19 vaccination and the U.S. medical care system.

Experiences

Supported by Chang (2004) and Fazio and Zanna (1981), one powerful element that influences people's formation and change of attitude is experience (i.e., previous experience with the American medical care system for this study). As stated, attitude is "a mental and neural state of readiness, organized through experience, exerting as a directive or dynamic influence upon the individual's response to all objects and situations with which it is related" (Allport, 1935, as cited in Fazio & Zanna, 1981). One could easily gain the rationale behind this statement by connecting the experiential learning theory (ELT) by Kolb (1984) here.

The experiential learning theory has four stages: 1) concrete learning – where one gains a new experience or interprets the past experience in a new way, 2) reflective observation – understand the situation through the lens of previous experiences, 3) abstract conceptualization – where one forms new ideas or adjust their previous thinking process, and 4) active experimentation – where one applies the new or adjusted idea (Kolb, 1984). In other words, Kolb's theory claims that when one first encounters a subject one knows little about, one looks back to the past experiences for information that is potentially helpful. With Kolb's theory, one can infer that past experiences are critical when forming an attitude, since we make our decision based on previous experiences. Therefore, the researcher presented the first hypothesis:

Hypothesis #1 – People's past experiences with the U.S. medical care system are

positively correlated with people's attitudes toward the U.S. medical care system.

Namely, the better one's past experiences with the U.S. medical care system is, the more positive one's attitude is towards the U.S. medical care system. The worse one's previous interactions with the U.S. medical care system are, the more negative one's attitude is towards the U.S. medical care system.

In our case of interest, since no one has encountered COVID-19 before it first hit, the researcher wonders if one's original attitudes toward the COVID-19 vaccine is largely formed by looking at their own experiences with COVID-19. For example, if one's lifestyle and health has not been largely influenced by COVID-19 pandemic, one may tend to consider the COVID-19 vaccine is unnecessary and does not take the COVID-19 pandemic seriously. If they never came into contact with COVID-19 (i.e., never tested positive for COVID-19 or vaccinated for COVID-19 or have people being tested positive around them), is their attitude formation towards the COVID-19 vaccine influenced by experiences of those who are around them or information from social media or a mix of experiences from people they know and stories the social media tells (source of information)? According to the Centers for Disease Control and Prevention (2022), side effects of having COVID-19 vaccine include pain, fever, nausea, etc. Will these unwanted side effects of COVID-19 vaccine influence one's attitude towards the COVID-19 vaccine? If one experiences no side effects at all after getting the COVID-19 vaccine, will one question the effectiveness of the vaccine (i.e., trust towards the COVID-19 vaccine)? If one developed doubts about the COVID-19 vaccine, would one also question the usefulness of the U.S. medical care system? Therefore, the researcher proposed the second hypothesis:

Hypothesis #2 – People's attitudes toward COVID-19 vaccines are positively correlated

with their attitudes toward the U.S. medical care system.

Online Information

What's more, when people's personal experiences do not provide enough information to form an attitude, do they seek online information and trust the information gained online? Claimed by Naslund, Aschbrenner, Marsch, and Bartels (2016), by learning from peers online, one can gain insight about healthcare decisions. But is the claim also true when the situation is not making a decision but having an attitude? Also, when there is a lack of information to have an attitude towards COVID-19 vaccines, will one use their attitudes toward the U.S. medical care system as a reference to react?

In fact, a lack of first hand information available is not the only drive for people to go online and search for relevant information. Social forces are also pushing people to seek as much information as possible in a short period of time, which directs people to look into online information and social media. Mentioned by Frewer and Shepherd (1994), when an unknown situation is involved, the social settings people are in is one of the critical factors that determine how people react to the situation. In other words, the environmental (or social) forces are influential factors for people's attitude formation, namely, towards the COVID-19 vaccines and the U.S. medical care system. An example here would be how people reacted to COVID-19 when the society was frightened.

In March 2020, due to the fast dissemination of SARS-CoV-2 first discovered in December 2019, the World Health Organization declared a pandemic (Pedrosa et al. 2020). During the initial stage of the outbreak, researchers realized that the COVID-19 pandemic not only does influence people in terms of physical health but also mental health. A significant increase in anxiety, distress, worry, frustration and anger, etc was observed by a wide range of

researchers (Li et al., 2020; Wang et al., 2020). As factors like poor self-rated health status and specific physical symptoms (e.g., dizziness, coryza) were found to be significantly correlated with a higher level of stress, anxiety, and depression, according to Wang et al. (2020), “specific up-to-date and accurate health information (e.g., treatment, local outbreak situation) and particular precautionary measures (e.g., wearing a mask)” was discovered to be strongly associated with a lower level of negative emotions (e.g., stress, anxiety, depression). The negative correlation between the amount of COVID-19 information accessed and the unwanted psychological feelings (e.g. anxiety) could provide a possible explanation for how the panicking public coped with the social setting during the initial stage of COVID-19 outbreak: by urgently collecting health related information through various sources. According to studies done in infodemiology, researchers found the public depends on watching the television news channel (e.g., BBC for United Kingdom) and online web searching for gathering COVID-19 related information (Izhar & Torabi, 2022; Rovetta & Bhagavathula, 2020).

Looking beyond the COVID-19 pandemic, in fact, searching for health information online is a commonly adapted behavior. As early as 2000, according to Fox and Jones (2009), one-fourth of the adults who had access to the internet in the U.S. (46% of the whole population) already employed online searching as a method to acquire health information. In 2009, 61% of American adults, who had accessed the internet (74% of the whole population), went online for health related information (Fox and Jones, 2009). This percentage continued to increase. A more recent U.S. national survey indicated a percentage of 72% of adult internet users claiming to have searched health related issues online, with the most popular categories of specific diseases and treatments (Fox, 2014). What’s more, one out of four American users of the internet (26%) stated that they have browsed other people’s health experiences in the previous year, and 16% of

adult internet users in the U.S. have used the internet to search for people who share the same health issues with them. Even more, Brady et al. (2016) concluded that people tend to trust those who share similar experiences or perspectives with them more while also taking the conventional biomedical information and advice into account when browsing online health related forums. Based on this rationale and the information provided about the decisive role experience play while people are forming an attitude, the researcher introduced the third hypothesis of the study:

Hypothesis #3 – Online information is a factor related to people’s attitudes toward the U.S. medical care system.

Acknowledging the fact that there is a tremendous number of people seeking health related information online, the researcher asks what are the factors that help one to decide if the internet is a health source. Mead et al. (2003) found that online information access and people’s motivation for online information seeking influence people’s decision on whether to consider the internet as a health resource. However, during the COVID-19 pandemic, while both factors (access to internet and motivation) being fulfilled, there still existed people who chose to ignore what the internet recommend (e.g., there are people who are not vaccinated as opposed to what the Centers for Disease Control and Prevention strongly recommended). Then, the researcher questioned what could be another factor that influences people’s decision of believing in the information gathered or not?

Level of Trust

How trustworthy people think the information is could be an answer here. But how do people evaluate how dependable a piece of information is? According to Witchel et al. (2020), spelling error and “shouting capitalization” were two factors that negatively influence one’s decision on how trustworthy the online health information is (i.e., the growing frequency of

spelling error and inappropriate capitalization was associated with increasing doubt towards the online health information). Indeed, aligned with people's common sense, misspelling and inappropriate capitalization does indicate disappointed quality of a piece of information. However, there were people who depended on factors that do not accurately reflect how reliable the information is to judge the credibility of the information.

Stanford et al. (2002) found that while scholarly internet users tend to focus on quality of the information the site provided, non-experts rely, to a large extent, on the visual design of the website (e.g., layout, typography, and color schemes) and explicitness of the information to evaluate the authenticity of the information provided by the site. In addition, emotional reassurance and information sharing as two factors influencing people's judgment has been proven to have the ability to convince people unconsciously to trust the information provided, no matter the truthfulness of the information provided (Lederman et al. 2014). The appearance of hoaxes which were designed to manipulate people's emotions is an example here. Reported by BBC News (2012), many people who closely followed the story of a 6-year old girl struggling with cancer through the girl's mother's post on a Macmillan cancer forum refused to believe the story is made-up by a 16-year old girl even when it was proved to be a hoax.

What's more, elements that affect online health related information's trustworthiness also include the name reputation of the site, media credibility, author identification, the absence of advertisement, the inclusion of statistics, consistency with other sources, endorsement and to what degree the reader agrees with the author, which all strongly influenced each other (Lederman et al. 2014; Stanford et al. 2002; Witchel et al. 2020). Yet, by looking at the factors mentioned above, it is not hard for one to notice that the majority of the elements do not evaluate the truthfulness of the information itself.

Online Information and Storytelling

But are there any factors about the information itself related to people's attitudes? The answer is certain. Sometimes the information itself is with attitudes. During the initial COVID-19 outbreak, when people still didn't understand COVID-19 much, some news articles were published with clear attitudes toward the U.S. medical care system. One example here would be a news article published by the *Washington Post* entitled, "More life saving ventilators are available. Hospitals can't afford them" with a subtitle of "Health industry experts cite cost and uncertainty as disincentives to stocking up, leaving a potential life-and-death gap in treatment options for patients in the coronavirus outbreak" written by Christopher Rowland (2020). From the title and subtitle, this article indicated a strong opposing force to the behavior of hospitals of choosing profitability over saving critically ill patients. The first few lines of the article contain an extreme emotional appeal while claiming the following:

"Hospitals are holding back from ordering more medical ventilators because of the high cost for what may be only a short-term spike in demand from the coronavirus epidemic, supply chain experts and health researchers say, intensifying an anticipated shortage of lifesaving equipment for patients who become critically ill (Rowland, 2020)."

It is hard for readers to not be emotionally evoked, stand against the hospitals, and maybe generalize this negative impression to the U.S. medical care system as a whole. Moreover, the potential preexisting negativity people had towards the U.S. medical care system may be magnified after reading articles like this one.

