The Covid-19 pandemic: The role of trust in the government on the intention to vaccinate against COVID-19

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Abstract

Background: The COVID-19 pandemic represents a global health crisis, thereby causing governments worldwide to release health guidelines to slow down the spread of the coronavirus. The further development of the pandemic depends, to a great extent, on citizen's compliance with governmental policies and their willingness to take part in vaccination campaigns. So far, little is known about the public willingness to get vaccinated. Previous studies recognised the public's trust in government as a crucial factor of vaccine intention, but in the current pandemic only limited data is available. Relating to the COVID-19 pandemic this paper investigates if trust in government and vaccination intention are related.

Methods: A cross-sectional and survey-based design was used. Data was collected over a period of one week, with the final dataset of 205 registered cases. Participants had to answer question regarding their COVID-19 experience, vaccination intention for COVID-19 and trust in the government. A Spearman's correlation was conducted to determine whether trust in government is related to people's willingness to get vaccinated against COVID-19.

Results: The level of trust was found to be moderate in this sample, but most respondents indicated they want to get vaccinated (81.9%). The analyses revealed that a positive and significant relationship between vaccination intention and trust in government exists, which implies that individuals with lower trust were less likely to get vaccinated.

Discussion: Some solutions for increasing trust in government include using role models or inhibiting the dissemination of conspiracy theories**.** Considering that only a moderate relationship has been found, future research should investigate whether other factors might mediate the relationship. Also, further insights may be gained by examining trust in the government and COVID-19 vaccination intention at different points during the pandemic.

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The Covid-19 pandemic: The role of trust in the government on the intention to vaccinate against COVID-19

The Coronavirus disease 19, abbreviated as COVID-19, is a pandemic that affects nearly every country worldwide and is classified, inter alia, as “the worst pandemic disease of the current millennium” (Medhi et al., 2020, p. 8857). As a response, prevention guidelines have been released, which have drastically changed people’s lives, designed to decrease the number of infections and cases of deaths, as well as saving the public well-being (Plohl & Musil, 2021). Government guidelines applied so far include wearing masks in public, social distancing, frequent hand washing, the limitation of contacts, and partially curfews (Guidry et al., 2020). Alongside those strategies, a vital step to counter the spread of the virus is to get as many citizens vaccinated as possible. Scientists consider the COVID-19 vaccine a requirement “to open up societies on a permanent basis” (Guidry et al., 2020, para. 2). Altogether, the public needs to follow the advice and health guidelines of politicians and law enforcement so as to successfully manage the COVID-19 disease (Sibley et al., 2020). There is, however, a concerning number of individuals who seem to disregard government decisions, and they may, in turn, decide not to get vaccinated when the vaccine is available. In this research paper, the aim is to explore if people’s trust in the government and their willingness to get vaccinated are connected.

It has been established that trust in government is a critical factor for compliance with protective health guidelines during a pandemic, or even a "cornerstone of the political system" (Han et al., 2021, p.2). In essence, trust in government refers to citizens' perception of government's trustworthiness as well as their satisfaction with government's actions (Han et al., 2021). Furthermore, Quinn et al. (2013) list some concrete elements related to trust, including “perceived competence, objectivity, fairness, consistency, faith, commitment, and caring” (para. 7). Several studies provided evidence that trust in authorities influences compliance with recommendations during a pandemic (Murphy et al., 2020; Chan, 2021). In their work, Mesch and Schwirian (2015) state that trust in political authorities and their ability to deal with an infectious disease is a requirement to get people to adhere to public health recommendations. This relationship is further contextualized by Chan (2021), who points out that people who might be unconcerned about the virus may still be motivated to follow the guidelines due to their high trust in political authorities (Chan, 2021). A community directly following the health recommendations of the government facilitates combatting a disease. (Freimuth et al., 2013).

Next to governmental regulations aimed at preventing the spread of COVID-19, like social distancing, travel restrictions or hygiene regulation, COVID-19 vaccination programs

are now highly promoted (Han et al., 2021). Governments worldwide request their citizens to take part in the vaccination programs (Weintraub et al., 2020). Since vaccines have helped to improve people's health and save their lives, as well as to reduce and eradicate diseases, the COVID-19 vaccine is considered the most promising strategy, with the expectation to immunize the population and to decrease morbidity and mortality rates (Kennedy, 2020; Fadda et al., 2020). According to Mesch and Schwirian (2015), a vaccine is "one of the greatest public health success stories and the best defence medicine has against the risk of acquiring infectious diseases" (para. 2). As of June 22nd, a total of 287 COVID-19 vaccines are in development, with 103 being candidates in the clinical phase (WHO, 2021). On its website, the World Health Organization states (WHO, 2021), that at this point, 13 different vaccines have been administered.

