Climate Disinformation — How widespread is it and Who Believes In It?

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Summary and Main Findings

The research report offers an overview of the results obtained from a survey study conducted on a representative sample of adult citizens in Croatia (N = 1000) on the topic of climate disinformation. The research was carried out in March 2024 for the project "Facts about the Climate Crisis – klima.faktograf.hr". The aim of the research was to determine the prevalence, characteristics and factors affecting the acceptance of climate disinformation among the citizens of Croatia.

The main findings are:

- **The reality and anthropogenic nature of climate change are widely accepted among the citizens of Croatia.**

In all, 83% of respondents believe in the existence of climate change, and 73% of respondents believe in anthropogenic climate change. It has been asserted that significant differences in accepting the real and anthropogenic nature of climate change do not exist based on the sociodemographic and socioeconomic characteristics of the respondents.

- **The most popular climate disinformation narratives are those that promote doubt about the effectiveness of climate policies and the credibility of climate science.**

A lower tendency to accept climate disinformation in Croatia is exhibited by young respondents and those who have a higher level of education. Accepting the reality and anthropogenic nature of climate change has been shown to be a poor predictor of a lower tendency to accept climate disinformation narratives. It has become evident that citizens who are more prone to accepting climate disinformation also

tend to accept disinformation about the COVID-19 disease.

• **It has been established that there is a high level of confidence in the ability to recognize news or information that misrepresents reality or is even false.**

The most popular source of information on political and social events for the citizens of Croatia is television channels presenting general information, followed by Internet sources, websites and social media. Regarding social media, respondents expressed the least trust in information obtained from TikTok, Instagram and Facebook. Views on the content of certain shows and websites were shown to be a good predictor of the acceptance of climate disinformation.

• **The acceptance of climate disinformation is linked to the negative views of the role of science and scientists in society**

A greater tendency to accept the credibility of science is shown by younger respondents and those who have a higher level of education. It has been established that those who do not accept the credibility of science are more prone to accepting climate disinformation. Generalized trust and trust in institutions have not been shown to be signi f cant factors in accepting climate disinformation in this study.

• **Political orientation and political views are significant factors influencing the acceptance of climate disinformation.**

Left-leaning respondents and those from the centre of the political spectrum exhibit a signi f cantly lower tendency to accept climate disinformation than right-leaning respondents and those who stated as lacking any interest in politics. The same trend was established upon gaining insight into the voting preferences of the respondents.

1.

Introduction

The authors of the most recent Intergovernmental Panel on Climate Change (IPCC) report from 2023 once again highlighted human activities, primarily those emitting greenhouse gases, as the definitive source of global warming of the planet Earth and consequently, climate change (Calvin et al., 2023). The report also pointed out that, at the global level, current policies and laws directed to combating climate change will be inadequate in limiting the increasing average global temperature below 1.5 °C with respect to the preindustrial period, leading to the end of the 21st century. To ensure a sustainable future for all beings on Earth, Calvin et al. (2023) call for urgent action directed to adaption and the mitigation of climate change for which they believe international collaboration is required, including a clear and coordinated strategy, as well as financial resources, especially for vulnerable regions, sectors and groups. However, the question remains as to how to devise long-term and internationally sustainable policies to combat climate change when elements of society doubt the existence, causes, and consequences of climate change, the role and goals of policies to combat climate change, and the credibility of climate science.

As Lewandowsky (2021) notes, the concept of climate change is a challenge for several reasons. Climate change is, according to the author, a cognitive challenge because the initiators and all-encompassing consequences of climate change are hard to fully comprehend. Climate change is a challenge in terms of worldviews, given that mitigating it implies economic and political measures not aligned with the liberal ideology economic goals of certain market actors (Lewandowsky, 2021). These social, political, and economic circumstances have created a favourable atmosphere for the spread of climate disinformation through coordinated

disinformation campaigns (Lewandowsky, 2021). The role of disinformation campaigns, run in the media and public space, promotes doubt as to the existence, causes and solutions to the problem with the ultimate goal of slowing down the process and regulating the planned mitigation or elimination of the problem (Oreskes & Conway, 2022). In the book "*Merchants of Doubt*", Oreskes and Conway (2022) used the example of a disinformation campaign run by the tobacco industry to present the strategy of the campaign, which first negated for decades, and then created doubt about the harmful effects of tobacco smoke on human health. The success of the disinformation campaign is evident by the fact that other actors have adopted the same strategy, including the oil industry, to deny and create doubt concerning climate change issues (Oreskes & Conway, 2022). Based on the described pattern, the first step of a disinformation campaign on climate change was to negate the existence of climate change, whereas today it involves relativizing the causes and questioning possible solutions to the climate crisis (Vidov et al., 2024).