Another factor other than emotional appeal that would persuade readers to agree with the attitudes of the article is the common characteristics shared between the readers and the story told (Sillence et al., 2007). As during the initial COVID-19 outbreak, many news articles focused

on storytelling, which is one of the primary functions of news articles. While reading others' stories, it is common for people to relate themselves to the story being told. According to Sillence et al. (2007), people tend to trust more about the information they receive if there are common characteristics shared between their experience and the story told. Then, as some of them may be experiencing the struggles mentioned in the article (i.e., finding a ventilator to use for themselves or for people around them), people give more trust for the story told by the article and develop a more unfavorable impression towards the U.S. medical care system aligned with the attitude of the news article. While there are a lot more other news articles presenting negative attitudes toward the U.S. medical care system, the U.S. medical care system is struggling to gain a positive view from the public. For example, NBCNews published a news article with the title "Florida hospitals face ICU bed shortage as state passes 300,000 COVID-19 cases" (Chiwaya and Siemaszko, 2020); Wall Street Journal released the article named "Older Coronavirus Patients Face Looming ICU Bed Shortage" (McGinty et al., 2020); CBS News shared the news article under the frontline "New York only has 3,000 ICU beds and Gov. Cuomo says coronavirus patients may end up "on gurneys in hallways" (Capatides, 2020). Even recently, on March 2, 2022, the Wall Street Journal made public the article written by Kris Maher with the title of "Covid-19 Hospitalizations Are Down, but Nurse Shortages Stretch Hospitals." These news articles undoubtedly reflected the massive spread of COVID-19 cases. Yet, they also reflect how the U.S. medical care system was not prepared for this pandemic, which can be viewed as evidence for the statement that the U.S. medical care system needs improvement.

Apart from ventilator and ICU bed shortage, the media also targeted the bills patients need to face from the emergency room and, or after they are recovered from COVID-19 or other diseases. The case of Janet Mendez, who received a \$400,000 bill after surviving COVID-19

from Mount Sinai Morningside hospital reported by the New York Times, is an example here (Goldstein, 2020).

However, do people intentionally or unconsciously refuse to trust the information that, from every perspective, is reliable? Are there some other factors of interest that influences how people decide to accept or refuse the provided information? The answer for both questions is yes. People's attitude towards the recommendation for taking the COVID-19 vaccines is an example here.

Level of Education, and Field of Profession or Study

The World Health Organization (WHO), a United Nations' agency particularly responsible for international public health, and Centers for Disease Control and Prevention (CDC), as a U.S. federal agency under the Department of Health and Human Services, are two of the most reliable online health information resources around the world. They are also one of the main communication channels for health related messages from the United Nations and the U.S.. However, despite the ease of access to the information and the messages from the official websites of WHO and CDC and how trustworthy the information itself is, there exists distrust and suspicion towards the health related information provided among the public. For example, when COVID-19 vaccines became available, both CDC and WHO recommended the public to take the vaccine. Yet, Fridman et al. (2021) found that there exists a decline in general vaccine attitudes which is driven by people who identify themselves as Republicans. One explanation Fridman et al. (2021) provided for this phenomenon is the differential exposure to information. This makes the researcher question if studying political science or work in the politics related field will influence people's attitude towards the COVID-19 vaccine and the U.S. medical care system differently.

As one tends to choose a college major that aligns with their interests that aligns with their interests and work in a field that is at least related to their previous education or have a large knowledge base about, if one chose political science as their major or work in the field related to politics, one would tend to in favor in a particular political view (i.e., Democrats or Republicans). Will this particular interest in politics relate to a particular attitude towards the U.S. medical care system and COVID-19 vaccines? Therefore, the researcher set forth hypothesis:

Hypothesis #4 – People who study political science or work in the field related to politics will show a difference with other participants in terms of their attitudes toward COVID-19 vaccines and the U.S. medical care system.

Potentially different from those who are passionate about politics, people who work or study in STEM (an umbrella term of academic disciplines in Science, Technology, Engineering, and Mathematics) and social sciences could be argued as more objective than those who are not, since science is largely based on logic and evidence. As students or employees working in the field of STEM and social sciences tend to carry out more scientific practices than people who major in or work in other fields, like Art and Music, people in STEM may support the COVID-19 vaccines and the U.S. medical care system more than people in other fields.

For example, Lucia, Kelekar, and Afonso (2021) found out that almost all the U.S. medical students (i.e., nearly all the participants) held a supportive attitude about COVID-19 vaccines and agreed that they are willing to be exposed to the COVID-19. Possible explanations for this result could be that students in medical care and medical field employees, feel they need to help patients as it is their responsibility and the professional (i.e. medical) knowledge and

training they received separate them from those who do not have the professional knowledge (e.g., art and music students). Yet, it is not known if the sense of mission (i.e., to help patients) of individuals in the medical field and professional training they've gone through acts as a positive or negative influencer for them to support the U.S. medical care system. Lucia, Kelekar, and Afonso (2021) found that only 53% of the medical students said that they were willing to take the COVID-19 vaccine trials and a lower 23% of them claimed they were willing to take the vaccine immediately after FDA (the U.S. Food and Drug Administration)'s approval. This could mean that professional medical knowledge could act as a resistance force when a medical treatment or vaccine is still at trial or first becomes available. Also, learning about or knowing how the U.S medical care system works, the medical care students or employees may see the downside of the U.S. medical care system more than other people.

However, compared to Art and Humanities, and Social Sciences students, there is still a significant difference between how medical students react to COVID-19 vaccines (Riad et al. 2021). According to Riad et al. (2021), the acceptance level of COVID-19 vaccines is highest among medical and healthcare science students, which is significantly higher than the acceptance level of COVID-19 vaccines among Social Sciences students and Art and Humanities students. In fact, Riad et al. (2021) found that Art and Humanities students were not only among the groups that hold the least acceptance rate towards the COVID-19 vaccines, but also the group of students who are the most susceptible towards the COVID-19 vaccines due to personal beliefs, and holding the lowest level of confidence in pharmaceutical industry and healthcare providers.

Thus, the researcher questioned if similar results would be found between the attitudes toward the U.S. medical care system and the COVID-19 vaccines held by people in the field of Medical Care, STEM, Social Sciences and Art and Music, which led to the hypotheses:

Hypothesis #5 – People in medical care held the most positive attitudes toward the COVID-19 vaccines but not towards the U.S. medical care system.

Hypothesis #6 – People in STEM held the second highest positive attitudes toward the COVID-19 vaccines and the most supportive attitudes toward the U.S. medical care system.

Hypothesis #7 – The least supportive attitudes toward the U.S. medical care system and COVID-19 vaccines will be held by people in Art and Music.

Hypothesis #8 – Students and employees in social sciences will be found holding a less supportive attitude than people in STEM but a more positive attitude than people in Art and Music towards the U.S. medical care system and the COVID-19 vaccines.

In addition, considering different levels of exposure to political information and field of studies or work are associated with different attitudes toward the COVID-19 vaccines, and potentially the U.S. medical care system, education level in general could also be an influential factor in people's acceptance to COVID-19 vaccines and attitudes toward the U.S. medical care system. Recent research has indicated that high education level is a sociodemographic factor that is positively associated with the acceptance of COVID-19 vaccines (e.g., Chen et al. 2021; Coustasse et al. 2020; Lazarus et al. 2021). Considering university students are likely to be exposed to more balanced information in a relatively more intellectually challenging environment, and claimed by Riad et al. (2021) that university students are considered to have the highest levels of health awareness, the researcher expected to find results that support the following hypothesis:

Hypothesis #9 – There is a significant difference between the attitudes toward

the U.S. medical care system and COVID-19 vaccines held by the university students and people who did not go to college.

Supported by Fisher et al. 2020, Alley et al. 2021, and Danchin, M. 2020, low educational attainment and low education is associated with COVID-19 vaccination hesitancy. The researcher questioned if the education level of one's family, other than one's own educational level, is also an independent variable that influences one's attitude towards the COVID-19 vaccines and potentially the U.S. medical care system. As stereotyping is a process of a person adapting into a social or ethnic group (Norbekova, 2019), can attitudes also be picked up from the social group one belongs to or grow up with (i.e., family)? If so, the researcher expected the find the following:

Hypothesis #10 – If one is first generation college or university student, one tends to have a more negative attitude towards the COVID-19 vaccines (i.e., lower trust level in COVID-19 vaccines) compared to non-first generation college or university students.

The College-age

Whether or not to enroll in university or college is a life changing decision, and people tend to make those decisions during (i.e., high school dropout) or after they graduate from high school (i.e., to enroll in college or to work). This statement is supported by the findings of the U.S. Bureau of Labor Statistics (2021): in 2020, 62.7% of high school graduates enrolled in universities or colleges, 24.8% of highschool graduates worked in the labor force in October, and 47.5% high school dropouts were working or looking for a job. Therefore, the college-age (18-26 years old) range is an age range worth special attention here when discussing attitudes. This is because a college student's university life can be completely different as a highschool dropout or

graduate's working life. Consequently, the researcher decided to investigate the college-aged (18-26 years old) people's attitudes toward the U.S. medical care system and the COVID-19 vaccines. The age range for college-age is defined as from 18 to 26 years old by the researcher based on Kula's research in 2016, which indicated that the majority (97.71%) of the university students (n = 1660) were in between 18 to 26 ages (35.84% aged between 18 to 20; 52.35% aged between 21 to 23; and 9.52 percent aged between 24 to 26).

Age and Gender

Apart from education level, another two factors that are commonly believed to be associated with different attitudes and decision making (e.g., deciding whether to take the COVID-19 vaccine or not) are age and gender. Concluded by multiple researchers, older age and male gender are associated with a less hesitancy towards COVID-19 vaccines (Chen et al. 2021; Lazarus et al. 2020; Robles et al. 2020; and Murphy et al. 2021). This finding could be explained by the fact that females depend more on if the vaccine is safe or not to make their vaccination decision compares to their male counterpart (Riad et al. 2021); and people who are older aged (25–54 and 55–64 years of age) are more likely to accept an employer's recommendation for vaccination (Lazarus et al. 2021). Riad et al. (2021) even found that there was a significant difference in terms of vaccination decision between first to third year non-medical care students (14.2%) and fourth to sixth year senior non-medical care students (9.6%). These interesting findings drove the researcher to examine if the same result can be found again and if the age and gender associate with people's attitudes toward the U.S. medical care system the same way they do to COVID-19 vaccines. Thus, the researcher tested the following hypotheses:

Hypothesis #11 – Male respondents tend to have more trust in COVID-19 vaccines than female respondents.

