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Original Research Article

Motivations for COVID-19 vaccination: fear, solidarity, obedience, leisure orientation or thoughtlessness?

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ABSTRACT

Background: The COVID-19 pandemic exemplifies why it is important to understand people's health behavior, and with respect to vaccination why they decided for or against it.
Methods: This paper presents results of a small online-study carried out in Germany (n=281). It analyzes motivations for vaccination, including intrinsic, extrinsic, structural motivators that can be health related or not. Further, thoughtless decisions are included as well.
Results: The most important aim of vaccination was to get back to normal. Social motivators were second most important. Further motivators were intrinsic, especially fear of the virus, or structural, e.g., reflecting leisure orientation. Some were motivated to get vaccinated because other people said they should. However, a remarkable number of respondents stated they got vaccinated without big thoughts.
Conclusions: This small study exemplarily illustrates that various motives can influence an important health decision, such as for (or against) COVID-19 vaccination. A subgroup represents the ideal of a modern empowered citizen only to a limited extent. Health policy needs to strengthen critical health literacy of citizens even in crises.

Keywords: COVID-19, Empowered citizens, Health promotion, Informed consent, Motivators, Vaccination

INTRODUCTION

During the COVID-19 pandemic, many governments tried to mitigate the pandemic by various measures. Some measures brought along a massive reduction of individual freedom and involved negative psychosocial consequences. For example, negative effects, observed during the pandemic, were social isolation, rising psychological distance and aggressive communication between groups, politicizing of the pandemic or the stigmatization of the individuals who had the COVID-19.[1-4]

In Germany-with a population of 83.2 million inhabitants, the cumulative number of recorded COVID-19 cases is about 26.5 million cases, with 139,386 confirmed deaths due to COVID-19.[5,6] It is assumed that there is a noticeable number of unrecorded cases, e.g., infections without symptoms or cases that were not reported. Above, it should be noted that deaths are always classified as "because of or with COVID-19".[6]

Measures to fight the pandemic included lock-down phases, hygiene measures, social distancing, mask wearing, and restrictions of the number of people allowed to get together. In some phases, rules were comparably strict, e.g., the Stringency Index reached 85.19 in January 2021. Until end of May 2022, it has dropped to 17.59.[7]

The German government puts great emphasis on vaccination campaigns. 77.6% of the population (86.6% of all over 18 years) have received at least one dose of a COVID-19 vaccine, 76.9% have completed the initial

vaccination protocol.[8] Still, the government is not satisfied with the vaccination rate.

An early study, commissioned by the Federal Government of Germany, aimed to identify ways of changing attitudes of people with vaccination hesitancy.[9] The authors suggested a broad spectrum of measures, including positive incentives, e.g., the prospect of regaining freedom and fundamental rights via a green passport, as well as negative sanctions, for example, to exclude unvaccinated individuals from social life as far as possible.[9]

There was also an attempt to install mandatory vaccination for all, like in Austria at that time, the only European country that had enacted such a law. Yet they gave it up in June 2022.[10] In April 2022, the German Bundestag had to decide on two different bills for mandatory vaccination and on another two proposals against it. All four did not receive the necessary number of votes. This means there was neither a majority for it nor against it. For now, mandatory vaccination has not been enacted, but some politicians announced to turn back to it in autumn if the COVID-19 pandemic would make it necessary.

In order to motivate people to follow the rules and recommendations, political narratives included some scientific information on the virus and possibly dangerous courses of the illness, and they recurrently emphasized the importance of solidarity. This could strengthen reciprocity and cooperation, and it could increase social pressure on individuals.

Several studies analyze vaccination hesitancy. It is associated with a low informational level.[11] Haque and Pant summarize six main reasons: "they are concerned about the efficacy of the vaccine, the safety and/or side effects of the vaccine, they do not believe that they need it, they don't trust the vaccine since the vaccines were developed so quickly, they don't trust the pharmaceutical companies and the government, or they don't think COVID is a big threat."[12] Other studies confirm the influence of distrust in government or the vaccines, or distrust in conventional medicine in general.[13-15] Further studies focus on beliefs in conspiracy theories, or other beliefs, such as in God, miracles, fate, astronomy or homeopathy.[16]

Besides, studies were interested in motivations of "hesitant adopters" - individuals who were hesitant but decided for vaccination - and of individuals who decided for vaccination without hesitancy.