Climate disinformation, or more precisely, the characteristics and predictors of accepting climate disinformation among the adult population in Croatia, is the topic of this research report. The global coalition of climate and anti-disinformation organizations, Climate Action Against Disinformation (CAAD, n.d.), defines climate disinformation and misinformation as misleading content that:

• *„Undermines the existence or impacts of climate change, the unequivocal human influence on climate change, and the need for corresponding urgent action according to the IPCC scientific consensus and in line with the goals of the Paris Climate Agreement*

• *Misrepresents scientific data, including by omission or cherry-picking, in order to erode trust in climate science, climate-focused institutions, experts, and solutions; or*

• *Falsely publicizes efforts as supportive of climate goals that in fact contribute to climate warming or contravene the scientific consensus on mitigation or adaptation.“* (CAAD, n.d.)

The definition of climate disinformation by the CAAD, which, besides the content directed to negating climate change, also encompasses content directed to bringing about doubt about climate science and scientists, including the role and goals of climate policies, has been used in this study.

Further in the text, the research methodology will be presented under the project “Facts About the Climate Crisis – klima.faktograf.hr”, which was conducted by the project team from the Department of Sociology at the University of Zadar and Faktograf – Association for the Informed Public. The study was carried out in 2024 with a representative sample of the adult population from Croatia (N = 1000). The next chapter examines how respondents perceive climate change, after which the following chapters focus on the acceptance of climate misinformation and potential predictors of accepting climate misinformation among Croatia's adult population. Special attention was given to the sources used for informing and media practices, trust in institutions and science, as well as a political orientation and political views of the respondents as predictors of the acceptance of climate disinformation. In the conclusion of the report, final considerations of the main findings of the research are presented, and contextualized in terms of the need to combat (climate) misinformation in the public and media space.

2.

Methodology

This research report presents findings from the survey study of the adult population of Croatia on the topic of climate disinformation. The research was conducted by the project team from the Department of Sociology at the University of Zadar and from Faktograf – Association for the Informed Public under the project "Facts About the Climate Crisis – klima.faktograf.hr". The goal of the research was to establish the prevalence, characteristics and predictors of accepting climate disinformation narratives among the adult population of Croatia. Additional information about the project and conducted research, as well as data collected from the research, are available in open access in the repository of the Croatian Social Science Data Archive (CROSSDA) (Čović et al., 2025).

Data was collected by the market and public opinion research agency Ipsos in March 2024. The sample included 1000 respondents, where 701 were questioned via a telephone survey (CATI method) and 299 respondents via an online panel (CAWI method). The sampling was done using the stratified multistage sampling method. Stratification was carried out at stratum 6 of the traditional Croatian regions (Zagreb and surrounding region, Northern Croatia, Slavonia, Lika and Banovina, the Hrvatsko Primorje and Istria, Dalmatia), and the size of settlements (up to 2 000 inhabitants, 2 001 - 10 000 inhabitants, 10 001 - 75 000 inhabitants, more than 75 000 inhabitants). In addition to the stratification procedure, also tracked are the quotas for the characteristics of sex, age and education in order to ensure a representative presence based on these categories. Finally, the sample underwent post-stratification weighting to align with the population parameters. The detailed structure of the sample is given in Table 1.