Hypothesis #12 – Male respondents tend to have more supportive attitudes toward the U.S. medical care system than female respondents.

Hypothesis #13 – There is a positive correlation between older age and COVID-19 vaccination rate, and between older age and trust in COVID-19 vaccines..

Yet, because, mentioned above, those attitudes are largely influenced by past and new experiences, the researcher hypothesized the following:

Hypothesis #14 – There is a correlation between age and attitudes toward the U.S. medical care system.

Ethnicity

On top of the factors the researcher included so far that are associated with people's attitudes toward the COVID-19 vaccines and the U.S. medical care system (experience, exposure to online information, field of study or work, level of education, age, and gender), one must not forget the element of ethnicity?. Ethnicity itself is a neutral factor. However, in the modern globalized society, minority ethnicity groups often experience health inequality compared to their white counterparts (LaVeist, Nickerson, & Bowie 2000). For example, Schrader and Lewis (2013) found that the waiting time for the treatment of their health concerns to take place for African Americans was significantly longer than their situation-matching whites peers. Also it was found that medical intervention tends to be delayed for African Americans when they experience serious health issues (e.g., stroke) compared to patients who are White (Karve et al., 2011).

In general, African Americans report a less satisfied experience with the U.S. medical care system (LaVeist, Nickerson, & Bowie 2000). This is because African Americans reported

that they've received poor and insensitive care and a lack of respect (Boise et al. 2013) due to their accents, way of dressing (Adegboyega & Hatcher, 2016; Adegboyega & Hawkins, 2016), and struggles to access the medical care and navigate within the U.S. medical care system due to barrier created by discrimination within the system (Read & Emerson, 2005). Though in the U.S. medical care system, there is an opposing attitude towards racism, black patients were still more likely to encounter racism incidents (LaVeist, Nickerson, & Bowie 2000). With the help of the history when blacks were treated unethically by the medical caregiver (e.g., the Tuskegee Syphilis study) and unpleasant experiences Blacks had with the medical care system, patients who are black were found significantly more likely to report medical mistrust towards the medical care team (Adebayo et al. 2020; LaVeist, Nickerson, & Bowie 2000), which all can contribute to a less favorable attitude towards the U.S. medical care system. With the negative attitudes and mistrust towards the U.S. medical care system, COVID-19 vaccine hesitancy may thrive among Blacks (Sanford & Clifton, 2022). Therefore, the researcher push forward the following hypothesis and expect them to be verified:

Hypothesis #15 – There is a significant difference between the attitudes toward the U.S. medical care system held by White and Black people.

Hypothesis #16 – Black individuals have a significantly lower COVID-19 vaccination rate and acceptance rate towards COVID-19 vaccines compared to their White counterparts.

By conducting an online survey which brings together the elements of experience, online information, field of study or work, level of education, age, gender, and ethnicity, and narrowing down the age range to college-age (18-26 years old), the researcher aims to answer the three research questions mentioned at the beginning of the introduction: 1) what are college-aged

individuals' attitudes toward the U. S. medical care system? 2) What factors are correlated with college-aged individuals' attitude towards the U.S. medical care system? 3) Are college-aged individuals' attitudes toward the COVID-19 vaccines correlated to their attitudes toward the U.S. medical care system? With both the qualitative and quantitative data collected, the researcher intends to identify the major issues the U.S. medical care system should focus on improving to allow the public to favor the U.S. medical care system more.

Method

Participants

The researcher recruited 302 participants (enrolled in college or university or not) through Prolific, a platform that helps researchers to recruit participants for online research. This was done based on opportunity sampling, a sampling technique used to select participants from a target group to take part in this online survey study based on one's availability and willingness to participate in the study.

In order to identify participants in an anonymous way, the researcher numbered the participants based on the order they responded to the survey.

There were two requirements one needs to fulfill to participate in this online survey study: 1) at least 18 years old but no older than 26 years old, and 2) have interacted with the U.S. medical care system before. This was to make sure the participants are able to provide information that is helpful for the researcher to answer the three research questions.

Participants provided demographic information (i.e., age, gender, ethnicity, education background, field of study or work, country of origin), expectations for the U.S. medical care system, actual experiences, online information's influence on them, level of trust in the U.S. medical care system and COVID-19 vaccines, COVID-19 vaccines vaccination decision and trust level, desired changes towards the medical care system and rationale behind attitudes related questions.

College-aged participants (18-26 years old) were chosen because of the potential differences between those who are in college and those who are not. An example here is the exposure to knowledge. Since the college campuses are where people will likely be exposed to a wider range of ideas and possibly opinions that are not in consensus with their own, college can

potentially present people the evidence supporting their unfavored opinion. Therefore, people who are enrolled in universities are more likely to have a holistic view of the U.S. medical care system and the COVID-19 vaccines than those who are not in University. Consequently, the researcher chose college-aged people as participants.

The age range of college-age is defined by the researcher, as mentioned in the introduction section. The main goal of the definition for college-age is to include the majority of the students who enrolled in but haven't graduated from college or university (i.e., in the process of earning a bachelor's degree). Thus, building upon Kula's statistics in 2016 which learned that 97.71% of the university students were between 18 to 26 ages, the researcher decided to set the age range for college-age from 18 to 26 years old in this study.

Design and Procedure

This study was developed as an online survey study with 27 items (the question asking participant's Prolific ID excluded). The survey was available on Prolific on March 22nd, 2022. Once the desired number of responses were gathered on March 23rd, 2022, the survey was inaccessible again. The study was completely anonymous (i.e., no names or emails are recorded). Only the respondents' Prolific ID were documented. This was used to distribute the compensation (\$ 1.5 per respondent for participation), which is funded by Douglas and Mary Hallward-Driemeier Fund for The Honor Scholar Program of DePauw University.

The demographic variables of this online survey study include participants' age (18 to 26 years old), gender (self-defined), ethnicity, level of education (i.e., college enrollment), family education background (i.e., if respondent is first generation college or university student), field of work and study, and country of origin. The variables address participants' attitudes include level of agreement towards the three statements (*Q10: The U.S. medical care system should be*

set up such that patients are not deceived about their diagnoses, Q11: The U.S. medical care system should be set up such that the patient is provided with an explanation of the effects of any treatment, and Q12: The U.S. medical care system should be set up such that the patient is told about both the risks and benefits of proposed treatments), expectation of the U.S. medical care system (with reason of choosing “yes” or “no” explained), level of satisfaction towards past experiences with the U.S. medical care system (respondents were asked to explain why choosing one of the five choices; 1 = extremely bad to 5 = extremely good), level of satisfaction towards the U.S. medical care system to measure respondent’s attitude towards the U.S. medical care system (participants were asked to explain the reason for choosing one of the five choices; 1 = extremely disappointed to 5 = extremely satisfied), influence of online information (why did the respondents chose “yes” or “no” were asked), level of trust in the U.S. medical care system (participants were asked to explain their chosen level of trust; 1 = I don’t trust it at all to 5 = I trust it absolutely), COVID-19 vaccination decision (i.e., if participants were vaccinated), the reason behind respondent’s COVID-19 vaccination decision, level of trust in the COVID-19 vaccines (1 = I don’t trust it at all to 5 = I trust it absolutely), the influence of COVID-19 on respondent’s attitude towards the U.S. medical care system (1 = extremely negative, 3 = no change, 5 = extremely positive), and the top two things respondents desire the U.S. medical care system to change.

The online survey was distributed to the participants through Prolific, where participants’ responses were recorded automatically, with opportunity sampling, which was mentioned in the participant section. The researcher chose Prolific over MTurk (Amazon Mechanical Turk), which is a successful and commonly used crowdsourcing marketplace where individuals and businesses can outsource their tasks (from data validation to survey participants) virtually. This decision was

made because MTurk is struggling with population replenishment and keeping the participants naïve (Peer et al. 2017). With an increasingly experienced population, the validity and reliability of a research's results can be largely influenced due to the socially desired answers provided by the participants selected from the population (i.e., participation pool). Prolific, instead, is thriving while MTurk is suffering. Prolific, as a relatively new platform provides similar service as MTurk, provides a more honest and diverse participant base for researchers to recruit with a comparable data quality with MTurk (Peer et al. 2017). Hence, the researcher used Prolific for recruiting participants for this survey study.

Material: the survey

A questionnaire was developed by the researcher to investigate college-aged people's attitudes toward the U.S. medical care system and the COVID-19 vaccines [see appendix]. The survey contains 27 items. Among the 27 items within the survey, 8 items are open-ended questions. The qualitative data collected were utilized to understand participants' attitudes toward the U.S. medical care system and the COVID-19 vaccines (i.e., to acknowledge what led the participants to respond in the way they did). A 5-point likert scale was used for another 8 questions intended to measure one's attitudes. One thing to notice here is that the 5-point likert scale is not the same for all the 8 items. For example, for question "12. The U.S. medical care system should be set up such that the patient is told about both the risks and benefits of proposed treatments," the participants need to rate to what extent they agree with this statement by using a 5-point likert scale labeled 1 = *strongly disagree* and 5 = *strongly agree*. For question "15. What has been your past experience generally with the U.S. medical care system?" the 5-point likert scale was described as 1 = *extremely bad* and 5 = *extremely good*.

The first 8 items asked the respondents to reveal their demographic information. The next 13 items examine respondents' attitudes toward the U.S. medical care system with the following aspects. Then, the following 3 items investigated respondents' attitudes toward COVID-19 vaccines from the perspectives of vaccination decision, and level of trust. The succeeding question explored the correlation between respondents' attitudes toward the U.S. medical care system and COVID-19 vaccines. The last to second question asked how the respondent thinks the U.S. medical care system should change. This piece of information will be specifically looked at by the researcher to investigate what are some aspects that need to be improved more to allow the public to favor the U.S. medical care system more. The last item was left open for respondents to share anything they want to, which enables the researcher to catch potentially vital information that is not focused by the survey itself.

