

# BEHAVIORAL CORRELATES OF COVID-19 CONSPIRACY THEORIES

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REPORT

## IMPRESSUM

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Pro-fact: Research, education, fact-check and debunk COVID-19 related disinformation narratives in Croatia

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Faculty of Political Science in Zagreb

University of Dubrovnik,

Faculty of Electrical Engineering and Computing and Faktograf.hr

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## INTRODUCTION

As a part of Pro-Fact project activities aimed to research, educate, fact-check and debunk COVID-19 related disinformation narratives in Croatia on multiple levels by a multidisciplinary and intersectoral approach, this report focuses on the correlation between citizens' beliefs and their behavior. This research leans on previous phases of the project research activities, namely the social network analysis (Brautović, 2022a), the dynamic network analysis (Brautović, 2022b) and especially on the content and discourse analysis (Grbeša Zenzerović & Vučković, 2022), which we used as informational sources in the creation of measurement instruments for this survey. In that sense, after “online” research phases focused on the spread of COVID-19 disinformation eco-systems on the internet, we now focus on “offline” issues, such as how widely identified disinformation, especially conspiracy theories, are spread among Croatian citizens. With the aim to identify which groups of citizens are susceptible to disinformation and conspiracist beliefs related to COVID-19 pandemic, we conducted a national survey on a large sample of Croatian citizens. To get more insight into their possibly wider conspiracist/non-conspiracist frame of mind, we also assessed their proclivity to general conspiracism, beliefs in global conspiracy theories and beliefs in local (Croatian) conspiracist theories.

Furthermore, as reasons for opposing public health measures and ways of coping with pandemics can be related to COVID-19 conspiracism (e.g. Soveri et al. 2021; Farias & Pilati, 2021), and considering the fact that these issues can help public authorities to better organize future public campaigns, we explored relationships of conspiracist beliefs with behaviors related to coping with the pandemic, e.g. adherence to the preventive measures, vaccination and potential protest behavior in the future should preventive measures be reintroduced. This report gives an overview of this part of the survey results.

It focuses on following behavioral correlates of COVID-19 conspiracy theories:

- vaccination rate
- intent to vaccinate in the future should further vaccination be recommended
- attitude regarding the justification of preventive measures introduced in Croatia
- difficulty of coping with the preventive measures
- willingness to take different actions should preventive measures be reintroduced

The set of these potentially differential variables was drawn from the vast body of literature and pertains to various characteristics, skills and abilities related to worldviews and societal participation, such as scientific, media and political literacy, socio-demographics, proclivity towards other conspiracy theories, religiosity etc. Additionally, the differences between two groups of participants have been investigated – those who have received at least one dose of vaccine and those who have not been vaccinated at all. These analyses enabled us to compare the profile of citizens with different levels of proclivity towards belief in conspiracy theories with those who refused the vaccine against COVID-19.

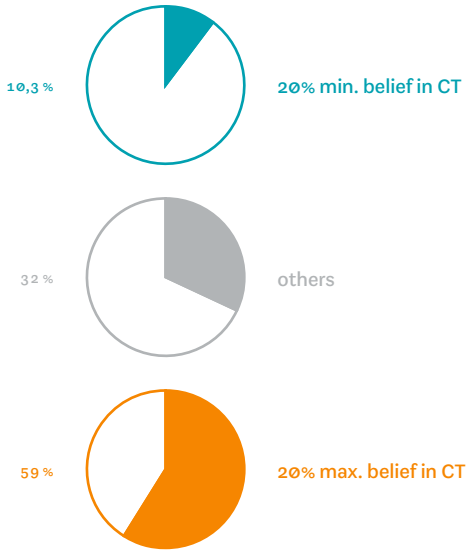
## METHODOLOGY

Data collection for this study was conducted online by Ipsos Croatia, from April 29th to May 17th, 2022, on the sample of 1401 adults, aged from 18 to 64. The sample was a national probabilistic sample, representative for the Internet users, double stratified by region (6) and size of settlement (4), with additional quotas for age (4) and level of education (3).