Table 1: Sociodemographic characteristics of respondents

Sex

Male	474 **(47%)**
Female	526 **(53%)**

Age

29 or younger	139 **(14%)**
30 - 44	245 **(24%)**
45 - 59	247 **(25%)**
60 - 69	200 **(20%)**
70 or older	170 **(17%)**

Personal income

> 350 €	140 **(14%)**
351 - 750 €	279 **(28%)**
751 - 1 300 €	268 **(27%)**
< 1 301 €	159 **(16%)**
No answer	154 **(15%)**

Employment status

Employed	477 **(48%)**
Retired	344 **(34%)**
Unemployed	47 **(5%)**
Students	38 **(4%)**
Homemakers	48 **(5%)**
Other	45 **(4%)**

Region

Zagreb i okolica	277 **(28%)**
Sjeverna Hrvatska	166 **(17%)**
Slavonija	152 **(15%)**
Lika i Banovina	77 **(8%)**
Hrvatsko Primorje i Istra	123 **(12%)**
Dalmacija	203 **(20%)**

Education

Primary school	141 **(14%)**
Secondary school	586 **(59%)**
Higher education / professional studies	135 **(13%)**
University degree or higher	136 **(14%)**

Settlement size

Up to 2 000 inhabitants	376 **(38%)**
2 001 to 10 000 inhabitants	166 **(17%)**
10 001 to 75 000 inhabitants	195 **(19%)**
More than 75 000 inhabitants	263 **(26%)**

The survey questionnaire contained a number of content subdomains, with all questions of an closed type. The sociodemographic characteristics of the respondents were surveyed, including perceptions of climate change, acceptance of climate disinformation narratives, channels used for informing and media practices of respondents, the political views of respondents, as well as generalized trust and trust in science and institutions. Details on each subdomain and how they influence the acceptance of climate misinformation narratives among the adult population in Croatia will be discussed further on.

Statistical analysis of data was conducted using the R programming language (R Core Team, 2024), along with the use of the integrated development environment RStudio (Posit team, 2024). Data analysis and visualization relied on the following packages: ggstats (Larmarange, 2024a), labelled (Larmarange, 2024b), questionr (Barnier et al., 2023), survey (Lumley, 2024) and tidyverse (Wickham et al., 2019). Statistical data processing also included univariate (distribution analysis), bivariate (t-test, analysis of variance, correlation), and multivariate (factor analysis) analyses, depending on the type of variables and the research objectives.

3.