For example, Moore and colleagues interviewed people in the US just after they received a dose of COVID-19 vaccine. They collected data of 1,475 respondents from April to July 2021. Using a qualitative descriptive design, the authors attempted to identify motivations for vaccination among hesitant adopters (n=867). As a result, the study shows that the decision was driven mostly by extrinsic motivators (44.91%) - to protect family/loved ones, to resume comfortable social contact, but also because of social pressure, followed by intrinsic motivators (39.15%) - to protect self and to return to normal, and finally by structural motivators (15.63%) - e.g., access to travel, work, school and other institutions.[17]

In December 2021, Keser and Rau questioned 172 citizens in German mobile-vaccination centers, waiting to receive the vaccine, about their motivations.[18] As a result, "compliant, risk-averse people, who feel well-informed about the COVID-19 vaccination, believe in vaccines' efficacy and want them for reasons of protection and fear of Omicron."[18] Respondents, described as risk-tolerant and less altruistic, wished to have access to public areas, that were only accessible for vaccinated people, or they felt peer pressure.

Another example is the study of Andrade and colleagues, who asked 426 vaccinated residents in the UAE about their motivations. 55% decided for vaccination because of health reasons; 45% expressed another motivation.[19]

The examples demonstrate that vaccination intention is caused by intrinsic, extrinsic, structural, health related or non-health related motivators. Many authors emphasize how important knowledge of motivation can be in order to draw conclusions for policy assessment or health promotion.[17,18,20]

The aim of the study was to analyze these motivations in detail with a slightly extended approach. It refers to intrinsic, extrinsic, structural, (non-) health related motivators and includes: (1) fear of the virus - self, (2) fear of the virus - for others, (3) fear not of the virus, but of consequences of a missing vaccination status, (4) solidarity - with family or society, (5) wish to be a role model, (6) obedience: others said to get vaccinated - without personal contact, (7) obedience or persuasion: others said to get vaccinated - with personal contact, (8) wish to get back to normal: rights, travel, restaurants, (9) break out of social isolation (partly "leisure orientation"), and finally (10) vaccination was done just because others did so, or (11) without thinking much ("thoughtlessness").

METHODS

Study design

This study used a quantitative approach with an online questionnaire.

Data collection

The questionnaire was distributed in two ways: It was recommended to some groups in social media, such as Facebook, that were discussing the pandemic, and it was

mainly distributed among students with the request to pass the link to other people who might be interested in the topic. Students of the Berlin School of Economics and Law, Brandenburg Medical School Theodor Fontane, HU Berlin, University of Bremen, and FSU Jena were invited to take part in the study (snowball sampling).

Study duration

The survey was available for 67 days, from 23 February 2022 until 30 April 2022.

Inclusion and exclusion criteria

All responses were included, except for those who only answered the first block or who clicked through without answering at all.

Sample size

281 individuals answered the questionnaire.

Questionnaire

The questionnaire consisted of seven blocks (Appendix).

It includes information needs and wishes about handling the crises as well as satisfaction with both; information seeking behavior, trust in various groups and institutions; and attitudes towards vaccination and vaccination hesitancy, including punitive attitudes towards deviant behavior.

This part was self-constructed. Further, the questionnaire entailed scales on anomie, authoritarianism, political cynicism, interpersonal trust, and readiness to take a risk.[21-25] It also asked about own experiences with the COVID-19 disease and vaccination. The last block added some sociodemographic variables.

Each block was introduced with a short description and the question, whether the respondent would like to answer this block or to proceed to the next one. This option was offered because of the length of questionnaire.

Ethical approval

Participation was voluntary, and the participants had always the option to answer, to continue without answering or to quit.

No personal data was collected that could identify the participant (anonymity). Data was not forwarded to third parties.

Analysis

Data was analyzed by using SPSS 27. Yet, due to the small number of cases and the aim to check only for a broader spectrum of motivations, just descriptive analyses are used for this paper.

RESULTS

Respondents

The sample represents mainly younger people with a high educational status:

Table 1: Demographics.

Variables		N	Valid percent
Gender	Male	80	29.0
	Female	191	69.5
	Divers	4	1.5
Age (years)	Younger than 19	22	8.0
	20-29	181	65.6
	30-39	34	12.3
	40-49	18	6.5
	50-59	16	5.8
	60 and older	5	1.8
Educational level/ profession	Students/in education	205	73.9
	Employed/working	66	23.9
	Pensioners/housemen /housewives	6	2.2
Nationality	German	228	82.6
	German with migration background	36	13.0
	Other nationality	12	4.3
Living status	On their own	77	28.0
	With children	38	13.8
	With someone who belongs to a vulnerable group	36	13.1

87% are vaccinated against COVID-19 most of them three times. 13% are unvaccinated. 43 individuals were afraid of the vaccination, 22 got vaccinated, 21 kept hesitant. 18.4% state if it was just up to themselves, they would not have got vaccinated. 91 individuals had already COVID-19.