Results

Data Collected

In total, 302 people responded to the survey. The data gathered from 6 of them (respondent #21, #97, #164, #165, #228, and #244) were dropped due to conflicting information provided in the university enrollment, years in college, and if they are first generation college or university students (i.e., one is the first person in one's immediate family to attend college or university). In addition, respondent #13 failed to provide any answer for question 3 (i.e, Are you enrolled in any college/university?). Yet the next two answers respondent #13 provided for question 4 and 5 all indicated that respondent #13 is currently enrolled in a college or university. Thus, the researcher decided to not drop respondent #13 from the study. Hence, after dropping six participants' data, this online survey study has 296 usable sets of information.

Due to the error in question numbers involved in the open-ended survey items, some of the responses for question 14, 16, 18, 20, 22 and 24 were dropped. Because these questions are open-ended questions, it is possible for the researcher to know which question the respondents' qualitative data applies to. Thus, answers that clearly indicated the rationale behind the previous question's answer were not discarded.

Statistical Tools

With the quantitative data collected, Pearson's r were used to explore how factors of interest (independent variables listed above) are correlated with the attitudes toward the U.S. medical care system and COVID-19 vaccines, and if there is any correlation between the two attitudes measured. In addition, t-test will be applied to analyze if there is a significant attitudes differences towards the U.S. medical care system and COVID-19 vaccines among different groups categorized by respondents' age, ethnicity, country of origin, level of education (of respondents' and their families'), field of study or work, and vaccination decision. P-value will also be calculated to ensure the statistical significance.

However, correlation studies were not conducted when there are less than 10 respondents for the specific variables, as the sample size was not large enough to be representative. But respondents' qualitative information will still be analyzed.

In addition, among the 296 sets of data collected, there exists situations where a question was not answered (i.e., the participants left the question blank). If no answer was provided for a question included in a statistical test, other responses from the same participant who left the question blank will not be included in the statistical test to ensure the validity of the results.

Respondent Characteristics

In terms of the sample population' age distribution, the majority of the participants are 23 years old and 26 years old. Yet, at least 16 people in each age group responded to the survey, which enabled the researcher to observe how age is related to attitudes toward the U.S. medical care system and COVID-19 vaccines. Demographic information based on age is listed in Table 1.

Table 1.*Demographic Characteristics (Age Distribution)*

Age	Frequency (n=296)	Percentage of the sample (%)
18	16	5.40
19	25	8.40
20	32	10.80
21	34	11.50
22	29	9.80
23	51	17.20
24	36	12.20
25	33	11.10
26	41	13.90

Note. This table does not include the data from the dropped participants.

In addition, regarding the gender of the participants, female respondents formed 68.58% of the whole sample (n = 203). Participants who identify themselves as male only count 27.36% of the sample size (n = 81) and 39.90% of the participants who identify themselves as female.

Apart from the participants who recognize themselves as male and female, participants also claimed gender identity as male but claimed he is questioning this gender identity (n = 1), gender non conforming (n = 1), non-binary (n = 8), and transgender (n = 2). With one participant choosing not to answer this question and leaving it blank, it gave the researcher 296 responses to understand the gender distribution of the sample.

With the data collected on participants' country of origin, the researcher found that 98.64% of the participants are from the U.S. (n = 292). Only four participants are from outside of the U.S. (n [China (Mainland, Hong Kong, Macau, Taiwan)] = 2, n [Vietnam] = 1, n [South America] = 1). Though having the majority of the participants from the same country is not an ideal situation for the study's level of generalizability, having 98.64% of the participants from the U.S. provides the researcher a chance to look at how people from U.S. views their own medical care system (i.e., the U.S. medical care system).

Unlike the distribution of participants' country of origin, there is, to some extent, diversity among people's ethnicity. Within the sample, 62.83% are Caucasians all from the U.S. (n = 186), 13.85% are Asians (n = 41) which includes two participants from China and one respondent from Vietnam, 10.14% are African-Americans (n = 30), 9.12% are Latina(o) or Hispanic (n [the U.S.] = 26, n [South America] = 1), 2.36% are "mixed" (i.e., belong to more than one ethnicity group) and all of them are from the U.S. (n = 7). A participant answered "middle eastern" as her ethnicity, which is not a clear answer for which ethnicity group she belongs to. Therefore, the researcher decided to not consider her answer in ethnicity related questions. With 3 participants preferring not to reveal their ethnicity and a participant leaving their ethnicity blank, it made up the whole sample size's ethnicity distribution.

What's more, looking at the participants' university or college enrollment situation, the researcher found that unlike gender distribution, the distribution between college, or university students and participants who didn't enroll for university or college is fairly even. Among 296 respondents, 51.35% of them are college or university students ($n = 152$), and 48.64% of them are not enrolled in any college or university ($n = 144$). In connection with the concept of first generation college students, 30.92% of the participants who are currently in a college or university are first generation college/university students ($n = 47$). Most of the first generation college or university students are in their second ($n = 12$), or third ($n = 11$), or fourth year ($n = 11$) in college, while only 5 first generation students are in their first year.

Furthermore, participants also provided a diverse field of study or work that covered all the fields of interest mentioned in the introduction section: Medical Care/Healthcare Industry, Political Science, Social Science, Art & Music, and STEM. See Table 2 for more detailed information. Given that some respondents' responses includes answers that clearly belongs to one of the categories provided in the list, the researcher re-categorized participants' answer in field of study or work as the following:

- 1) "Engineering," "biology," "computer science," "homemaker" (considered as construction by the researcher), "urban planning/architecture," "data in utilities," "information technology," "internet," and "actuarial science" were grouped under the "STEM (Science, Technology, Engineering, and Mathematics), including psychology."
- 2) The category of "Multi-fields" was added, including "psychology/pre law," "social science and english/humanities," and "restaurant and hospitality."
- 3) "Acting" and "associates of arts" were assigned to "Art & Music"

- 4) The category of “Business” was added, including “business,” “business marketing,” “business \$ HRM,” “marketing,” “retail,” and “agribusiness.”
- 5) “Health care,” “health science,” “health,” “health administration” “Dental hygiene,” “childcare,” “public health,” “ Medicine (Medical School),” “Medical/Health (Audiology),” and “Pharmacy” were classified under “Medical care/health industry.”
- 6) The category “Film & Media” was added, including respondents’ answers like “film” and “media.”
- 7) The category of “Other” was created to include participants’ answers such as “public administration,” “Communication Sciences and Disorders,” and “volunteering,” “forestry.”
- 8) The category of “Education” was added, including participant’s answers of “education” and “early childhood education.”
- 9) The category of “Finance” was added, including “finance” and “accounting.”
- 10) The answer “social work” and “criminal justice” were grouped under “Social Science/Work”
- 11) The response “government” was categorized under “Political Science”
- 12) “Transcription” and “Journalism” were grouped under “Language Studies/Work”

After reclassifying the categories of fields of study or work, there are in total 15 categories. One special case worth attention here is that respondent #278 responded to the question regarding one’s field of study or work with the answer “physically disabled.” The researcher believes this answer of “physically disabled” inferred that he was not employed. Thus, the researcher categorized respondent #278’s answer under the category of “Undecided or Unemployed.”

In addition, the “Blank/No Answers” section was set up separately from the “Undecided or Unemployed” due to the fundamental difference between the two categories: undecided or unemployed means one does not belong to any professional field, whereas leaving the answer blank means one was not willing to share the professional field he or she was studying or working in, and one could be work or study in any field possible or no field at all.

Table 2.

Demographic Characteristics (Distribution of Field of Study/Work, University/College Enrollment, and First Generation University/College Student)

Field of Study or Work	Frequency (n=296)	Percentage of the sample (%)	College or University Students (n = 152)	First Generation students (n = 47)
STEM	110	37.16	73	24
Social Science/Services	35	11.82	23	5
Art & Music	30	10.14	15	5
Undecided or Unemployed	26	8.78	5	1
Blank/No Answers	20	6.76	0	/
Medical Care/Health Industry	20	6.76	9	4
Business	16	5.41	9	0
Political Science	10	3.38	7	3

Field of Study or Work	Frequency (n=296)	Percentage of the sample (%)	College or University Students (n = 152)	First Generation students (n = 47)
Language Studies	8	2.70	2	0
Education	6	2.03	2	2
Finance	6	2.03	2	0
Other	4	1.35	2	2
Multi-fields	3	1.01	2	1
Film & Media	2	0.68	1	0

Note. “/” means the situation is not applicable. For the category of “Blank/No Answer,” since there are no college or university students, there would not exist a situation where there is a first generation college or university student.

Past Experience and the U.S. Medical Care System

On average, the participants had neutral experiences with the U.S. medical care system ($M = 3.07$, $SD = 0.99$). In terms of general experiences with the U.S. medical care system, 34.50% of the participants ($n=102$) rated their experience “good” and “extremely good” (4 and 5 respectively on the 5-point Likert scale). In addition, regarding neutral experiences with the U.S. medical care system, 38.18% of the participants chose 3 (= neutral) on the 5-point Likert scale ($n=113$), and this result was largely contributed by both positive and negative experiences they had with the U.S. medical care system. However, for 81 respondents (27.36% of the sample size), the general experiences they had so far with the U.S. medical care system is unpleasant.

Common themes exist within the explanations for why participants claimed they had a good experience with the U.S. medical care system includes good surgery experiences, needs being fulfilled, a respectful or friendly attitude, sense of understanding and fast response. For the negative experiences, one factor stands out more than any other factors: the expensive medical bills. The majority of the respondents mentioned that they received good treatment but the bill they received later is out of expectation. For some participants, the costs for treatment was so high that they would have to choose not to have the treatment. For example, Respondent #181 states that “I was diagnosed with PCOS at 17 and I couldn’t receive certain treatments because my insurance wouldn’t pay.” Other common themes for negative experiences include the employees of the U.S. medical care system not listening to what the patient was saying, not taking the patient seriously, and long waiting time. Additional to common themes, special cases contributed to participants’ negative experiences with the U.S. medical care system includes:

Case 1) Patients went through treatment that was ineffective when the patient believes the treatment is not necessary:

“The medical staff I have interacted with were somewhat pretentious and made my issues seem so urgent. I ended up undergoing unnecessary surgery from which I still experience pain” (respondent #298).