Like other vaccines, COVID-19 vaccines must meet specific requirements with respect to safety, efficacy, and quality (European Vaccination Information Portal, 2021). The only feature which sets them apart from other vaccines is their rapid development. Usually, the process is significantly longer and can take several years until a final version of a vaccine is approved (Fadda et al., 2020). In the case of the new COVID-19 vaccines, the urgency and demand to develop a vaccine against COVID-19 are high, thus the development is unusually rapid (European Vaccination Information Portal, 2021). However, it cannot be expected that having an available vaccine equals uptake.

Even though vaccination has, arguably, become the norm, in the last couple of years, a significant trend of an increase in an anti-vaccination movement has been noted (Mesch & Schwirian, 2014). It is part of a phenomenon referred to as "vaccine hesitancy". The World Health Organization (WHO, 2015) defines the term as "delay in acceptance or refusal of vaccination despite availability of vaccination services" (p. 2). This movement started with the introduction of the vaccine against smallpox in the early 1800s and has been present since then (Dubé et al., 2015). It should be noted that vaccine hesitancy falls on a spectrum from active demand to get vaccinated to total refusal. For example, a vaccine-hesitant person can be willing to receive a vaccine despite their doubts. Acceptance can also vary among vaccines (Dubé et al., 2013). Nonetheless, it is a topic of serious concern. In 2019, the WHO labelled vaccine hesitancy as a global threat. It can slow down the immunisation of the public and the containment of a vaccine-preventable disease (Kennedy, 2020).

As stated by Hobson-West (2007), distrust in the government is at the center of the vaccination issue. An example that illustrates the impact of trust in government on people's vaccination behaviour is the case of the Influenza pandemic (H1N1) in America in 2009. Before

the outbreak, no vaccines were available to combat the disease, but in the further course of that pandemic, a vaccine was introduced. Still, a large majority was not willing to accept this vaccine, despite high numbers of mortality and morbidity. Eventually, it was found that citizens' lack of trust in the government contributed to their resistance to taking the H1N1 vaccine (Freimuth et al., 2014). Such an incident can occur in the current pandemic as well. Surveys from 2020 reported that two-third of American citizens were not willing to get the COVID-19 vaccine once it would be available (Guidry et al., 2020).

The concern, that such a behaviour of the public recurs in the current COVID-19 pandemic is not unreasonable. Even though citizens might generally be more willing to accept a vaccine if high numbers of morbidity and mortality are associated with a disease, which is the case in the COVID-19 pandemic, a complete guarantee is not given, as the case of the H1N1 pandemic demonstrated (Edwards et al*.,* 2016; Guidry et al., 2021). The difficulty here is, that without a cooperating population, all prior steps taken to combat the disease are doomed to fail and all progress made so far could be reversed (Falcone et al.,2020).

Considering the role these COVID-19 vaccines play in the further development of the pandemic, it is essential to get an insight into the population's attitude towards the new vaccines and possible influencing factors. Governments could benefit from this knowledge in terms of developing new strategies to counteract the anti-vaccination trend and dimming the spread of COVID-19 more effectively. Additionally, this information might be helpful to protect the population from other upcoming pandemics (Guidry et al., 2020).

Returning to the aspect of trust and its previous role in vaccine behaviour, the focus of this study is to investigate if there is a relationship between citizen's intention to get the COVID-19 vaccination and their trust in political authorities. So far, only a few studies have examined this relationship in the current pandemic. These came to similar results, namely that trust in government is positively correlated with acceptance of the COVID-19 vaccine (Lazarus et al., 2021; Soares et al., 2021; Jennings et al., 2021). However, as these studies were conducted at one point in time during the pandemic and the COVID-19 pandemic is still developing, a shift in citizen's attitude and variations in data cannot be ruled out (Lazarus et al., 2021). Thus, this study contributes valuable and recent insights concerning this topic. Necessary data will be collected utilizing a self-constructed online questionnaire, inspired by Freitmuth et al. (2014) "Trust in the Government Scale", followed by an analysis of the data and a final discussion of the findings.

Considering the information presented, in this research paper the following research question will be addressed:

RQ*:* Is the level of trust in the government related to the willingness to get vaccinated against COVID-19?

Methods

Design

In this research project, predictors of the willingness to vaccinate for COVID-19 were investigated. This was done by means of an online survey, which was accessible for one week from April 19th to 25th, 2021. Three researchers designed the survey, each devoted to a different topic, namely perceived risk of COVID-19, confidence in the vaccine and, lastly, trust in the government. In this research paper, the focus is on trust in the government, thus methods solely concern items relevant for this research. A quantitative-based cross-sectional design was employed to assess if a relationship exists between two variables of interest, namely "trust in the government" and the "willingness to get vaccinated". Moreover, this study was approved by the BMS Ethics Committee / Domain Humanities & Social Sciences of the University of Twente (Request number: 210304).