Motivators for vaccination

About 200 individuals answered questions about why they decided for vaccination. Another 31 declared to be unvaccinated; rest did not answer this block (completely).

Table 2: Mean and SD of motivators for vaccination (1: strongly disagree, 5: strongly agree).

S. no.	I decided for vaccination...	N	Min	Max	Mean	SD
1	without big thoughts	202	1	5	2.88	1.473

Continued.

S. no.	I decided for vaccination...	N	Min	Max	Mean	SD
2	because I was afraid of an infection	203	1	5	3.14	1.425
3	because I was afraid of a severe course of illness	203	1	5	3.43	1.496
4	because I was afraid to die of COVID-19	202	1	5	2.35	1.439
5	because I remembered the pictures of the transportation of so many people who died of COVID-19	203	1	5	1.78	1.150
6	because I belong to a risk group	203	1	5	1.61	1.161
7	to protect my family	203	1	5	4.17	1.311
8	to protect society	203	1	5	4.00	1.324
9	because politicians said it is important to get vaccinated	202	1	5	2.17	1.138
10	because scientists said it is important to get vaccinated	203	1	5	3.70	1.358
11	because my physician said it is important to get vaccinated	201	1	5	2.88	1.428
12	because my employer said it is important to get vaccinated	201	1	5	1.87	1.207
13	because my partner said it is important to get vaccinated	202	1	5	1.97	1.293
14	because other people said it is important to get vaccinated	202	1	5	2.24	1.314
15	because I couldn't stand the social pressure anymore	201	1	5	1.55	1.104
16	because I was afraid to lose my job otherwise	202	1	5	1.33	.911
17	because I wanted to study without problems	203	1	5	2.66	1.646
18	because other people did so, too	203	1	5	2.12	1.315
19	because I wanted to be a role model	202	1	5	2.81	1.540
20	because I wanted to show solidarity	203	1	5	3.90	1.335
21	because I wanted back to normal	204	1	5	4.27	1.106
22	because I wanted to get back my fundamental rights	203	1	5	2.98	1.597
23	because I wanted to be allowed to go to a restaurant again	204	1	5	3.24	1.617
24	because I wanted to be allowed to travel again	204	1	5	3.47	1.592
25	because I wanted to get out of social isolation	203	1	5	3.31	1.612
26	because I did not like testing anymore	203	1	5	2.33	1.511

The main motivation for vaccination was to get back to normal (84.4%, this and all following percentages only include the two distinct agreeing answers 4 and 5).

Social motivations were second most important, reflecting extrinsic, partly health related motivation. 79.9% wished to protect their family by getting vaccinated, 76% thought to protect society, and for 71.6% it was an act of solidarity. 40.8% insinuate reciprocity: if they decided for vaccination, they would expect others to do the same.

Intrinsic and health related motivation was for some respondents the reason to get vaccinated: 49% were afraid of an infection, 57% feared a severe course of illness, 24.5% were afraid to die of COVID-19. Nearly 11% said they would belong to a risk group.

Extrinsic motivation was caused by unspecific others, who stated it would be important to get vaccinated (probably not addressed to the person, but through media). 68.1% said scientists, who stressed the importance of vaccination, influenced their motivation. In contrast, this rate is much lower for politicians (13.2%). At the same time, 40.9% advocate that everyone should get vaccinated as often as politicians say they should. This motivation could reflect some kind of obedience. Further, recommendations of specific others motivated individuals to get vaccinated; 41.2% because of their physician, 15.2% of their partner, 11.8% of their employer (and 21.6% of others).

Another group of motivations addressed possible consequences of not being vaccinated. 11.2% said they could not stand social pressure anymore, 6.3% were afraid to lose their job. 40.2% wanted to continue their academic education without problems. The numbers are explicable, if we take the large number of students into consideration.

54.9% wanted to free themselves from social isolation, and to be allowed to restaurants (56.9%) or to travel again (54.9%). 27% expected they would not need testing anymore. 42.2% hoped that vaccination would bring them back their fundamental rights. This shows that structural non-health related motivators also important.

It is quite astonishing that 37.2% explained that they got vaccinated without thinking much in advance. This item does not correlate noteworthy with observed behavior of others (22% achieved vaccination because others did so, too), nor with trust in science or politics.

DISCUSSION

The results suggest that the respondents had quite different motivations to get vaccinated. It is surprising how many decided for it without big thoughts, also given the high educational level. While information deficits are often associated with vaccination hesitancy, a decision for vaccination does not necessarily result from intensive information or many thoughts.[11] Motivation for vaccination depends also on subjective risk perception.