Case 2) Patients’ medical symptoms were sourced to gender and emotions: respondent #3 stated that “I have had physicians attribute my symptoms due to being a woman, anxiety, etc. when there were clear medical problems occurring.”

Case 3) The behavior, or decision of the U.S. medical care system’s employees reveals their insensitivity: respondent #122 claimed that “got a bead taken out of my ear at like 7. They tried to do it first without anesthesia--it did not go well.”

Case 4) Patient was blamed for things out of his or her control by the employees of the U.S. medical care system: respondent #10 said that “had an abscess in a private area, dr was the opposite sex, made me uncomfortable, during the drainage the needle stuck his thumb, he got angry with me, blamed me for it though it was completely outside my control. nurses cared more about dr than me.”

Case 5) Patient was treated unfairly due to patient’s ethnicity: respondent #268 stated that “Being a black woman does not give me access to the necessary treatment.”

These cases did not happen with a high frequency. Case 5 only happened once. But, except for case 5, similar situations involved in case 1 to case 4 were found in multiple respondents’ answers. Though these cases reflect problems that are not the largest issues among the U.S. medical care system, if we do not acknowledge the existence of these cases and address them, these cases could evolve to a bigger problem.

Expectations Toward the U.S. Medical Care System

Regarding to expectations towards the U.S. medical care system, the majority of the participants ($n = 291$) agreed (by rating the level of agreement higher than 3 = *neutral*) with the statement that the U.S. medical care system should not deceive the patients about their diagnoses,” while 5 participants held neutral attitudes towards this statement (i.e., rated the level of agreement towards the statement 3 on a 5-point Likert scale) and 2 participants disagree with the statement by choosing the answer 2 = *disagree* on the 5-point Likert scale. But in general, the participants were highly in agreement with the statement that the patients should not be deceived about their diagnoses. ($M = 4.82$, $SD = 0.47$).

The participants also highly support the claim that the U.S. medical care system should explain the effects of the treatment to the patients ($M = 4.88$, $SD = 0.39$). 98.31% of the

participants agree or strongly agree with this claim ($n = 291$). With four participants holding indifference attitudes toward the claim, it left only one participant (respondent #30) who disagreed with the statement. Yet, unaligned with his opinion that the U.S. medical care system should provide explanation of the effects of any treatment, respondent #30 strongly agreed (5 on the 5-point likert scale) with the articulation that the U.S. medical care system ought to tell the patient about both the risks and benefits of proposed treatments among other 265 participants.

Looking at the sample size holistically, 289 participants (97.64% of the sample size) considered that it is necessary for the U.S. medical care system to provide risks and benefits of suggested treatment options. (It includes people who agree and strongly agree with this statement. Namely whoever rated 4 = *agree* or 5 = *strongly agree* to question 12). Among the 7 participants who did not agree with the statement, 6 participants neither support or oppose the statement that patients should be informed about the strengths and weaknesses of the recommended therapeutic strategies, and 1 participant strongly disagreed with it. With only a small ratio of participants who did not have their opinion aligned with the statement, the claim that the U.S. medical care system should acknowledge the patients about drawbacks and advantages of the advocated treatments was greatly championed ($M = 4.87$, $SD = 0.44$).

In addition to the three statements, the participants were also asked if they expect anything else from the U.S. medical care system other than providing help, and if they expect something more, what do they expect? On one hand, in terms of extra expectations towards the U.S. medical care system, 163 participants expressed the opinion that they do expect more from the U.S. medical care system than just assisting with health related problems. Most frequently

mentioned expectations include 1) an affordable medical bill, 2) preventative care, and 3) better services and support.

In line with a common theme in participants' past experience with the U.S. medical care system, multiple participants mentioned that the U.S. medical care system should not create financial burdens for people. For example, respondent #79 stated that "I think the US medical care system should not only provide care for the patient, but actually make it affordable to receive that treatment." Also, respondent #85 said that "I expect the medical care system to not put people into debt, but sadly, even though the medical care system should be affordable for all people, it is most often not."

Related to the high cost of the U.S. medical care system, the respondent suggested that better services and support that are not limited to medical problems should be provided. For instance, respondent #209 claimed that "cost transparency and lower costs for necessary medication" are expected, respondent #86 mentioned "Because of the financial burden it creates, it should also provide, at the very least, assistance in figuring out how to pay for its services," and respondent #133 pointed out the necessity for the U.S. medical care system to help provide funding for treatment. Yet, the expectation for better services and support does not only live in the perspective of expense. Again, matching with the negative experiences participants had with the U.S. medical care system, the participants also expected the U.S. medical care system's employees to not be judgmental but respectful, understanding, and have empathy towards the patients. In addition, instructions on how to deal and prevent symptoms instead of just medication, and shorter waiting time are expected. Besides, participants demonstrated they anticipate continuous support from the U.S. medical care system during their healing process and towards the negative side effects of the treatment implemented. Examples encompasses

respondent #255's comment that "I expect them to provide help to address my health and condition and then support me on the journey to healing" and respondent #267's saying that "I expect them to take care of me if their treatment leads to side effects or addiction."

Another expectation that was mentioned often by participants is preventative care from the U.S. medical care system. For example, respondent #199 mentioned that "the U.S. medical care system should also acknowledge the social determinants of overall health and work to provide preventative care in mental and physical health." Respondent #35 also identified that she expects the U.S. medical care system to reach out to communities (e.g., unprivileged) and work on preventing major health issues from happening by "...making healthcare, healthy foods, gyms, etc more accessible."

On the other hand, aside from one participant leaving the answer blank, 132 participants (44.59% of the sample size) said they do not expect anything more than medical help from the U.S. medical care system. Most of the participants said it is because the medical care system should focus only on what it is designed for, which is to solve medical issues. Respondent #170 even responded to the question by asking "why would I need anything from them besides medical help?"

Attitudes Toward the U.S. Medical Care System and Desired Changes

Though almost half of the participants said they expect nothing more than receiving medical help from the U.S. medical care system, participants were disappointed with the U.S. medical care system in general ($M[\textit{general attitude}] = 2.40$, $SD[\textit{general attitude}] = 1.06$; $M[\textit{trust}] = 2.36$, $SD [\textit{trust}] = 0.90$). The researcher used two questions to understand participants' attitudes toward the U.S. medical care system: 1) one's general attitudes toward the U.S. medical care system, and 2) one's level of trust in the U.S. medical care system.

Regarding general attitudes toward the U.S. medical care system, 26.01% of the participants said they were neutral (n = 77), 16.89% of the participants claimed they were satisfied or extremely satisfied (n = 50), and 57.09% of the participants stated they were disappointed or extremely disappointed (n = 169). The most common reason for the participants being disappointed with the U.S. medical care system is still the high costs for the U.S. medical care system's service. In response to the expensive costs of the U.S. medical care system, respondent #10's even stated that "it [the U.S. medical care system] is corrupt. It is a money grab. few professionals are in it to make the world a better place." One extreme statement was also made by respondent #62: "They have failed me." Yet, respondent #62 did not explain his answer further. With the help of his response of why he does not trust the U.S. medical care system at all: "They fail at what they do," the researcher infer that respondent #62 experienced medical malpractice before. However, this potential explanation stays only as an assumption.

In terms of participant's trust level towards the U.S. medical care system, 36.82% of the participants said they were neutral (n = 109), 27.02% of the participants claimed that they trust it (absolutely) (n = 80), and 35.81% of the participants stated that they do not trust it (at all) (n = 106). Elements that have been mentioned multiple times by the participants claiming to contribute to participant's level of trust include 1) the belief that the U.S. medical care system is among the most advanced medical care systems with the highest standard and highest quality in the world, 2) trust in the system and doctors, and 3) general good experiences. Common themes that negatively affected participants' level of trust in the U.S. medical care system include 1) deception, 2) the system is money oriented, and 3) learned and, or, participants' negative experiences.

Overall, the common themes identified behind participants' negative attitudes and low level of trust in the U.S. medical care system aligns with what participants want to change about the medical care system. While few participants indicated that they want to change everything about the U.S. medical care system, the most frequently mentioned preferred changes focus on 1) the cost, and 2) accessibility (e.g., treatments, funds, etc).

In addition, participants' general attitudes and level of trust in the U.S. medical care system were found to be positively correlated with each other, $r(294) = .65, p < .001$. This has proven that one's level of trust in the U.S. medical care system is an indicator of one's general attitudes toward the U.S. medical care system. Thus, participants' level of trust in the COVID-19 vaccines reflects participants' general attitudes toward the COVID-19 vaccines.

Trust in COVID-19 Vaccines

Among 295 participants (one participant left the question blank), the average of trust level in the COVID-19 vaccine was 4.08 ($SD = 1.07$), which reflects that participants to a large extent trust the COVID-19 vaccine. With 78.72% of the participants rated their level of trust towards the COVID-19 vaccine higher than 3 (= *neutral*) ($n = 233$), 11.49% of the respondents claiming they neither trust nor doubt the COVID-19 vaccine ($n = 34$), and 9.40% participants stated that they do not trust COVID-19 vaccine ($n = 28$), the data also indicates that participants held a positive attitude towards the COVID-19 vaccine in general.

COVID-19 Vaccination Decision

The finding that the participants held a positive attitude, in general, towards the COVID-19 vaccine was found to mirror a high vaccination rate among the participants ($n[\text{vaccinated}] = 262, n[\text{unvaccinated}] = 33, n[\text{blank}] = 1$). Common reasons for taking the COVID-19 vaccine includes 1) vaccination as a requirement (for school or work), 2) family

members want the participants to be vaccinated, and 3) to protect the participants themselves and others.