Participants

Participants either came from the researchers' social environment or were recruited through social media platforms (Instagram, Facebook). By utilizing social media platforms as a recruitment tool, a larger and more diverse population could be reached quickly. One eligibility requirement was that every participant agreed to the informed consent before being forwarded to the actual questionnaire to ensure they voluntarily took part in the survey. Other criteria to be fulfilled were the minimum age of 18 years and to possess basic English skills, as the survey was exclusively offered in English.

Measures

As this study examines if there is a relationship between trust in the government and vaccination intention in the context of the COVID-19 pandemic, items covered personal experience with regard to COVID-19, vaccine intention for COVID-19 and trust in the government. Demographic variables were investigated as well, thus participants first needed to answer questions regarding their age, gender, level of education, nationality, and status of employment.

COVID-19 personal experience

To assess the variable personal experience in relation to the COVID-19 pandemic, three items from the "COVID-19 survey tool and guidance" (WHO, 2020) were used. For instance,

one item was “to your knowledge, are you, or have you been infected with COVID-19?”, which could either be answered with “yes”, “no” or “I do not know”.

COVID-19 vaccination intent

In order to answer the research question and to find out whether participants are willing to get vaccinated, one question referred to the personal perspective about the coronavirus vaccination. The question asked was “Which of the following best describes your perspective/opinion about coronavirus (Covid-19) vaccination when the vaccine is available for you?” with five answer options, for example, “I have not yet considered whether I will be vaccinated against the coronavirus” or “I have decided that I do not want to be vaccinated against the coronavirus”. This question was taken from the research project of Araújo-Soares et al. (2021).

Trust in government

The dimension of trust in the government was assessed by an adjusted questionnaire, originally developed by Freimuth et al. (2014). It comprised seven items about the government dealing with the H1N1 pandemic but was adapted to the current COVID-19 pandemic by reformulating the questions. Example items read as follows: “How committed do you think the government is to protecting you from swine flu?” or “How much caring and concern do you think the government has shown about people who might be affected by this swine flu outbreak?”. The following is an example of a newly formulated question: “How committed do you think the government is to protecting you from COVID-19?”. These questions were answered on 4-point scales, ranging from not at all trusting to very trusting and varying by question. Aside from that, as Freimuth et al. (2014) did in their work, two categories were constructed, namely “low trust” and “high trust”. The lowest two categories from the 4-point scale of each question belonged to “low trust” (e.g., Not at all caring and Somewhat caring) and “high trust” included the other two categories (e.g., Caring, Very caring). The total score was calculated by adding values from each question, with low values indicating low trust and higher values demonstrating high trust. In terms of psychometric properties, all seven items were highly correlated, and a satisfying value of Cronbach’s alpha ($\alpha = 0.91$) was found (Freimuth et al., 2014).

Procedure

Through convenience sampling, each researcher requested participants in their personal environment by asking whether they volunteer to participate in the survey. Moreover, a link to the questionnaire was posted on social media platforms (Instagram, Facebook) along with a

short description of the aim of the study and instructions on how to complete it. It was explicitly stated that participation was voluntary and that participants may withdraw at any time. When participants followed the link, they were transferred to the questionnaire via the online portal "Qualtrics". First, they were provided with information about the survey, its purpose, contact details of the researchers, how the data will be handled and potential risks via an opening statement (see Appendix A). Once participants confirmed they had read the terms, agreed to the data usage and wanted to participate, they were forwarded to the actual questionnaire (see Appendix B).

Analysis

The raw dataset was retrieved from Qualtrics and transferred to the statistical program SPSS (version 25). In the beginning, a total of 221 responses were recorded. First, the dataset was prepared for further analysis by filtering cases, which did not meet the inclusion criterion of the minimum age of 18. Moreover, the pairwise deletion approach was used to handle missing data. Eventually, 205 responses were left. Then, the data was prepared by assigning labels and values.

As a next step, all measurement's reliability were tested by calculating Cronbach's alpha, as well as conducting a factor analysis in order to test the validity of each variable. Trust in the Government Scale showed excellent reliability ($\alpha = 0.85$), with a KMO value of = 0.84 and a significant Bartlett's Test of Sphericity ($p < 0.05$). After using a Principal Component Analysis, one factor emerged, which explains 52.63% of the variance. By taking those values into consideration, this scale appears to be a valid and reliable measure for assessing trust in the government.

To get a better grasp of the data, frequency tables were created to identify floor or ceiling effects. In a table, the descriptive analyses were presented, consisting of participant demographical characteristics, sample size and percentages of each variable. Another table was provided, which shows the level of trust for each item from the trust in the government scale. Additionally, the mean value of trust was calculated.

The last step entailed conducting a Spearman's Rho correlation to measure the strength of association between both variables. This method was suitable for this data set, as both variables did not meet the criteria of being linearly related. Before calculating Spearman's coefficient, two assumptions had to be fulfilled. First, both variables had to be ordinal, which was the case in this data set. Second, there had to be a monotonic relationship between both variables because Spearman's correlation is a survey tool that assesses monotonic relationships.