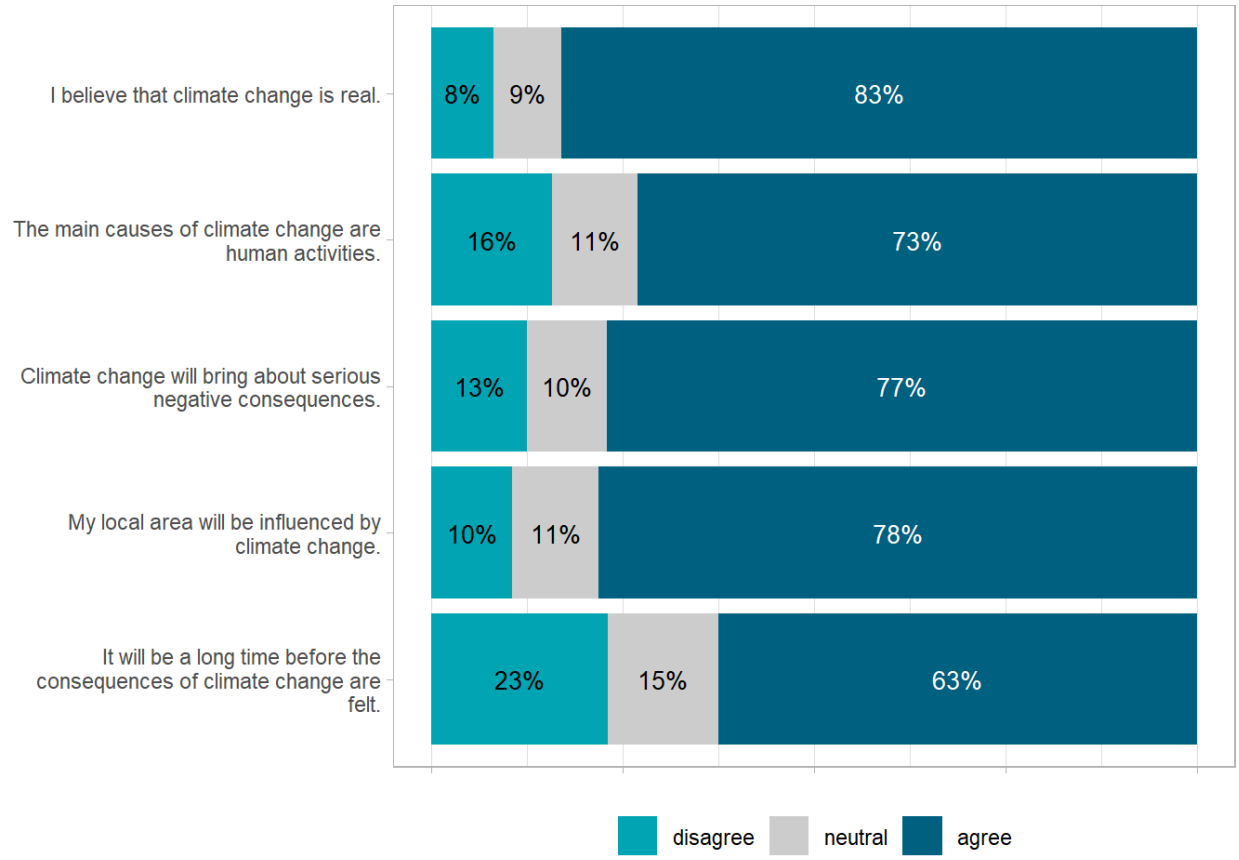
Perceptions of Climate Change

In this research, measuring perceptions on climate change relied on a scale devised by Van Valkengoed et al. (2021). The scale contains five items examining the various aspects of perceptions of climate change. This scale measures attitudes of respondents regarding the reality of climate change, the leading cause of climate change, expected seriousness of climate change consequences, the effects of climate change on the immediate environment in which the respondent lives and expected consequences of climate change in the future. The respondents could express their opinions on a seven-point scale ranging from 1 – “strongly disagree” to 7 – “strongly agree”.

Graph 1 shows the claims on the scale concerning perceptions of climate change and a distribution of the responses. To gain a better overview of the graph, the seven possible levels of the ranking scale have been categorized such that responses 1 (“strongly disagree”), 2 and 3 are recoded into the category “disagree”, whereas response 4 is recoded into the category “neutral” while responses 5, 6 and 7 (“strongly agree”) are recoded in the category “agree”. The distribution of responses shows that the majority of respondents agree with the claims on the scale of perceptions of climate change. The highest level of agreement was attributed to the claim “I believe that climate change is real,” with which 83% of respondents agree. This finding is further confirmed in the research of Lübke (2022), who describes climate change denial among the population of European countries as a "marginal phenomenon.” Regarding belief in the anthropogenic nature of climate change, 73% of respondents in this research agreed that human activity is the leading cause of climate change. Lübke (2022) found similar outcomes, emphasizing that a significant proportion of the European population believes

that climate change is equally the result of human activity on the environment and natural processes. About a quarter of the respondents disagree with the claim, “It will be a long time before the consequences of climate change are felt”.