Hypotheses

In addition to focusing on individual variables, the researcher also examined if there existed correlation or significant difference between individual variables. By analyzing participant's past experiences and general attitudes toward the medical care system, the researcher found that there exists a significant positive correlation between how pleasant participants' past experiences were and how satisfied participants were towards the U.S. medical care system, $r(294) = .65, p < .001$, which testified hypothesis #1. This means the more enjoyable participants' previous interaction with the U.S. medical care system, the more positive participants' attitudes toward the U.S. medical care system.

However, there was no significant correlation found between participants' trust level in COVID-19 vaccines and general attitudes toward the U.S. medical care system, $r(293) = -.11, p > .05$, which does not support hypothesis #2. Yet, there is significant weak positive correlation between participants' level of trust in the COVID-19 vaccines and the U.S. medical care system, $r(293) = .15, p < .005$. This shows that participant's attitude towards COVID-19 vaccines and the U.S. medical care system are only to some extent related.

With more than half (61.82%) of the participants confirmed that online information did influenced their attitudes toward the U.S. medical care system ($n = 183$), hypothesis #3, which claims that online information is a factor related to people's attitudes toward the U.S. medical care system, is confirmed. Yet, in which way is the online information correlated with people's attitudes toward the U.S. medical care system needs further investigation.

Shifting the focus to participants' field of study or work, the researcher noted that there was no significant difference between the general attitudes toward the U.S. medical care system participants held by participants in political science and those who are not, $t(10) = .32, p > .05$. Neither did the researcher find significant differences in levels of trust towards the U.S. medical care system, $t(10) = .11, p > .05$, nor towards the COVID-19 vaccine, $t(10) = .38, p > .05$, between participants in political science and participants not in political science. Hence, hypothesis #4 is proven wrong.

In addition, there is no significant difference found in level of trust in COVID-19 vaccines among 7 fields of study or work that have more than 9 respondents (Medical Care/Health Industry, STEM, Business, Social Science/Services, Art & Music, Unemployed or Undecided, Political Science), $p > .05$ (mean values see Table 3). But, significant differences in trust level in the U.S. medical care system were found between participants in 1) Art & Music and Medical Care/Health Industry, $t(37) = 2.62, p < .05$, 2) Art & Music and STEM, $t(48) = 3.14, p < .005$, 3) Art & Music and Social Science, $t(63) = -1.93, p < .05$, 4) Art & Music and Unemployed or Undecided, $t(53) = -2.74, p < .005$, and 5) Art & Music and Business, $t(25) = -2.54, p < .05$ (mean values see Table 3). Also, regarding general attitude towards the U.S. medical care system, significant differences were found between 1) Art & Music and Medical Care/Health Industry, $t(33) = 3.08, p < .005$, 2) Art & Music and STEM, $t(58) = 4.32, p < .005$, 3) Art & Music and Unemployed or Undecided, $t(48) = -3.63, p < .005$, 4) Art & Music and Business $t(24) = -4.09, p < .005$, 5) Art & Music and Political Science, $t(13) = -2.35, p < .05$, and 6) STEM and Business, $t(19) = -1.80, p < .05$ (mean values see Table 3). Therefore, hypothesis #5 and #6 are rejected, and #7 is confirmed. Hypothesis #8 is partially supported, as participants in Social Science indeed held, on average, a more supportive attitude towards the

U.S. medical care system, a higher trust level in COVID-19 vaccines and the U.S. medical care system than participants in Art and Music did (corresponding t-test values and p values were mentioned before). However, there was no significant difference found in trust level in COVID-19 vaccines, $t(82) = .09, p > .05$, level of trust in the U.S. medical care system, $t(55) = .69, p > .05$, and general attitudes toward the U.S. medical care system, $t(52) = .51, p > .05$, between participants in Social Science and STEM.

Table 3.

Mean Values for Participants' Level of Trust in the U.S. Medical Care System and COVID-19 Vaccines, and General Attitudes Toward the U.S. Medical Care System

Field of Study or Work	Mean Values (<i>M</i>) for General Attitude Towards the U.S. Medical Care System	Mean Values (<i>M</i>) for Level of Trust in the U.S. Medical Care System	Mean Values (<i>M</i>) for Level of Trust in COVID-19 Vaccines
Medical Care/Health Industry	2.55	3.10	3.89
STEM	2.45	2.94	4.10
Social Science/Services	2.34	2.80	4.09
Art & Music	1.70	2.33	4.37
Unemployed or Undecided	2.58	3.00	4.04
Business	2.94	3.19	3.94
Political Science	2.50	2.90	4.20
Overall Mean Value (<i>M</i>)	2.44	2.89	4.09

In terms of the college or university enrollment as a variable, no significant differences were found between university or college students' general attitude towards the U.S. medical care system, $t(294) = 1.20, p > .05$, level of trust in the U.S. medical care system, $t(291) = .48, p > .05$, and trust level in COVID-19 vaccines, $t(273) = 1.37, p > .05$, and non-college or non-university students'. Consequently, hypothesis #9 is not testified. Also, within participants who are enrolled in college or university, there was no significant differences between first generation college, or university students' trust level in COVID-19 vaccines and students enrolled in college or university but are not first generation college, or university students', $t(105) = 1.24, p > .05$. Therefore, hypothesis #10 is also not proven.

In regards of the gender differences, on one hand, though the researcher found respondents who identify themselves as male (include one respondent who identify himself as male but indicated he is questioning his gender) had a higher level of trust than participants who identify themselves as female ($M(\text{male}) = 4.14, SD(\text{male}) = 1.01, M(\text{female}) = 4.04, SD(\text{female}) = 1.10$), the difference between male and female respondents' trust level in COVID-19 vaccines was not statistically significant, $t(159) = .71, p > .05$. As a result, hypothesis #11 is not confirmed. On the other hand, the researcher found the opposite of what hypothesis #12 expected: male respondents ($M = 2.54$) were significantly less satisfied with the U.S. medical care system than female respondents ($M = 2.78$), $t(130) = -1.67, p < .05$. Thus, hypothesis #12 itself is proven to be false.

Moreover, by scoring participants who were vaccinated equals to 1 and who are not vaccinated equals to zero based on participants' responses for question 23, the researcher found a weak but significant positive correlation between older age and COVID-19 vaccine's vaccination decision, $r(294) = .14, p < .05$. Yet there was no significant correlation found between older age

and trust level in COVID-19 vaccines, $r(293) = .06, p > .05$. Hence, hypothesis #13 is partly testified, as there is a weak but significant correlation between older age and vaccination rate but no significant correlation between older age and level of trust in COVID-19 vaccines.

Furthermore, no statistically significant correlations were found between age and participants' overall attitudes toward the U.S. healthcare system, $r(294) = -.05, p > .05$, nor between age and trust in the U.S. healthcare system, $r(294) = .01, p > .05$. Accordingly, hypothesis #14 is not testified by the data collected.

Last but not the least, hypothesis # 15 and #16 focuses on potential differences based on ethnicity (i.e., African Americans representing the Blacks vs. caucasians acting for the Whites). While no significant difference was found in general attitudes toward the U.S. medical care system ($M(\text{African Americans}) = 2.67, SD(\text{African Americans}) = 1.13, M(\text{Caucasians}) = 2.41, SD(\text{Caucasians}) = 1.10, t(38) = 1.15, p > .05$), level of trust in the U.S. medical care system ($M(\text{African Americans}) = 2.83, SD(\text{African Americans}) = .95, M(\text{Caucasians}) = 2.81, SD(\text{Caucasians}) = 1.02, t(41) = .11, p > .05$), and COVID-19 vaccination rate between African Americans participants and caucasians participatns ($M(\text{African Americans}) = .80, SD(\text{African Americans}) = .41, M(\text{Caucasians}) = .88, SD(\text{Caucasians}) = .33, t(35) = -.98, p > .05$), African American participants ($M = 3.57, SD = 1.14$) held a significantly lower level of trust in COVID-19 vaccines compares to their caucasians counterpart ($M = 4.09, SD = 1.10, t(38) = -2.36, p < .05$). Therefore, though hypothesis #15 and part of hypothesis #16 was not confirmed, the part in hypothesis #16 which claimed that Blacks have a significantly lower level of trust in COVID-19 vaccines compared to Whites was testified.

Conclusion

On one hand, assisted by the Pearson's r correlation coefficient, t - test, and p value, the researcher concluded that college aged individuals were generally not satisfied with the U.S. medical care system, and they did not trust the U.S. medical care system. But college-aged individuals did, on average, trust the COVID-19 vaccines which was reflected in their high COVID-19 vaccination rate. In addition, college-aged individuals' level of trust towards the U.S. medical care system, and past experiences with the U.S. medical care system were proven to be correlated with their attitudes towards the U.S. medical care system. Online information was identified as a factor influencing college-aged individuals' attitudes toward the U.S. medical care system. Moreover, among the seven fields of study or work examined by the researcher, college-aged individuals in Art and Music were found to hold a significantly lower level of trust and satisfaction in the U.S. medical care system and had less faith in the COVID-19 vaccines than any other fields of study or work. Furthermore, elements like university or college enrollment and first-generation college students were confirmed not associating with college-aged individuals' level of trust and satisfaction in the U.S. medical care system, trust level in COVID-19 vaccines and vaccination decisions. While older age was proven not correlated with COVID-19 vaccination decision, older age indeed was a factor positively associated with trust level in COVID-19 vaccines. What's more, two ethnicity groups were examined (i.e., African Americans – Blacks, Caucasians – Whites) and the results indicated that though the vaccination rate in Blacks and Whites was indifference, Blacks trust significantly less in the COVID-19 vaccines than their White peers.