To check the assumption of monotonicity, a scatterplot was constructed. If this condition was fulfilled, Spearman's correlation coefficient was calculated to confirm if the correlation between the variables is of significance, and thereby, answering the research question. The effect size was considered weak (.10), moderate (.30) or strong (.50) (Cohen, 1988).

Results

Demographics

The final dataset entails 205 responses. As Table 1 shows, 145 of the respondents were female and 59 were male, as well as one person who identified themselves as non-binary. The age among the respondents ranged from 18 to 60, with a mean age of 23.29 (SD = 6.88). These findings demonstrate that the sample at hand is predominantly composed of young adults, which is also consistent with the fact that 143 of 205 participants were university students. In terms of educational level, the majority finished High school (N = 138). Furthermore, German citizens made up 93.2 percent of the participants.

Table 1

Sociodemographic characteristics of respondents (N=205)

Characteristics	N	%
Gender		
Female	145	70.7
Male	59	28.8
Non-binary/third gender	1	0.5
Nationality		
German	191	93.2
Dutch	2	1.0
Other	12	5.9
Highest educational level		
Middle school	11	5.4
High school	138	67.3
Undergraduate degree/Bachelor	41	20.0
Graduate degree/ Master	11	5.4
Other	4	2.0
Employment		
Unemployed	8	3.9

Part-time employed	10	4.9
Full-time employed	37	18.0
Self-employed	6	2.9
Student	143	69.8
Retired	1	0.5

COVID-19 personal experience

Table 2 shows respondents' experiences regarding COVID-19, their health status and intention to get the vaccine. From 205 respondents, two missing cases were registered regarding the question whether they knew a person from their immediate environment that had been infected. Overall, most respondents reported to be in good physical health (N = 136) and only one percent indicated to be severely physically impaired. It became apparent that most participants did not have direct experiences with COVID-19, as 80% had not been infected with COVID-19 until that point. However, 84.7% knew a person from their immediate environment who had been infected. Out of 21 participants, who indicated to already been infected with COVID-19, 20 of them had a confirmation by a test. More than half of those infected, experienced their symptoms as "mild".

Table 2

Respondents' experiences regarding COVID-19 (N=203)

Responses	N	%
Health Status		
In good physical health	136	66.3
Mildly physically impaired	47	22.9
Moderately physically impaired	20	9.8
Severely physically impaired	2	1.0
Have you been infected with COVID-19?		
Yes	21	10.2
No	164	80.0
I do not know	20	9.8
If you are or have been infected with COVID-19, was it confirmed by a test?		
Yes	20	9.8
No	1	0.5
If yes, was the infection		

Mild	13	65.0
Severe	7	35.0
Do you know people in your immediate environment who are or have been infected with COVID-19 ?		
Yes	172	84.7
No	31	15.3

COVID-19 vaccination intent

204 responses were recorded for the question of vaccine intention, since one case was missing. The responses indicate that a high percentage of the sample is willing to get immunized against COVID-19. With 81.9% (N = 167), most participants chose the answer option 'I have decided that I would like to get vaccinated against the coronavirus'. The second, most chosen answer option was 'I am not sure yet whether I will be vaccinated against COVID-19, but I probably will' (N =21). On the contrary, 2.9% (N = 6) indicated that they do not want to get vaccinated. Six participants had not considered whether they get vaccinated and the remaining two percent (N = 4) were not sure but probably will be vaccinated.

Trust in Government

One missing case was registered for the trust rating scale. Table 3 presents all seven items, which made up the trust scale, and the level of trust, divided into two categories "low trust" and "high trust". Trust ratings were highest for the belief that the government is concerned about those affected by the COVID-19 outbreak, suggesting that participants perceive health authorities as caring for the population's well-being and concerned about the consequences of the COVID-19 pandemic. Additionally, respondents considered the government as being transparent regarding the citizens, as for three questions, high trust dominated in terms of caring, honesty, openness, and the commitment to protect the population. However, with respect to competence, actual protection, and best interests of the population, trust was low among respondents. It appears that people tended to criticise how political authorities dealt with the COVID-19 pandemic so far and felt they were not properly protected. As 79 percent believed the government did not act in their best interests, it can also be suggested that they disagree with the steps taken so far to combat the pandemic, which also includes prevention guidelines. As the overall level of trust was calculated, the highest value registered was 26 and the lowest 7. In this dataset, the mean value was 16 (SD = 3.84), which demonstrates only a moderate level of trust in the government.