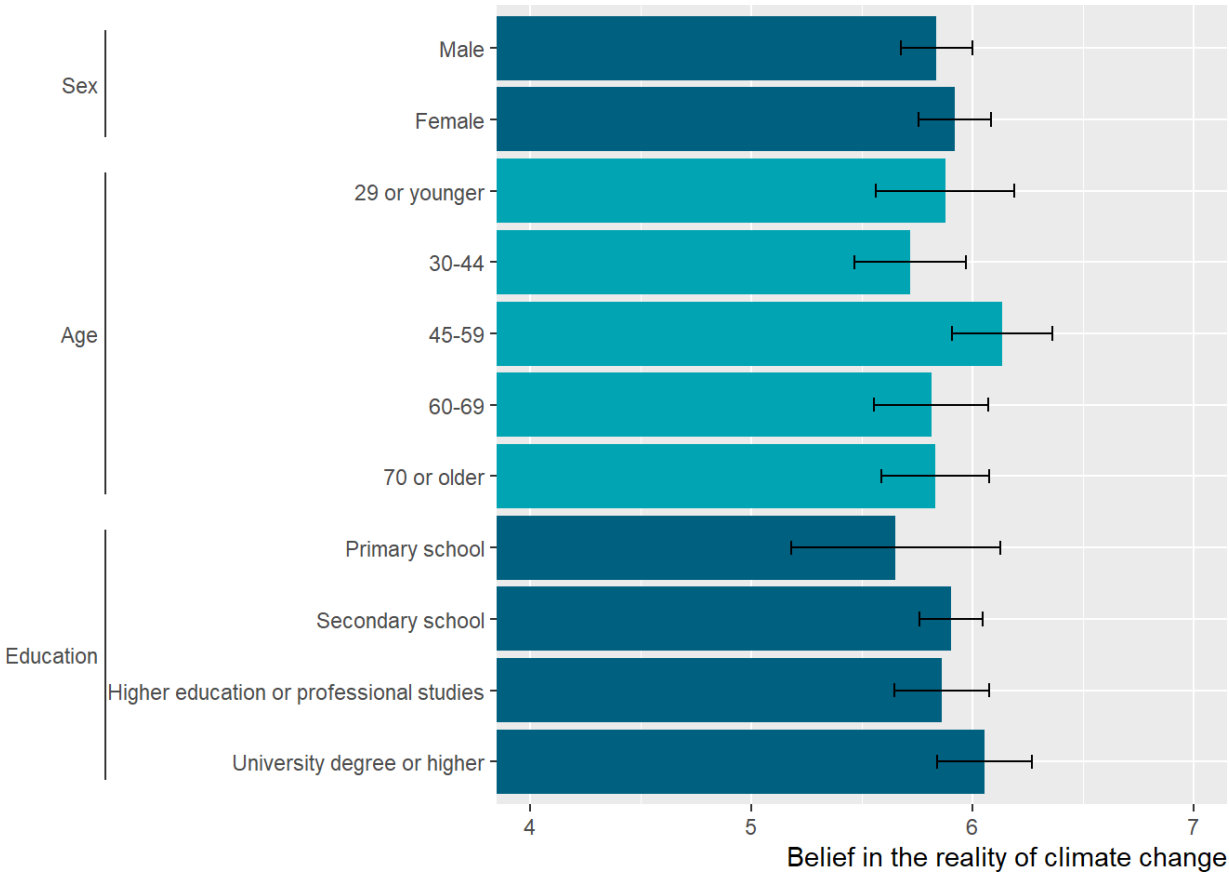
Graph 1: Perceptions of climate change



Accepting the reality of climate change was tested in relation to specific sociodemographic and socioeconomic characteristics of the respondents. Graph 2 shows the mean acceptance and the confidence intervals for the reality of climate change with respect to sex, age and level of education of the respondents. No significant differences between the males and females were identified ($t = 0.69$, $p > 0.05$) in relation to belief in the reality of climate change. Statistically significant differences were not observed among respondents of different age groups ($\chi^2 = 6.7$, $p > 0.05$), nor among respondents of varying levels of education ($\chi^2 = 1.74$, $p > 0.05$). These findings are inconsistent with previous research (Krange et al., 2019; Lübke, 2022; McCright & Dunlap, 2011), indicating that women, members

of younger age cohorts, and persons with a higher education are more likely to believe in the existence of climate change.

Graph 2: Mean belief and confidence intervals in the reality of climate change by respondents' sex, age, and education