On the other hand, multiple issues of the U.S. medical care systems were identified. The most frequently mentioned theme within a question and across questions is the unaffordable

medical bills. This issue was mentioned by participants under every open-ended question. With the theme of high expenses appearing over and over again, the researcher believes it is time for the U.S. medical care system to think about what is causing this insanely high costs for the patients, and what are the strategies people can employ to afford the bills. An umbrella term for other issues contributing to the distrust and general negative attitudes towards the U.S. medical care system (e.g., transparency, the insensitivity of the employees within the U.S. medical care system and long waiting time) is the quality of services. Regarding the high level of trust in COVID-19 vaccines and high vaccination rate, common reasons include the fear towards the pandemic, the desire to protect oneself and those who are around them, vaccination as a requirement for attending school and going to work, and family members' opinions. Overall, common themes that are expected from the U.S. medical care system include an affordable medical care system, a more efficient procedure (e.g., to shorten the waiting time for patients), transparency (e.g., for medical expenses and for risks and benefits of the recommended treatment), universal healthcare, expand the accessibility (e.g., for treatments and fundings), support from the employees and the U.S. medical care system (physically and mentally). The researcher believes these common themes identified are helpful for the U.S. medical care system when further improve the system.

Discussion

The Survey

The researchers mentioned at the beginning of the “Results” section that there were systematic errors in the descriptions of six of the eight open-ended questions (i.e., there were mistakes in question 14's, 16's, 18's, 20's, 22's, and 24's description), and question 11 was wrongly numbered as question 10. As the result, all the six open-ended questions had the same

error: when the question number included in the description of the open-ended question is supposed to be the previous question's number, it was actually referring to the question number before the previous question, which is the last open-ended question except for question 14. Since question 14 is the first open-ended question meant for participants to explain why they expect or not expect anything extra from the U.S. medical care system, question 14 was wrongly referred to the question 12, which asked participants' level of agreement with the statement of the U.S. medical care system should provide patients risks and benefits of proposed treatment.

For example, in the survey, question 18 asked, "What is your reason behind your response to Question 16?" This question wrongly guided the participants to think about the rationale behind the answer for question 16, which asked "In a few words, please explain one time you have interacted with the U.S. medical care system that makes you give the score in question 14?" Instead, what question 18 ought to direct the participants to think about why they answered question 17 as they did, where question 17 required the participants to indicate their general attitudes towards the U.S. medical care system on a 5-point likert scale (1 = *strongly disappointed*, and 5 = *strongly satisfied*).

The errors in the 6 identified open-ended questions made the researcher lose valuable opportunities to understand people's reasoning behind their previous questions' answers and catch things that the survey itself did not ask. With the nature of open-ended questions, the researcher is able to distinguish if the respondent provided their answers to the six open-ended questions referring to the previous question. For example, some respondents realized there might be an error in the description of the six open-ended questions, they clearly stated which question their answer refers to. For example, respondent #10 said "...if you actually meant 13" for question 14 which asked "What is your reason behind your response to Question 12?" However,

there exists situations where the researcher could not tell if the respondent explained their situation to the question the six open-ended questions are supposed to refer to, or the question mentioned within the description of the six open-ended questions. Respondent #24's answers for question 14, 15, and 16 can be an example here. When respondent #24 answered "Oftentimes risks and side effects are not addressed" for question 14 which clearly she was explaining why she strongly agreed with the claim that the U.S. medical care system should explain the strengths and weaknesses of the suggested treatment. However, in combination with a neutral answer for past experiences with the U.S. medical care system (question 15), the researcher was not sure if her answer "Allergic reactions, side effects" for question 16 is explaining her answer for question 15 or 14.

In addition, the researcher is concerned about if the spotted error in question descriptions influenced how serious the respondents treat this survey. With the presence of multiple "potential mistakes," in the respondent's point of view, it is possible for respondents to think this survey is not scientific, which may lead some participants to treat this survey insignificantly. This might potentially provide an explanation for the excessive amount of questions that were left blank in the survey. For instance, 20 participants had their field of study or work blank where they were given the option to type in their field if none of the choices applies to their situation, and one participant for each questions regarding level of trust in COVID-19 vaccines, ethnicity and gender had their answer blank, which already is 7.78% of the whole sample size. Especially for the question asking participant's ethnicity, one respondent left the question with no answer even when the option of "prefer not to say" was given.

Diversity of the Sample

The sample size of 296 participants, after dropping 6 participants' responses due to contradictory responses the 6 respondents provided, is an acceptable amount which was able to yield some statistically significant results. However, the level of diversity of the sample size could be increased. While conducting statistical tests, the researcher found some variable categories only had few respondents. For example, under the variable fields of study, there were only two participants categorized under "Film and Media," and six participants under "Education" and "Finance," whereas there were 91 participants under the group "STEM" (excluding computer science). The small sample size for fields of study or work categories like "Film & Media," "Multi-fields," "Other," "Education," "Finance" made these groups unable to go through statistical tests. This could possibly make the researcher miss important findings. Same situation applies to the distribution of sample size' ethnicity (186 participants are caucasians and none of the other ethnicity groups had more than 41 participants) and gender (where female participants formed more than half of the sample size). This lack of diversity can lead to a low level of generalizability of the findings. With more participants recruited for each underrepresented variable, the differences or correlation that was tested as insignificant might become a significant one.

COVID-19 Vaccination Decision as a Factor Reflecting Individuals' Attitudes Toward COVID-19 Vaccines

Within the survey, the researcher had two questions to help understand college-aged individuals' attitudes toward the COVID-19 vaccines. However, the result, there was no significant difference in COVID-19 vaccination rate but a significant difference in trust levels in

COVID-19 vaccines between black and white college-aged individuals', proved COVID-19 vaccination rate is not a factor that reflects one's attitudes toward the COVID-19 vaccines.

One explanation for this finding was presented by the participants themselves when they were asked to explain why they had the COVID-19 vaccines or not: having the COVID-19 vaccines is required. During the pandemic, without a vaccination certificate, there is not much one can do. Working in an office and attending in-person classes all had taken the COVID-19 vaccination as a pre-requirement. This requirement that one needs to be vaccinated with COVID-19 vaccines to resume one's normal daily life (e.g., dining in a restaurant and attending in person courses at Universities) differentiated the COVID-19 vaccines from other vaccines (e.g., flu vaccines). It is because without COVID-19 vaccination, one would be struggling to continue one's social and academic or working life, one may took the COVID-19 vaccines not all because one wanted to protect oneself and contribute to the public health but also due of the is inconviency of not being vaccinated with COVID-19 vaccines. Thus, since the COVID-19 vaccination decision is not based on one's freewill, COVID-19 vaccination rate cannot be used as a factor reflecting one's attitudes towards the COVID-19 vaccines.

Online Information and Attitudes Toward the U.S. Medical Care System

While COVID-19 vaccination rate is indicated as a not effective indicator of individual's attitudes toward the COVID-19 vaccines, online information is clearly stated by more than half of the participants as a factor projected influences on their attitudes toward the U.S. medical care system. Though the open ended question (question 20) asking the reason for that why participants said online information did or did not influence their attitudes towards the U.S. medical care system was wrongly referred to the previous open-ended question, the majority of

the participants managed to provided their rationale behind why they think their attitudes toward the U.S. medical care system was influenced by online information.

The three most frequently mentioned methods, from participants who said online information did influence their attitudes towards the U.S. medical care system (n = 186), on how online information influenced their attitudes toward the U.S. medical care system were through 1) experiences shared online, 2) increased awareness, and 3) availability for comparison. However, the influence of online information was not always one-sided. While the majority of the participants indicated negative information (e.g., unfair treatment people experienced with the U.S. medical care system with heart-broken consequences, unaffordable costs, system flaws, knowing other countries' medical care system is working better than the U.S. medical care system) shared online upsets them and made their attitudes towards the U.S. medical care system worse, there were participants stated that online information is informative which contributed a more holistic view of the U.S. medical care system (e.g., by knowing the experiences of people from other regions and being able to compare the U.S. medical care system with other countries' medical care systems). Though respondents' responses were highly focused on bad and unfair experiences they learned online and one participant clearly states "It's made my opinion worse," answers like "I thought the healthcare system was like this everywhere. I was wrong" and "It has informed me of other issues within the system that I had not experienced myself and therefore did not know about" did not indicate if the participants were positively or negatively influenced by the online information. Thus, the researcher could not conclude that online information made people's attitudes towards the U.S. medical care system worse. Not to mention, there were 115 participants who claimed their attitudes towards the U.S. medical care system were not influenced by online information because most of them either form their attitudes based on their

own experiences or they did not read or research information related to the U.S. medical care system online.

With a mixed responses on if online information influenced participants' attitudes toward the U.S. medical care system, and if so, in which way (i.e., negatively or positively) the online information influenced their attitudes toward the U.S. medical care system, the researcher wasn't able to draw conclusions related to online information's influence on college-aged people's attitudes towards the U.S. medical care system, except that online information can influence people's attitudes towards the U.S. medical care system.

However, inspired by this mixed finding, the researcher suggests future research on online information's influences on people's attitudes could focus on how attitudes of people self-identified themselves as subjective to online information vary differently from those who claimed they form their own attitudes based on first hand data instead of second hand data. The research can be conducted under the influence of factors that have been shown to correlate with online information trustworthiness, including information overload, name reputation, media credibility, authorship, absence of advertising, inclusion of statistics, consistency and other sources, number of details shared, etc. (Lederman et al. 2014; Stanford et al. 2002; Wang et al. 2021; Witchel et al. 2020).

How Can the U.S. Medical Care System Improve?

In addition to helping generate the future research idea, online information related findings from the survey also made the researcher question if online information can negatively influence the public's attitudes towards the U.S. medical care system, can online information be used to bring positive influence to the U.S. medical care system? This idea was enlightened by a respondent's statement that stood out among all the one-sided answers addressing the influence

of online information (i.e, the responses stated online information generate either positive or negative or neutral or no influences on one’s attitudes toward the U.S. medical care system): “When people are extremely happy or extremely mad, they go to social media to post about it and so that is where you hear a lot of the good and the bad.” Supported by the answers of respondent #22, #69 and #72 (see Table 4), the researcher believes while trying to make other changes mentioned in the section, using to online platforms as a channel to communicate with the public, to show the public the system is trying its best to provide quality treatments improve, exposing the public to positive information can help the U.S. medical care system with gaining positive attitudes from the public.

Table 4.