Out of 1401 participants, 717 (51.2%) were women. Average age was  $M = 42.6$  ( $SD = 13.05$ ). In terms of education 2.7% have finished elementary school, 71.3% have finished high school and 25.8% had a BA or higher degree. Regarding the size of their residence, 34.4% of our participants came from settlements with up to 2000 residents, 16.8% came from settlements with 2001 to 10000 residents, 21.1% from settlements with 10001 to 80000 residents and 27.8% from settlements with over 80000 residents.

Aiming to illustrate the relationships between believing in COVID-19 conspiracies and pandemic-related behaviors (e.g., vaccination, coping with the protective measures, etc.) the sample was divided in three larger groups. The groups were formed based on the average agreement, i.e. inclination, towards 16 conspiracy theories related to COVID-19, which we have investigated within this project. Two “extreme” groups consisted of 20% participants with the least, and 20% of participants with the most inclination towards conspiracy theories, i.e. the non-conspiracists and the conspiracists, respectively. The remaining participants have formed the third group (“others”). In the graphs below, we will illustrate the behavioral correlates of believing in the conspiracies related to the origin and the world-wide course of the COVID-19 pandemic using this threefold categorization of the sample. We also calculated the correlation coefficients between endorsing COVID-19 conspiracies as a continuous variable and variables of interest or, in one case, a chi-square test to test the differences between the above described three groups of participants.

# RESULTS



**Graph 1.** Percentage of non-vaccinated participants in three groups with different inclination towards COVID-19 conspiracies

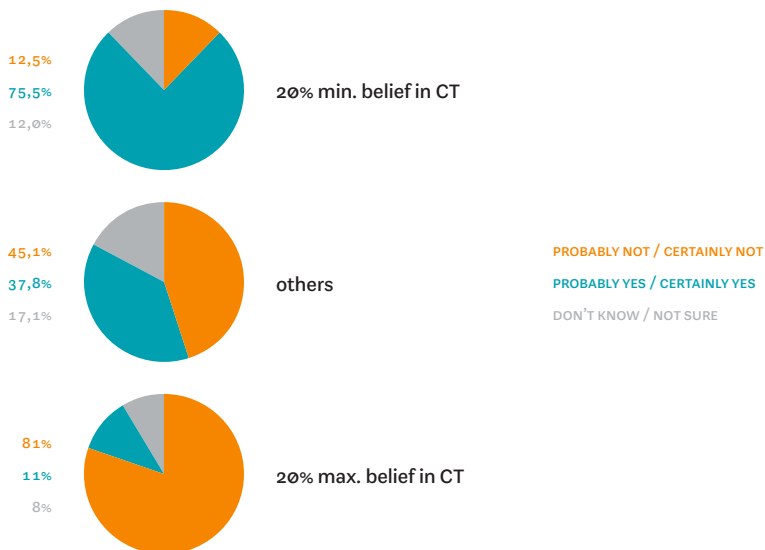
## VACCINATION RATE

Vaccination rate differs significantly ( $\chi^2=157$ ;  $df=2$ ;  $p<.01$ ) between the above described three groups of participants.

The percentage of unvaccinated participants (i.e., those which have not received any dose of vaccine) is lowest among the non-conspiracists; i.e., 10.3% of participants in the low CT group has not been vaccinated in comparison to the 59% of unvaccinated among those with high proclivity towards CT. There are around 32% of unvaccinated participants in the group not pertaining to either of the extremes (see Graph 1↑).

## INTENT TO VACCINATE IF RECOMMENDED IN THE FUTURE

Participants were asked about their intent to vaccinate if recommended in the future. The responses were given on a 1-5 point Likert-type scale (certainly not, probably not, don't know, probably yes, certainly yes). Pearson's correlation coefficient between the intent to get vaccinated and believing in COVID-19 conspiracies was  $r=-.58$ ;  $p<.01$  indicating that those who are more inclined towards conspiracies have lower intent to get vaccinated in the future.