As shown above, about 24% of our sample said they decided for vaccination because they were afraid to die of COVID-19. 135 of 202 individuals, who rated this item, are in the age group 20-29 years. Their subjective risk perception is much higher than the objective risk. The fatality rate is 0.54% for all age groups in Germany, with enormous differences between age groups.[26] The fatality rate of individuals who are younger than 35 years is 0.00005%, for 35-59 years it is 0.07%, while for individuals who are 80 years and older it is 9.53%.[27] We can suppose that COVID-19 is, at least for some individuals, a very emotional issue. Maybe (political) narratives in social media and media as well as pictures of patients on ICUs or individuals who have died of COVID-19 influenced this subjective risk assessment.

Our data hint that benefits of a COVID-19 vaccination are highly appreciated. The vast majority expresses to feel very contented being vaccinated (78.9%). 10.4% state they do not care about it; only very few regret their decision for it (5%). Results from another block in the questionnaire underline the great importance of vaccination: About 35% support the statement that people should get vaccinated, even if they were not convinced of the benefits. 58.4% say individuals should get vaccinated despite a risk of side effects, and 41.3% endorse vaccination even if a vaccine had a very low risk to die of it.

The study reveals strong beliefs in science. This is positive, as it can be advantageous for health promotion and health policy. In the case of our study, it strengthened the vaccination intention. Yet, this could imply risks, too, if this meant that beliefs were adopted without questions. A representative study by Post and colleagues shows that "people with a need for definite information and a view of scientific knowledge as static wanted scientists to dominate policymaking and journalists to deliver definite information about the coronavirus. People with an informational need to construct their own opinions wanted journalists to question policy and scientific advice. Furthermore, they rejected the idea of scientists dominating policymaking".[28] Above, a strong belief in COVID-19 scientists is associated with moralization of measures to mitigate the pandemic.[29] Strong beliefs in scientific experts lead to distrust in people who do not follow the rules and intensifies the support of pandemic mitigation authoritarianism. Graso and colleagues call it the "dark side" of science, characterized by the conviction that health experts are the only ones who are able to conquer the crises. Their study demonstrates that a strong belief in COVID-19 experts can involve "extremist views, censorships, and punitive reactions".[29] Subsequently, those who do not share the common narrative are more likely to be penalized, and social cohesion could be impaired and replaced by a polarized culture. Data of our study hint, this could have taken place already. While 25.6% expect rewards for being vaccinated, 19.2% plea for punishment for those who did not decide for vaccination. 21% report to be discriminated because of their decision for or against vaccination. Discrimination takes place among vaccinated as well as among unvaccinated individuals.

Political narratives and vaccine campaigns recurrently emphasized the importance of solidarity. Our study confirms the importance of social motivators. Yet, the corresponding answers could be influenced, at least to some extent, by social desirability. Patzina and Dietrich carried out a study on the social gradient in COVID-19 vaccination intentions and the role of solidarity beliefs among adolescents. Data were collected among 4,079 German high school students and graduates. The authors conclude that emphasizing solidarity may not have the success as expected, because it actually does not change the vaccination intention of so many young individuals.[30] Above, other studies point to a decrease of interpersonal solidarity over the course of the COVID-19 pandemic.[31]

While the study by Moore and colleagues identifies structural motivators to be relevant only for 15.6%, they were far more important in the study presented in this paper.[17] It should be taken into account that respondents did not to have to choose between motivators, but were asked to rate them all. Maybe that is one reason for the noticeable stronger importance of structural motivations. Vaccination was bound to return to normal. For many students' vaccination was also necessary for easy access to universities. Some universities allowed only vaccinated or recovered students to take part in classes, others requested daily testing, which was for some weeks to be paid by students. This could explain the importance of this structural motivation. Other respondents associated vaccination with the permission to travel, to go out, or to get back fundamental rights. These were also important motivators.

Finally, the results could rise some concerns, if the ideal of a modern empowered citizen or patient was considered, like in any other field of medicine or therapy. The ideal describes an individual being able to give informed consent to a decision that is advantageous for his or her health. The person is able to assess risks and benefits and to decide autonomously and willfully.[32] In that process, critical health literacy is crucial.[33] Hence, decisions basing on inadequate subjective risk assessment, fear, obedience or mere leisure orientation - or without much thinking - do not (or just to a very limited extent) present this ideal. Health behavior and health promotion should not imply obedience nor an attitude that individuals hand over responsibility and leave decisions to others.