Responses from Respondent #22, #69, and #72 for Question 20

Respondent	Respondents’ reasons for claiming online information influenced their attitudes toward the U.S. medical care system
#22	<p>“Online information that can be adequately proven and backed up by reliable and credible sources as well as first-hand accounts of information is very influential, especially when it comes to big issues like this one [the inaccessibility and discrimination occurs not only within the system, but also in the research that runs the system makes it so not as beneficial as it should be].”</p>
#69	<p>“I have been convinced national healthcare for all through taxes is a very good idea.”</p>

Respondents' reasons for claiming online information influenced their attitudes
 Respondent toward the U.S. medical care system

#72 "News online sometimes talks about the effects of having public." healthcare,
 which has brought more attention to the topic.

Note. Content included within "[]" were quotations from respondent #22's answer from question 18 to clarify what is meant by "big issues like this one."

In connection with health information accessed online, the researcher would also advise the U.S. medical care system to have a more comprehensive online system. As two common expectations participants had towards the U.S. medical care system were transparency (informed consent) and preventive care, and Finney Rutten et al. (2019) pointed out the need to continuously improving the accessibility of health related information, the researcher recommended the U.S. medical care system to build a more educative and practical online system, where information like how to prevent certain disease, explanations for a diagnosis, available funding plans, medical expense breakdown, treatment options, risks and benefits of suggested treatment are accessible.

What's more, one expectation towards the U.S. medical care system that was consistently mentioned by the respondents in every open-ended question is to lower the cost and make the U.S. medical care system affordable for people. While people who stand on the opposite ground may argue people have insurance to cover at least part of their medical expenses, the researcher found that not having a health insurance, insurance did not cover enough costs to make the medical bill affordable, what expenses the insurance ought to cover were all subthemes to the bigger issues of the expensive U.S. medical care system. Respondent #35's answer for question 16 is an example here:

“The cost of an ultrasound procedure cost over \$1000, and my health insurance did not cover all that much of it due to my premium not having been met. That the US system ensures the necessity of a health insurance plan, yet it does not even cover all that much of health procedures unless the frequency of doctor visits is quite high, makes going to the doctor for anything something many people avoid when it would be to their benefit to do so. I myself have some lingering conditions that require further care beyond their original diagnosis that I am not comfortable addressing due to my financial status, and I think that is wrong.” – Respondent #35.

Also, respondent # 50 indicated that there existed situations where patients were having a hard time to find a medical care provider who takes their insurance. Therefore, the researcher strongly suggests the U.S. medical care system to address the issue of unaffordable medical bills further. While there were multiple respondents (e.g., respondent #14, #22, #87, #257 and #298) describing the U.S. medical care system is more business-like and puts profit before people, the researcher would suggest the U.S. medical care system to start addressing this money related issue before the people’s general attitudes toward the U.S. medical care system worse off.

Furthermore, a frequently mentioned and influential theme appeared in participants’ expectation towards the U.S. medical care system as well as reasons that contributed to respondents’ worsen attitudes towards the U.S. medical care system is the unpleasant experience patients had due to the behavior of the U.S. medical care system’s employees or the procedure they followed. The unwanted behaviors of the U.S. medical care system’s employees includes the practice of discrimination treatment, being indifference or insensitive or rude, not taking the patient seriously. A common unsatisfactory experience, contributed by the procedure of treating the conditions, multiple participants’ had was the excessively long waiting time in the waiting

room. With the support of this study's finding that one's past experience with the U.S. medical care system is positively correlated with one's attitudes toward the U.S. medical care system, the researcher encourages the U.S. medical care system to not only pay attention but also start to decrease the practice of undesired behaviors by the employees of the U.S. medical care system and work on modifying the current procedure to more efficient one to benefit the whole the U.S. medical care system.

To sum up, this study identified factors that were correlated with college-aged individuals' attitudes toward the U.S. medical care system, their trust level in both the U.S. medical care system and the COVID-19 vaccines. The researcher spotted the issues that existed within the survey and sample size, and proposed future research direction to understand more in terms of how online information influences people's attitudes. In addition, the researcher recognized common themes that existed in respondents' expectations toward the U.S. medical care system and made corresponding suggestions to help further improve the U.S. medical care system.

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Appendix

Original Items and Corrected Items for Survey

Original Items	Corrected Items	Measurement
1. What is your current age?	1. What is your current age?	Multiple choice option: <ul style="list-style-type: none"> ● 18 ● 19 ● 20 ● 21 ● 22 ● 23 ● 24 ● 25 ● 26
2. To which gender identity do you most identify?	2. To which gender identity do you most identify?	Short answer text
3. Are you enrolled in any college/university?	3. Are you enrolled in any college/university?	“Yes” / “No”
4. If you are enrolled in a college/university, which year are you currently in? [if you answered "no" in question 3, please skip this question]	4. If you are enrolled in a college/university, which year are you currently in? [if you answered "no" in question 3, please skip this question]	Multiple choice option: <ul style="list-style-type: none"> ● First-year ● Second-year ● Third-year ● Fourth-year ● Fifth-year or more

Original Items	Corrected Items	Measurement
<p>5. If you answered YES in Question 3, are you a first-generation college student (i.e., neither one of your parents completed a four-year college or university degree)?</p>	<p>5. If you answered YES in Question 3, are you a first-generation college student (i.e., neither one of your parents completed a four-year college or university degree)?</p>	<p>“Yes” / “No”</p>
<p>6. Which field (study or work) are you in?</p>	<p>6. Which field (study or work) are you in?</p>	<p>Multiple choice option:</p> <ul style="list-style-type: none"> ● Political science ● Language studies ● Actuarial science ● Computer science ● STEM (Science, Technology, Engineering, and Mathematics), including psychology. ● Social science ● Art & Music ● Undecided ● option for participant to type in their answer

Original Items	Corrected Items	Measurement
7. What is your ethnicity?	7. What is your ethnicity?	Multiple Choice option: <ul style="list-style-type: none"> ● Caucasian ● Asian ● African-American ● Latino/Hispanic ● Native American ● Native Hawaiian/Pacific Islander ● Prefer not to say ● a option for participant to type in their answer
8. How would you best describe where you are from?	8. How would you best describe where you are from?	Multiple Choice option: <ul style="list-style-type: none"> ● The United States ● The United Kingdom ● China (Mainland, Hong Kong, Macau, Taiwan) ● Japan ● Korea ● Vietnam ● India ● South America ● Canada ● Africa ● Australia ● New Zealand ● European Union ● option for participant to type in their answer

Original Items	Corrected Items	Measurement
10. The U.S. medical care system should be set up such that patients are not deceived about their diagnoses.	10. The U.S. medical care system should be set up such that patients are not deceived about their diagnoses.	5-point Likert scale 1 = <i>Strongly Disagree</i> 5 = <i>Strongly agree</i>
10. The U.S. medical care system should be set up such that patients are not deceived about their diagnoses.	11. The U.S. medical care system should be set up such that patients are not deceived about their diagnoses.	5-point Likert scale 1 = <i>Strongly Disagree</i> 5 = <i>Strongly agree</i>
12. The U.S. medical care system should be set up such that the patient is told about both the risks and benefits of proposed treatments.	12. The U.S. medical care system should be set up such that the patient is told about both the risks and benefits of proposed treatments.	5-point Likert scale 1 = <i>Strongly Disagree</i> 5 = <i>Strongly agree</i>
13. Do you expect anything from the U.S. medical care system other than providing help to address your health condition?	13. Do you expect anything from the U.S. medical care system other than providing help to address your health condition?	“Yes” / “No”

Original Items	Corrected Items	Measurement
14. What is your reason behind your response to Question 12?	14. What is your reason behind your response to Question 13?	Long answer text
15. What has been your past experience generally with the U.S. medical care system?	15. What has been your past experience generally with the U.S. medical care system?	5-point Likert scale 1 = <i>Extremely Bad</i> 5 = <i>Extremely Good</i>
16. In a few words, please explain one time you have interacted with the U.S. medical care system that makes you give the score in question 14?	16. In a few words, please explain one time you have interacted with the U.S. medical care system that makes you give the score in question 15?	Long answer text
17. What is your general attitude towards the U.S. medical care system?	17. What is your general attitude towards the U.S. medical care system?	5-point Likert scale 1 = <i>Extremely Disappointed</i> 5 = <i>Extremely Satisfied</i>
18. What is your reason behind your response to Question 16?	18. What is your reason behind your response to Question 17?	Long answer text

Original Items	Corrected Items	Measurement
19. Has any online information (e.g., information accessed through social media or news) influenced your attitude towards the U.S. medical care system?	19. Has any online information (e.g., information accessed through social media or news) influenced your attitude towards the U.S. medical care system?	“Yes” / “No”
20. What is your reason behind your response to Question 18?	20. What is your reason behind your response to Question 19?	Long answer text
21. How much do you trust the U.S. medical care system in general?	21. How much do you trust the U.S. medical care system in general?	5-point Likert scale 1 = <i>I don't trust it at all</i> 5 = <i>I trust it absolutely</i>
22. What is your reason behind your response to Question 20?	22. What is your reason behind your response to Question 21?	Long answer text
23. Have you been vaccinated against COVID-19?	23. Have you been vaccinated against COVID-19?	“Yes” / “No”

Original Items	Corrected Items	Measurement
24. What is your reason behind your response to Question 22?	24. What is your reason behind your response to Question 23?	Long answer text
25. How much do you trust the COVID-19 vaccine?	25. How much do you trust the COVID-19 vaccine?	5-point Likert scale 1 = <i>I don't trust it at all</i> 5 = <i>I trust it absolutely</i>
26. Has the COVID -19 pandemic made your attitude towards the U.S. medical care system more positive or negative? (3 = no change)	26. Has the COVID -19 pandemic made your attitude towards the U.S. medical care system more positive or negative? (3 = no change)	5-point Likert scale 1 = <i>Extremely Negative</i> 5 = <i>Extremely Positive</i>
27. What would you like to see changed in the U.S. medical care system? Please state your first and second preference	27. What would you like to see changed in the U.S. medical care system? Please state your first and second preference	Long answer text
28. Anything else you would like to share.	28. Anything else you would like to share.	Long answer text