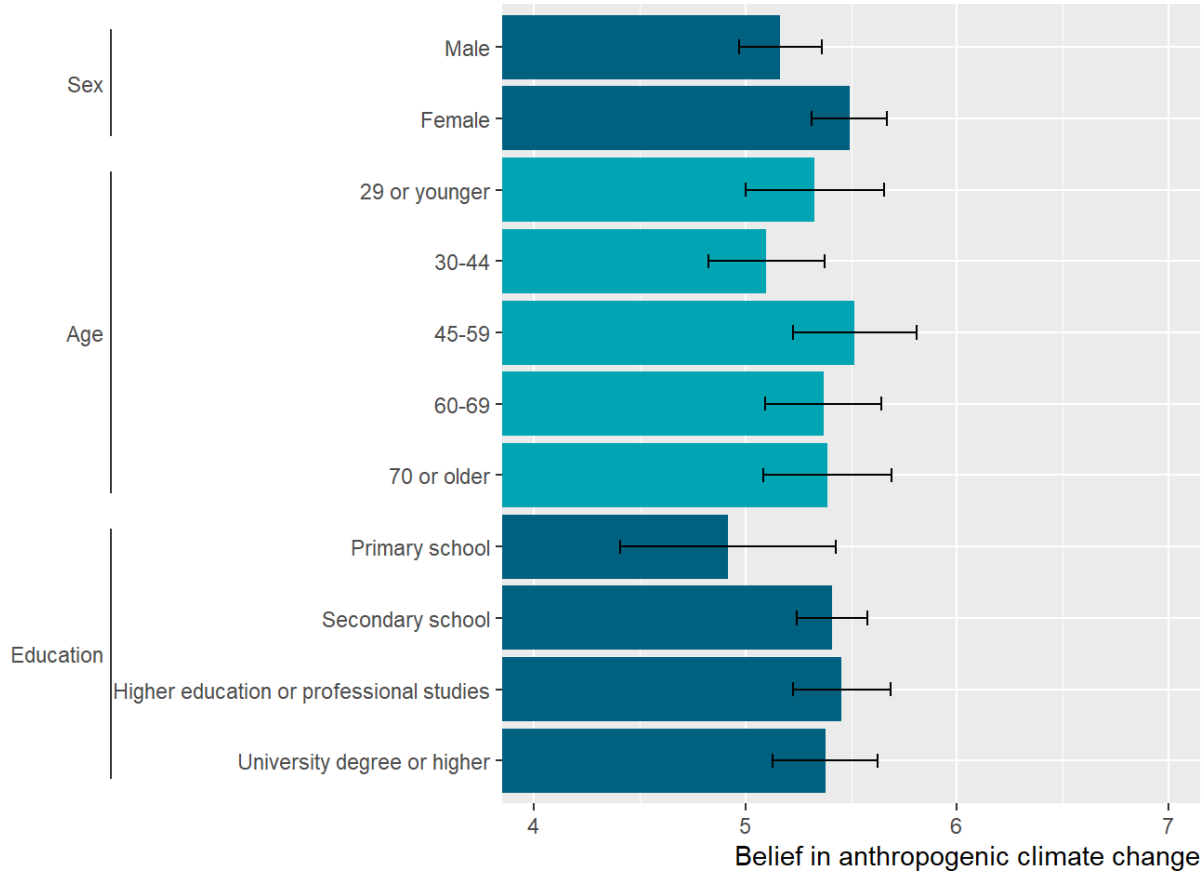
Moreover, acceptance of the reality of climate change was tested in relation to the size of the settlement and the region in which the respondents live. The differences in believing in the existence of climate change were observed by the size of the settlement in which the respondents live ($\chi^2 = 8.43$, $p < 0.05$). Respondents living in settlements with more than 75 000 inhabitants differ from all other respondents, showing the greatest tendency to believe in the existence of climate change ($M = 6.1$). Regarding the region in which respondents live, no statistically significant differences based on the question of believing the reality of climate change were observed ($\chi^2 = 8.98$, $p > 0.05$). These findings are on par with the conclusion from research conducted by Lübke (2022), who, using the data from the European Social Survey, established that populations living in rural settings were more prone to

rejecting climate change and the anthropogenic nature of climate change. The author also established a connection between life in less developed European regions and the denial of climate change and its anthropogenic causes, which was not found to exist in Croatian regions in this research.

Additional tests were conducted to establish whether differences existed in accepting the reality of climate change based on the employment status and personal income of the respondents. In this research, no differences in belief in the reality of climate change based on the employment status of the respondents ($\chi^2 = 1.57$, $p > 0.05$) were established, nor based on the personal income of the respondents ($\chi^2 = 5.69$, $p > 0.05$).

The situation is somewhat different in relation to the question of believing in the anthropogenic nature of climate change. This indicator was tested in terms of the sociodemographic and socioeconomic characteristics of the respondents. Believing that human activity is the leading cause of climate change was compared based on sex, age and level of education of the respondents, as shown in Graph 3. A statistically significant difference in the acceptance of the anthropogenic nature of climate change was observed based on sex ($t = 2.42$, $p < 0.05$), indicating that women are more likely to believe that human activities are the main cause of modern climate change ($M = 5.5$) compared to male respondents ($M = 5.2$). These findings are consistent with earlier research (Krange et al., 2019; McCright & Dunlap, 2011), although it is important to note that the difference is statistically significant at a 5% significance level. No differences were observed in the age group of the respondents ($\chi^2 = 5.61$, $p > 0.05$) or their level of education ($\chi^2 = 4.22$, $p > 0.05$).