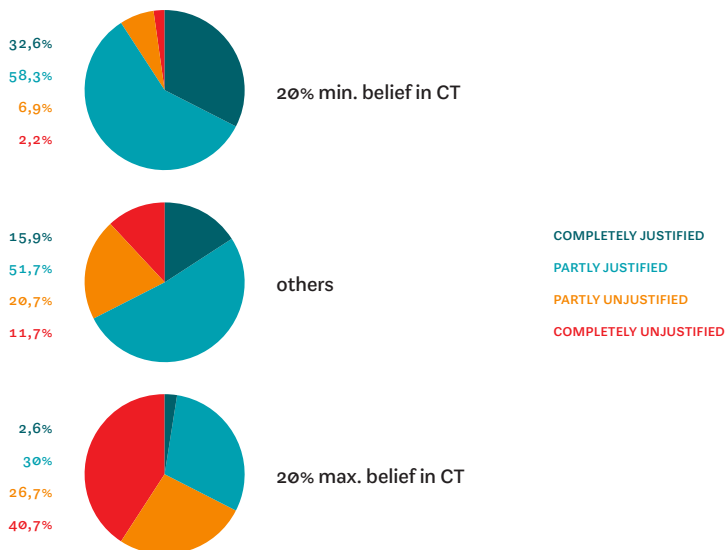
**Graph 2.** Percentage of participants with different inclination towards future vaccination in three groups with different inclination towards COVID-19 conspiracies

As illustrated in Graph 2<sup>↑</sup>, the intent to get vaccinated in the future is much higher in non-conspiracists (75.5%) as opposed to conspiracists (11%). Participants on neither end of the extreme, i.e., 60% of the sample, is ambivalent regarding their future vaccination intents: 37.8% of these participants are inclined towards further vaccination, further 45.1% hold the opposing view (probably not/certainly not), while 17% of them are undecided (Graph 2<sup>↑</sup>).

## ATTITUDE REGARDING THE JUSTIFICATION OF PREVENTIVE MEASURES

Preventive measures introduced in Croatia during the course of the pandemic were partly or completely justified, according to over 90% of non-conspiracists (see Graph 3<sup>↓</sup>). Among the conspiracists only 32.6% find justification for the measures undertaken, 26.7% believe these measures have only partly been justified, while 40.7% finds them completely unjustified. Among the middle, non-extreme group, 67.6% of participants find justification for the introduced measures, 20.7% finds them partly unjustified, and the final 11.7% holds the measures completely unjustified. Pearson's correlation coefficient between the attitude regarding the justification of preventive measures and



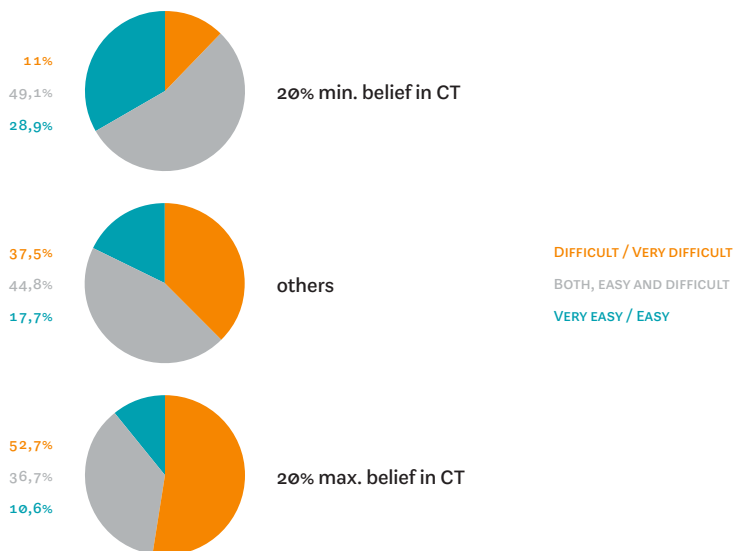


**Graph 3.** Percentage of participants with different levels of justification of preventive measures in three groups with different inclination towards COVID-19 conspiracies

believing in COVID-19 conspiracies was  $r = .48$ ;  $p < .01$  indicating that higher endorsement of COVID-19 conspiracies is related to more negative attitude toward justification of protective measures.

### DIFFICULTY OF COPING WITH THE PREVENTIVE MEASURES

Coping under preventive measures (Graph 4↓), which have been introduced in Croatia at various times of the pandemic, went fairly easy among the non-conspiracists, i.e., 28.9% of participants in the extreme group of those not inclined towards CT felt that it was *very easy* or *easy* to deal with the measures, and additional 49% did find the measures neither easy, nor difficult. Among them, 11% have found the measures difficult or very difficult to deal with. On the other hand, the majority (52.7%) of the participants inclined towards CT, i.e., the top 20% of the conspiracists in the sample, had found coping with the measures to have been difficult or very difficult. Among the mid-portion of the sample, i.e. those participants not pertaining to either of the extreme groups, 37.5% found the measures difficult or very difficult to cope with, as opposed to 17.7% who found the measures easy or very easy to deal with, and 44.8% found them to be both easy and difficult.