Table 3

Trust in the Government in regard to COVID-19

Trust in Government	Weight %	
	Low Trust	High Trust
How much caring and concern do you think the government has shown about people who might be affected by this COVID-19 outbreak?	46.8	53.2
How honest do you think the government is with information regarding COVID-19?	47.8	52.2
How committed do you think the government is to protecting you from COVID-19?	49.3	50.8
How open do you think the government is with information regarding COVID-19?	49.8	50.2
How much do you believe the government will protect you from COVID-19?	65.4	34.6
How much do you believe that the government's actions in response to COVID-19 are in your personal best interests?	79.0	21.0
How competent do you believe the government is in handling COVID-19?	87.8	12.2

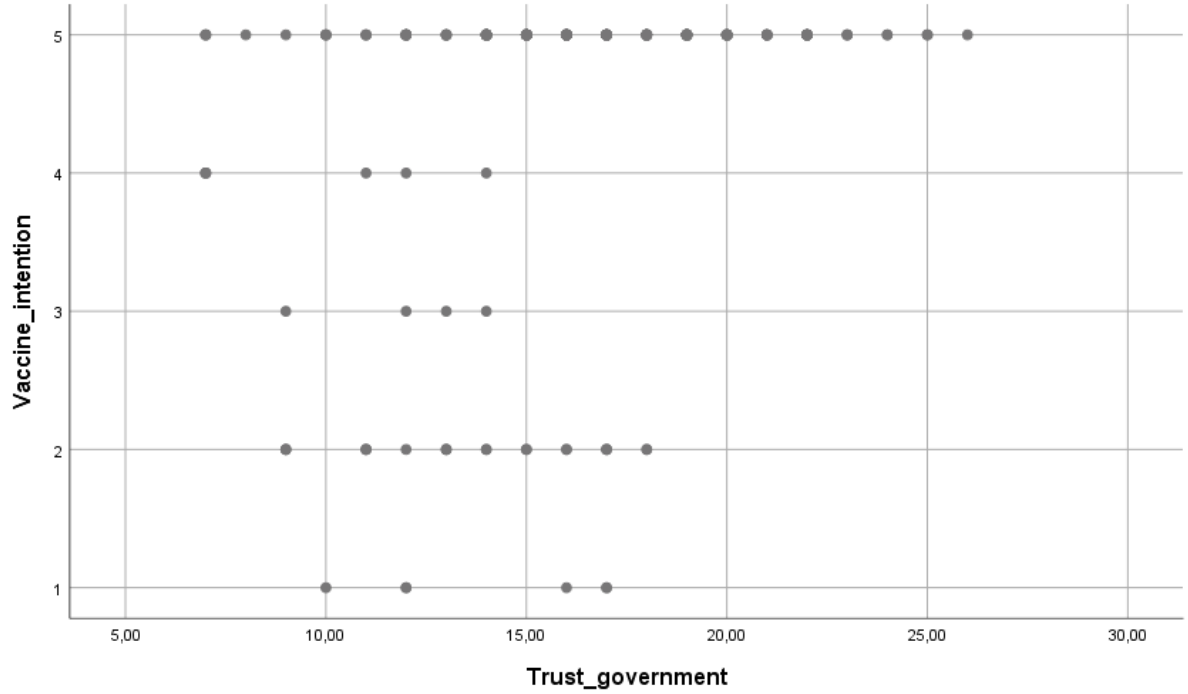
Spearman's Rho Correlation

Due to a missing case for trust in government as well as for vaccine intention, the analysis was based on 204 responses. To visualise the relationship between trust in government and vaccine intention, and to determine whether the assumption of monotonicity was fulfilled, a scatterplot was created (Figure 1). As shown in the scatterplot, the assumption was fulfilled. Highest values of trust were registered for the answer option "I have decided that I would like to get vaccinated against the coronavirus" and relatively low values of trust for those, who decided to not get vaccinated. Thus, the more values of trust increased, the higher the

willingness to get vaccinated. Since all assumptions were fulfilled, a Spearman's Rho correlation could be conducted. Results of the Spearman correlation showed that there was a significant relationship between trust in the government and vaccine intention (r_s (203) = .36, p < .001). By examining these values, it can be deduced that a moderate positive relationship between both variables exists. To put this into context, an increased level of willingness to get vaccinated is associated with a higher level of trust and vice versa.

Figure 1

Scatterplot of the relationship between vaccine intention and trust in government



Note. Scatterplot presenting a positive relationship between the variable trust in government on the x-axis and the variable vaccine intention on the y-axis (1= I have decided that I do NOT want to be vaccinated against the coronavirus, 2 = I am not sure yet whether I will be vaccinated against the coronavirus, but I probably will NOT, 3 = I have not yet considered whether I will be vaccinated against the coronavirus, 4 = I am not sure yet whether I will be vaccinated against the coronavirus, but I probably will, 5 = I have decided that I would like to get vaccinated against the coronavirus).