Limitations

There are some limitations of the study. The number of participants was relatively poor. Three reasons could be responsible for that. First, the questionnaire was pretested in January and February 2022, while the final version was activated exactly on the day, the war in Ukraine broke

out. For most people, the topic of COVID-19 might have become less relevant, and they centered their attention on the war. Second, the questionnaire was long. To answer all questions took between 20 and 30 minutes. Although this was not qualified as a problem in the pretest - instead it was repeatedly mentioned that it was positive that the questionnaire included so many relevant aspects, it could have been different for those who were asked to take part. Third, as this study was carried out without any financial support, it was not conducted by a professional pollster, but depended mainly on intrinsic motivation.

Nevertheless, this small sample can provide interesting exemplary insights in vaccination motivations, and it could contribute some inspirations for further research.

CONCLUSION

This small study exemplary illustrates that various motives can influence an important health decision, such as for (or against) COVID-19 vaccination. The described political strategies of combining positive incentives - e.g., get back freedom by vaccination-and negative incentives- e.g., exclusion from social life, seem to have worked to a great extent. Motivation resulted from the wish to get back normal life, from fear, solidarity, obedience, or leisure orientation, while others decided for it without much thinking, or even despite their hesitancy or against their will. For politicians who aim at a high vaccination rate, it can be positive that various motivations lead to vaccination. Further, if the dominant scientific opinion was coherent with their political strategies and people followed scientific advice - or supported the idea that everyone should get vaccinated as often as politicians recommend - this would also support their strategies. Yet, this strategy could be associated with negative consequences, especially with regard to health behavior that should be led by critical health literacy. In the case of the study presented here, respondents gave a bundle of motivators for their decision. The subgroup of those, who might not - or only partly - represent the ideal of a modern empowered citizen, could be small. Maybe statements of this small group could be explained by the special circumstances of the pandemic, where individuals had to cope with unfamiliar stressors, while politicians tried everything to achieve a high vaccination rate in order to protect society. Nevertheless, health policy should aim to strengthen critical health literacy of citizens even in crises. Some campaigns strove for that, maybe with unclear success. Of course, public communication included a mix of political, scientific, medical and laypersons' statements conveyed in media and social media. In that respect, public communication could contribute to an empowerment of citizen as well. This could include e.g., to allow controversial attitudes and critical discussions, to revise narratives if necessary and not to overemphasize arguments or narratives causing fear.

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APPENDIX

Table 1: Content of the questionnaire.

S. no.	Block	Items	Remarks
1	1a) Information needs about COVID-19 and	11	Information needs and satisfaction with information on the origin, transmission, protection, vaccines and therapeutics, measures, and fake news
	1b) Satisfaction	11	
	1c) Needs about handling of the crises and	20	Social expectations and satisfaction with them regarding social issues, communication, politics, protection of fundamental rights and democracy; handling of rule breaking
	1d) Satisfaction	20	
2	2a) Concrete expectations of solidarity during the pandemic	16	Perceived relationship between measures installed by policymakers-and discussed in public-and solidarity; assessment of protest and deviant behavior, cognitive and emotional responses to deviant behavior
	2b) Evaluation of protests against measures	4	
	2c) Handling of deviant behavior	8	
	2d) feelings about deviant behavior	9	
3	3a) Guess why some people did not decide for a vaccination	20	assumptions regarding motives of vaccine hesitant people, acceptance of motives, attitudes on mandatory vaccination and punitive attitudes
	3b) Acceptance of reasons for vaccination hesitancy	13	
	3c) Attitude on compulsory vaccination	17	
	3d) What to do with unvaccinated people	16	
	3e) Attitudes on occupational bans	17	
4	4a) Information seeking behavior	11	Information sources used and trust: trust in close social context/in political and scientific institutions, compliance with measures and behavior towards unvaccinated people, critical attitudes towards measures and wrongdoing, emotional state during the pandemic
	4b) Trust in people and institutions	12	
	4c) Behavior during the pandemic	17	
	4d) Critical attitudes and deviant behavior	12	
	4e) Feelings during the pandemic	16	
	4f) Experiences with discrimination	4	
5	5a) Anomie	4	Anomie scale[21]
	5b) Authoritarianism	9	KSA-3[22]
	5c) Political cynicism	2	KPZ[23]
	5d) Interpersonal trust	3	KUSIV3[24]
	5e) Readiness to take a risk	1	R1[25]
6	6a) Own vaccination	26/20	Motives for or against vaccination, experiences with own vaccination or observed effects
	6b) Observed side effects	9	
	6c) COVID-19	5	
	6d) Other people's vaccination	9	
7	7a) Sex	1	Socio-demographic variables
	7b) Age (Years)	1	
	7c) Education	2	
	7d) Profession	2	
	7e) Place of stay	3	
	7f) Family status	1	
	7g) Nationality	1	