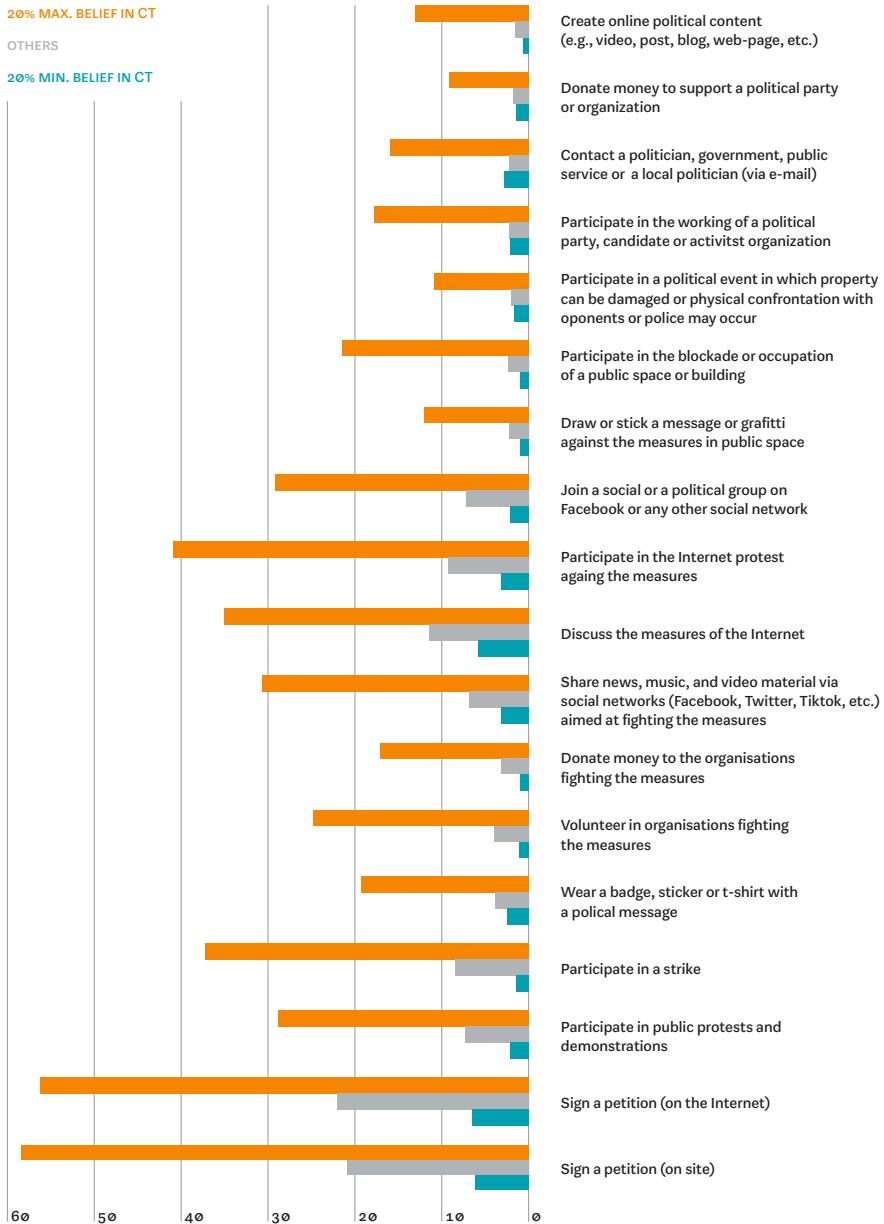


**Graph 4.** Percentage of participants with different levels of perceived coping with the protective measures (difficult, easy or both) in three groups with different inclination towards COVID-19 conspiracies

Pearson’s correlation coefficient between perceived difficulty of coping with the preventive measures and believing in COVID-19 conspiracies was rather low but statistically significant  $r=.24$ ;  $p<.01$ , indicating that participants who believe in conspiracies experience more difficulties in coping with the measures introduced.