Discussion

Summary of results

This research study aimed to investigate if there is a relationship between "trust in the government during the COVID-19 pandemic" and "the willingness to get vaccinated against COVID-19". Besides, it was also assessed which of the seven aspects of trust covered in the questionnaire participants tend to have high or low trust in. Eventually, the analytical findings show a significant and positive relationship between both variables. In tangible terms, people who have high trust in the government tend to have a higher willingness to get vaccinated. Furthermore, trust ratings were high in terms of the government being caring, honest, open, and committed to protecting the population but low in terms of its competence, protection, and acting in the best interest of the population.

Reflection

What previous research has shown about the significance of government trust was confirmed in this study as well. Trust's role is important for dealing with health emergencies successfully and publics adherence to political recommendations (Han et al., 2021; Quinn et al. 2013). Citizens who trust the government tend to consider governmental decisions and recommendation as legitimate, whereas those who distrust the government evaluate the cost and benefits and make independent decisions (Marien & Hooghe, 2011). Freimuth et al. (2014) also used the Trust in the Government scale as it was done in this study and came to the same conclusion, namely that trust in government is related to vaccine intention. In their sample, people had low trust in the government as well as a low vaccination rate. Here, it can be suggested that due to the overall low level of trust, citizens evaluated whether taking the vaccine is beneficial. As the pandemic was perceived as less severe and the public was concerned about the safety of the new vaccine, most citizens refused to get vaccinated (Freimuth et al., 2014). However, another study about the H1N1 pandemic, conducted by Quinn et al. (2013) had different results. In that context, trust in government and vaccine intention was weakly associated. Quinn et al.'s (2013) explanation for these finding was that low demand for the H1N1 vaccines was a direct result of the low perceived severity of the H1N1 pandemic.

This survey also demonstrates what areas politics need to work on in order to improve their performance. Since the mean trust score is around 16, trust in government during the COVID-19 pandemic is only average, when bearing in mind that the highest score to be achieved is 28. In this study, trust was measured by investigating citizen's perception of governmental commitment, caring, openness, honesty, best interests and level of protection. On

one hand, it was revealed that high trust dominated in regard to honesty, commitment, caring and openness. On the other hand, low trust appeared to be the case when participants had to rate whether they perceive that the government acts in their best interest, is competent and able to protect the population (see Table 3). It can be suggested that citizens considered the health guidelines, which have been released to combat COVID-19 pandemic, ineffective. At this point, the COVID-19 pandemic has existed for more than a year, and despite all efforts made by the government in the past year, the situation has not yet returned to normal (Graichen, 2021). This might be the reason, why participants perceived the government as incompetent. Findings from Larson et al. (2011) support this assumption, as they state that trust is negatively affected when the public disagrees with political decisions. Karić and Međedović (2021) findings are in line with this statement, as they mention that lack of trust can result from "a discrepancy between pandemic-related events and the government's response" (para. 30). Disagreeing with decisions made by the government would explain the low trust regarding the aspects of competence, and protection. Following this assumption, if there is still no progress in the future, trust in government could decrease further.

Furthermore, this sample has a dominant employment group, which may explain the low value of trust registered for best interest. It has been noted that especially students were impacted by the Coronavirus. In response to the government's restrictions, educational institutions closed and online education was introduced as an alternative, which had a significant impact on their social lives and mental health (Chaturvedi et al., 2021). As the restrictions still apply, it is possible that students have experienced an overall frustration, causing them to believe that the government does not act in their best interest.

Coming to the aspect of vaccine intention, in general, the willingness to get the COVID-19 vaccine was high in this sample. 81% of all respondents wanted to get vaccinated if they get the possibility, which is above the level of 60% required to achieve herd immunity (Alley et al., 2021). To begin with, these finding could be explained by the fact that people have been significantly restricted in different aspects for a long period. As the COVID-19 vaccine can be considered as a means of returning to normality this may have led to a high willingness to get vaccinated, since previous guidelines have failed to slow down the spread of the virus in the long term (Fadda et al., 2020). Other factors can also be accounted for these results. As an example, research has shown that gender can play a role, as women tend to be more willing to comply with preventive recommendations (Karić & Međedović, 2021). Guidry et al. (2021) also found an age-effect as a significant predictor, with younger respondents being more willing to take the COVID-19 vaccine. Since 72% were female in the current sample and the mean age

was around 23, this could also be accounted a reason for an increased willingness to get vaccinated.

Another factor, which might explain the moderate level of trust in government in this sample is that some participants might believe in conspiracy theories about COVID-19. Those who believe in conspiracy theories distrust the government and scientific information (Marietta & Barker, 2018). In the case of the COVID-19 pandemic, this implies that people believing in conspiracy theories probably question the origin of the virus, the purpose of the COVID-19 vaccines and refuse to believe that the government acts in their best interest (Earnshaw et al., 2020). A logical consequence would be that they do not trust the government and probably do not adhere to health recommendations and guidelines. Marietta and Barkers (2018) findings support this hypothesis, as they state that those who believe in such conspiracy theories distrust the government and scientific information, with the consequences of lower compliance to released restrictions (Marietta & Barker, 2018). Additionally, a recent study by Banai et al. (2020) investigated the relationship between COVID-19 conspiracy theories and the compliance with governmental guidelines, with trust in governmental officials as a mediator variable. Their results showed that conspiracy beliefs lower compliance by lowering the level of trust in the government. Other research studies have found similar findings, also in regard to the COVID-19 pandemic (Soveri et al., 2021; Pummerer et al., 2020; Jennings et al., 2021).