## WILLINGNESS TO TAKE DIFFERENT ACTIONS SHOULD PREVENTIVE MEASURES BE REINTRODUCED

Finally, participants were asked whether they would be willing to take different actions in the case that preventive measures were reintroduced, i.e., should the pandemic get into further and stronger wave/s. Conspiracists in the sample would be significantly more prone to undertake various actions or activities related to resistance towards the measures (Graph 5↓).



**Graph 5.** The percentage of participants willing to undertake different measures directed against COVID-19 preventive measures in three groups with different inclination towards COVID-19 conspiracies

The percentage of participants willing to undertake different measures aimed against COVID-19 preventive measures varies depending on the level of engagement required. The low-level involvement activities, such as Internet or on-site petition signing, would mobilize 58.6%, i.e., 56.4% of participants, respectively, within the group of those believing in the conspiracies the most. These activities would also mobilize most of the participants in the mid-group; 21-22% of participants which do not fall into any of the extreme groups would be willing to sign a petition against the reintroduction of measures. Next in line, for both of these groups is the Internet discussion of the measures. All three of these measures (Internet petition, on-site petition, Internet discussion) would mobilize the most of participants in all three groups; however, among non-conspiracists roughly 5-6% would get involved in these activities to protest against the measures, and this percentage is even lower when other proposed measures are considered. Indirectly, this data confirms the significance of Internet and social networks in the spreading of various (dis)information, probably via pools of like-minded people.

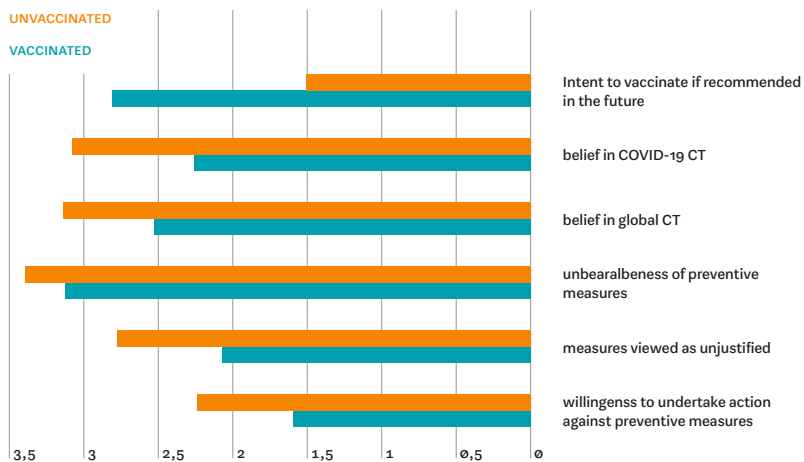
We found significant correlation between believing in COVID-19 CT and overall readiness to take actions against the reintroduction of measures ( $r=.54$ ;  $p<.01$ ).

## VACCINATION AND COVID-19 CONSPIRACY THEORIES

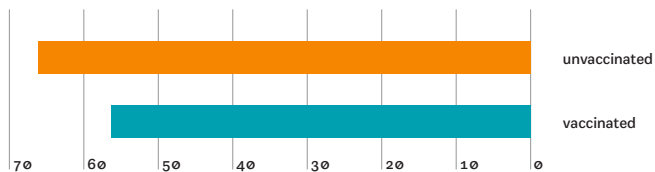
In the participating sample, 33% participants were unvaccinated, 5.7% were vaccinated once, 35.3% twice, 23.7% three times and 2.3% did not want to answer. This percentage of unvaccinated people corresponds well with the [vaccination data on adult population in Croatia](#). According to eVAC (see link above) and the report from the Croatian Institute for Public Health, 70.87% of adult population in Croatia has received at least one vaccine dose. A series of t-test was conducted to test the significance of differences between the groups of vaccinated (at least one dose received:  $N = 906$ ) and unvaccinated participants ( $N = 463$ ). The results of these analyses are shown in the paragraphs below.

The t-test shows that unvaccinated participants, similarly to those with high proclivity to COVID-19 CT, have significantly lower intent to vaccinate in the future, should such recommendations be given ( $t=25.4$ ;  $df=1187$ ;  $p<.001$ ;  $d=1.54$ ; Graph 6↓). By the same token, unvaccinated individuals show: a) higher levels of conspiracy mentality as opposed to their vaccinated counterparts ( $t=6.93$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.40$ ; Graph 7↓), b) believe more in COVID-19 conspiracies ( $t=16.34$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.93$ ; Graph 6↓), as well as, c) global, pandemic unrelated, conspiracies ( $t=13.42$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.77$ ; Graph 6↓).

Furthermore, these individuals find coping with the preventive measures more difficult ( $t=4.92$ ;  $df=1367$ ;  $p<.001$ ;  $d=.28$ ), consider the measures to be more unjustified ( $t=14.36$ ;  $df=1367$ ;  $p<.001$ ;  $d=.82$ ), and are more prone to participate in various actions to prevent the reintroduction of measures, should they be proposed ( $t=14.37$ ;  $df=1367$ ;  $p<.001$ ;  $d=.82$ ) (Graph 6).



**Graph 6.** Differences between the unvaccinated and vaccinated participants on various measures related to the coping with the pandemic

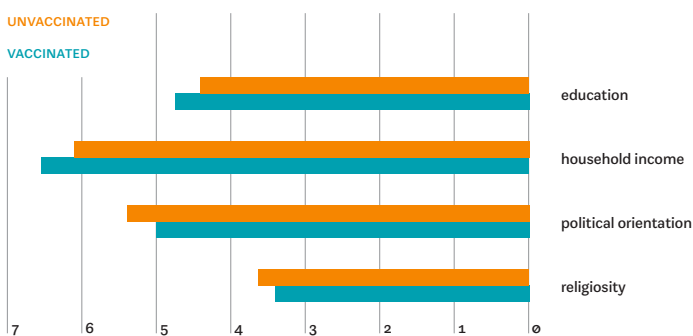


**Graph 7.** Average score of vaccinated and unvaccinated participants on the conspiracy mentality scale

## VACCINATION AND SOCIO-DEMOGRAPHIC CHARACTERISTICS

Unvaccinated participants are of somewhat younger age ( $M=39.0$ ,  $SD=12.44$  vs.  $M=44.55$ ,  $SD=12.97$ ;  $t=7.60$ ;  $df=1367$ ;  $p<.001$ ;  $d=.43$ ), have achieved somewhat lower educational levels ( $t=4.42$ ;  $df=1367$ ;  $p<.001$ ;  $d=.25$ ), and their monthly household income is lower ( $t=2.77$ ;  $df=1367$ ;  $p<.001$ ;  $d=.17$ ) (Graph 8↓).

Furthermore, in comparison to the vaccinated participants, the unvaccinated participants are slightly more religious ( $t=3.31$ ;  $df=1329$ ;  $p<.001$ ;  $d=0.19$ ), and are somewhat more right-oriented ( $t=3.67$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.21$ ).