Strengths and limitations

This study also has some limitations, which demand some attention. Starting with the sampling number, which is relatively suitable for conducting such an analysis, but the samples characteristics were not representative of the population. First, as Table 1 shows, only 28.8% of all participants were male. Additionally, participants were predominantly between 18 and 30 and very few were above this age interval. Thus, nothing can be said regarding the attitude of the older generation toward government performance, their level of trust and their willingness to get vaccinated. Apart from that, most of the participants were students.

Another point of consideration is the aspect of time. This study had been conducted one year after the outbreak of the COVID-19 pandemic has been declared. Attitudes could have been different during the “first wave” of the pandemic or may also change in the future (Lazarus et al., 2021). Consequently, the findings are not necessarily stable.

Aside from that, no psychometric properties have yet been given for the questions concerning the COVID-19 experience and they had not been derived from a widely used

questionnaire that has been tested for reliability and validity. They were retrieved from a catalogue of questions developed by the WHO.

Lastly, it should be noted that the questionnaire used may not capture all dimensions of "trust". According to Dohle et al. (2020), trust is a multidimensional construct and all seven items used may not be enough to capture trust in the government entirely.

Nevertheless, this study also has its strength, which should receive attention. The "Trust in the Government Scale" proved to have a satisfying reliability and validity and is, therefore, a measurement tool suitable for further research.

Recommendations

As the results showed, a significant relationship between trust in the government and vaccination intention exists. In this sample, the willingness to get vaccinated was high, but the overall level of trust was moderate. This can perhaps be addressed by implementing some strategies which increase the level of trust as it is still important for the further development of the pandemic.

Firstly, Freimuth et al. (2014) identify communication as one aspect positively related to trust. Their findings suggest that political spokespersons should focus on increasing their communication with the public so as to reach those who avoid or are less interested in the topic of COVID-19.

A second suggestion resulting from their research was instead of relying on political spokespersons to convey messages to the public, an expert source should be used as well. Health care professionals were rated as most trusted source, thus using them as a spokesperson or making them appear alongside political spokespersons is recommended.

Additionally, enhancing trust requires giving complete and accurate messages, which are consistent and timely, even if they might be concerning. In his article, Van Prooijen (2018) argues in favour of using an e-government tool, as this can be used to share scientific and trustworthy information in real-time, while communicating transparency to the public.

Quinn et al. (2013) also emphasize the value of role models. A study they conducted revealed that, apparently, President Obama's disclosure of his daughter's vaccination had a powerful effect on vaccination uptake, since he implicitly conveyed the message that the vaccine is safe, important and for the public good. The same approach can be employed in the current pandemic by having a politician who acts as a role model and gets vaccinated, thereby demonstrating the vaccine's safety to the public.

Considering conspiracy theories circulating around the topic of COVID-19 and their impact on trust and compliance, an important strategy could be to raise awareness regarding misinformation and to promote scientific sources. Especially social media platforms serve as a source for the spread of conspiracy theories (Banai et al., 2020). Political spokespersons could use these as well for spreading scientific information, promoting the search of scientific and trustful sources and calling attention to misinformation.

Conclusion

In conclusion, this research provides insights into the relationship between trust in the government and the willingness to vaccinate during the COVID-19 pandemic. Results showed that there is a moderate and positive relationship, which implies that individuals who have more trust in politicians tend to be more willing to get vaccinated. Additionally, the study's findings also reveal which aspects of trust covered in the questionnaire (commitment, caring, openness, honesty, best interest, and protection) participants tend to have high or low trust in. Since vaccine intention was high but trust in the government was low, some solution approaches, whose aim is to increase political trust, were also suggested.

Future research might build upon this study by investigating if there are other factors that influence vaccine intention or mediate the relationship between trust in government and vaccine intention. Furthermore, it might also be beneficial to examine people's trust in government and vaccine intention at different points during the pandemic to determine whether there are any variations and, if so, what may account for those variations. As a final recommendation, future studies ought to gather data from different age groups, in order to have more representative findings.

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Appendices

Appendix A. Opening Statement for an Online Survey/Questionnaire

You are being invited to participate in a research study titled determinants of the population's willingness to get vaccinated against COVID-19. This study is being done by Lara Sprekelmeyer, Milena Völler, and Celine Terbeck from the Faculty of Behavioural, Management and Social Sciences at the University of Twente.