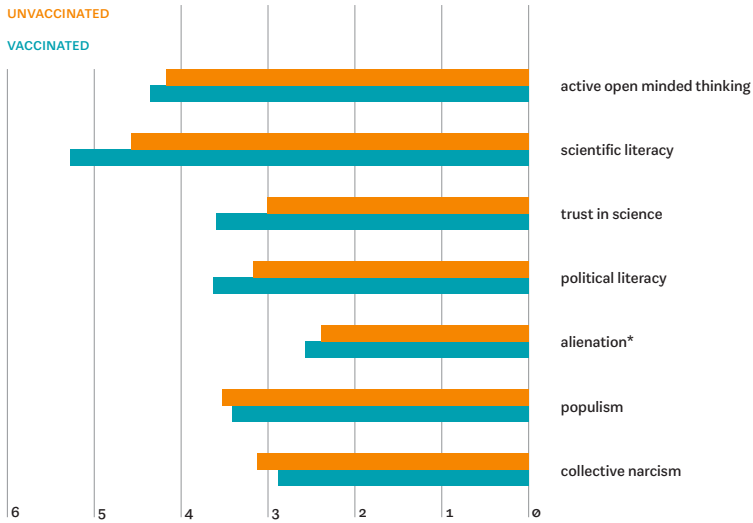


**Graph 8.** Differences between unvaccinated and vaccinated participants in different socio-demographic characteristics

## VACCINATION AND SKILLS RELATED TO WORLD-VIEWS AND SOCIETAL PARTICIPATION

Unvaccinated participants have less developed critical thinking skills in terms of lower active open-minded thinking ( $t=3.95$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.23$ ), as well as scientific ( $t=5.53$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.32$ ) and political literacy ( $t=6.89$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.39$ ). Similarly, their trust in science is lower than trust in science of vaccinated individuals ( $t=12.48$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.71$ ) (Graph 9↓). Furthermore, they have a higher tendency towards populism ( $t=4.51$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.26$ ), and nationalism (i.e., collective narcissism) ( $t=4.05$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.23$ ). Political alienation of unvaccinated participants is higher ( $t=5.83$ ;  $df=1367$ ;  $p<.001$ ;  $d=0.33$ )<sup>1</sup>.

<sup>1</sup> Note: higher score in *Political alienation scale* signifies lower alienation



**Graph 9.** Differences between unvaccinated and vaccinated participants in various world-view measures and skills

## VACCINATION AND TRUST IN INSTITUTIONS

Overall, the levels of trust in various institutions are very low among both, unvaccinated and vaccinated participants (Graph 10↓). On a scale from 0 (no trust) to 10 (complete trust) participants show the highest trust in their family members ( $M=8.84$ ,  $SD=1.76$ ) and there is no difference in trust in family members among the two groups. Also, no differences between two groups were found in the trust in Unions, the President of the Republic, and Social networks.

However, the two groups significantly differed in their trust in all other institutions, organizations or persons. The highest difference between the two groups is found in their trust in WHO ( $t=12.47$ ;  $df=1357$ ;  $p<.001$ ;  $d=0.72$ ), National Headquarters of Civil Protection ( $t=11.85$ ;  $df=1359$ ;  $p<.001$ ;  $d=0.68$ ), Scientists ( $t=10.71$ ;  $df=1360$ ;  $p<.001$ ;  $d=0.61$ ), the European Union ( $t=10.26$ ;  $df=1355$ ;  $p<.001$ ;  $d=0.59$ ), with vaccinated participants showing – although still low - significantly higher trust in these institutions than unvaccinated participants do. The most striking finding is the extremity of the overall distrust in different societal agents (governmental institutions, organization). Keeping in mind the ambiguity and indecisiveness of agents and institutions which have brought preventive recommendations, it seems likely they themselves might have been in the core of the disregard of these recommendation, low vaccination rate and thus have given rise to the CT.



**Graph 10.** Differences between unvaccinated and vaccinated participants in their trust in institutions, organizations, and people



## CONCLUSION

Our results show that believing in COVID-19 CT is highly related to vaccination and vaccination intent in the future. It is also related to a more negative attitude toward justification of protective measures, more difficulties in coping with the preventive measures, and higher overall readiness to take actions against the reintroduction of measures. Finally, analysis of characteristics of unvaccinated participants showed that they highly resemble those who believed the most in COVID-19 CT. Additionally, belief in CT and (un)vaccination is related to institutional distrust. Therefore, in an attempt to raise the level of vaccination in the population, not only is the fight against disinformation needed, but it is also necessary to build, and thus regain, the trust in institutions. Simply put, in no case is it enough to buy the vaccines and expect people to get vaccinated.

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The Project ‘PRO-FACT: RESEARCH, EDUCATION, FACT-CHECK AND DEBUNK COVID-19 RELATED DISINFORMATION NARRATIVES IN CROATIA’ is tackling disinformation related to COVID-19 on multiple levels by a multidisciplinary and intersectoral approach. Through research, awareness raising, and capacity-building methods, the project comprehensively approaches the social, political, and health problem of spreading disinformation campaigns related to COVID-19. Through its activities, it aims to effectively expose COVID-19 related disinformation campaigns in Croatia, strengthen the Croatian multidisciplinary team capacities for detecting and combating disinformation campaigns, and to increase media literacy competencies of Croatia journalists and the general public.

The coordinator of the project is Gong, while the partner organizations are: the Faculty of Political Science in Zagreb, The University of Dubrovnik, Faktograf.hr, and the Faculty of Electrical Engineering and Computing.



PRO-FACT:

Research, education, and fact-checking COVID-19 disinformation narratives in Croatia

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