The purpose of this research study is to gain insights into how variables such as risk perception of contracting COVID-19, risk perception of the vaccination, and trust into the government influence the population's willingness to get vaccinated against COVID-19. The study will take you approximately 15 minutes to complete.

The data will be used for the bachelor thesis of Positive Psychology and to get a better understanding of the phenomenon of vaccine hesitancy.

Your participation in this study is entirely voluntary and you can withdraw at any time. You are free to omit any question.

This is an observational study with voluntary participation in the general population, with expected low risk for participants. Potential risks identified include only the inconvenience of the time taken to respond to the survey, and given the current restrictions people face, many individuals currently have more available time. The variables and information requested does not allow to identify specific ethnic or disadvantaged population groups. Due to strict data protection measures, any risk related to non-anonymous publishing of data from the survey is considered very low, and the personal harm for the individual respondent related to such unlikely event is also considered low due to the less sensitive nature of the responses provided. Benefits include the sense of contributing and being able to participate in shaping the country's pandemic response

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I consent voluntarily to participate in this study. I have read the information above and agree with the terms. I understand that it is possible to withdraw from the study at any time.

- ○ Agree
- ○ Disagree and will not take part in this survey

Appendix B. Questionnaire

Please answer the following questions about your demographics

1. What is your age?

   _____

2. What is your gender?
   - ○ Male
   - ○ Female
   - ○ Non-binary/third gender
   - ○ prefer not to say

3. What is your nationality?
   - ○ Germany
   - ○ Netherlands
   - ○ Other

4. What is your highest level of education you have completed?
   - ○ Primary school
   - ○ VMBO/Realschule/Hauptschule/Middleschool
   - ○ Undergraduate degree/ Bachelor
   - ○ Graduate degree/Master
   - ○ Doctorate degree/PhD or higher
   - ○ Other, specify

     ._____

5. What is your employment status?
   - ○ Unemployed

- ○ Part-time employed
- ○ Self-employed
- ○ Student
- ○ Retired

6. How would you evaluate your overall health?
- ○ In good physical health
- ○ Mildly physically impaired
- ○ Severely physically impaired
- ○ Totally physically impaired

The following questions concern your personal experiences with COVID-19. Please select an answer option for each question.

7. To your knowledge, are you, or have you been infected with COVID-19?
- ○ Yes
- ○ No
- ○ I do not know

8. If you are or have been infected with COVID-19, was it confirmed by a test?
- ○ Yes
- ○ No

9. If yes, was the infection
- ○ Mild
- ○ Severe

10. Do you now people from your immediate environment who have been infected with COVID-19? (suspected or confirmed)?
- ○ Yes
- ○ No

11. Which of the following describes your perspective/opinion about coronavirus (COVID-19) vaccination, when the vaccine is available for you? (If you have been vaccinated already, please indicate your most fitting perspective below)

- ○ I have not yet considered whether I will be vaccinated against the coronavirus
- ○ I am not sure yet whether I will be vaccinated against the coronavirus, but I probably will
- ○ I am not sure yet if I will be vaccinated against the coronavirus, but I probably will NOT
- ○ I have decided that I do NOT want to be vaccinated against the coronavirus
- ○ I have decided that I would like to get vaccinated against the coronavirus

In the following, you will receive questions about how you perceive the way the government in your home country deals with the current COVID-19 pandemic. Please select the answer option you agree with the most.

12. How open do you think the government is with information regarding COVID-19?

- ○ Not at all open
- ○ Somewhat open
- ○ Open
- ○ Very open

13. How much do you believe the government will protect you from COVID-19?

- ○ Not at all
- ○ Somewhat
- ○ Yes, will protect me
- ○ Absolutely will protect me

14. How committed do you think the government is to protecting you from COVID-19?

- ○ Not at all committed
- ○ Somewhat committed
- ○ Committed
- ○ Very committed

15. How much caring and concern do you think the government has shown about people who might be affected by this COVID-19 outbreak?

- ○ Not at all caring
- ○ Somewhat caring
- ○ Caring
- ○ Very committed

16. How honest do you think the government is with information regarding COVID-19?

- ○ Not at all honest
- ○ Somewhat honest
- ○ Honest
- ○ Very honest

17. How competent do you believe the government is in handling COVID-19?

- ○ Not at all competent
- ○ Somewhat competent
- ○ Competent
- ○ Very competent

18. How much do you believe that the government's actions in response to COVID-19 are in your personal best interests?

- ○ Not at all
- ○ To some extent
- ○ In my best interest
- ○ Absolutely in my best interest

_ _

Thank you for participating in this study! Your answers will be used to investigate the determinants of the population's willingness to get vaccinated against the coronavirus.

If you need further information about the available vaccines, you can visit the following websites:

https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/coronavirus-vaccine/art-20484859
https://www.bundesregierung.de/breg-de/themen/coronavirus/coronavirus-impfung-faq-1788988

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