Graph 3: Mean belief and confidence intervals in the anthropogenic nature of climate change by the sex, age, and education of respondents



Possible differences in accepting the anthropogenic nature of climate change were tested against the size of settlements and regions in which respondents live. It was established that differences in acceptance of the anthropogenic nature of climate change by the size of settlement in which the respondents live do not exist ($\chi^2 = 1.09$, $p > 0.05$) nor by region in which they live ($\chi^2 = 1.51$, $p > 0.05$).

Possible differences in acceptance of the anthropogenic nature of climate change in terms of the socioeconomic characteristics of the respondents were also explored. Given the employment status of the respondents, there were no observed differences in belief in the anthropogenic nature of climate change ($\chi^2 = 9.97$, $p > 0.05$). Nonetheless, differences were identified in terms of the personal income of respondents ($\chi^2 = 18.7$, $p < 0.01$). Hence, respondents with the lowest personal income, i.e., those earning less than 350 euros, differ from other respondents and show the least tendency to accept human activities as the leading cause of climate

change (M = 4.6). Acceptance of the anthropogenic nature of climate change is most prevalent among respondents with personal incomes higher than 1 300 euros (M = 5.6). The results are comparable to those of Lübke (2022), who identified a lower level of belief in the existence and anthropogenic nature of climate change among respondents of lower socioeconomic status. Lübke (2022) tied the findings to a tendency, i.e., the "finite pool of worry" hypothesis (Weber, 2006), according to which people can only pay attention to a limited number of problems. Lübke (2022) provided a deeper understanding of this tendency whereby people who are, for instance, worried about their economic situation will not pay attention to climate change, which in turn may lead to neglecting or rejecting information on climate change.

The results on the perceptions of climate change obtained from this research lead to the conclusion that most respondents believe in the reality of climate change and the anthropogenic nature of climate change. In comparing the degree to which the existence of climate change and human activity as the leading cause of climate change are accepted in relation to sociodemographic and socioeconomic characteristics of the respondents, small differences between certain social groups were observed, most often with a 5% significance level. These research results can be explained by widespread acceptance of climate change, while denial and doubt about its existence and causes are becoming a "marginal phenomenon" (Lübke, 2022) among nearly all social groups. The findings are aligned with the conclusions of the meta-analysis conducted by Hornsey et al. (2016), indicating slight differences based on sociodemographic and socioeconomic characteristics. Nonetheless, the authors point out that differences stemming from the sociodemographic and socioeconomic characteristics of respondents are negligible compared to other predictors, such as political orientation or trust in science, which much better predict the perception of climate change as well as the tendency to believe in climate misinformation.

4.

Acceptance of climate disinformation narratives

To devise the instrument and items for measuring the acceptance of climate disinformation among the adult population of Croatia relied on three papers: 1) the scientific paper "*Compute-assisted classification of contrarian claims about climate change*" (Coan et al., 2021), 2) the report "*Fabricating Doubt and Persecuting Science: Analysis of Misinformation about the Climate Crisis in Croatia*" (Broz, 2024), and 3) "*The New Climate Denial - How social media platforms and content producers profit by spreading new forms of climate denia*l" (CCDH, 2024). Participants rated how much they agreed with the provided claims on a scale from 1 – "strongly disagree" to 5 – "strongly agree".

Based on the comprehensive data analysis of climate disinformation available on websites of denialist think tanks and blogs, Coan et al. (2021) defined the CARD taxonomy. This taxonomy identifies five climate disinformation narratives (super-claims): 1) "global warming is not happening", 2) "human greenhouse gases are not causing global warming", 3) "climate impacts are not bad", 4) "climate solutions won't work", and 5) "climate movement/science is unreliable". The authors describe each climate disinformation narrative in detail using claims (sub-claims) and supporting claims (sub-sub-claims). In this research, the items defined and used as an instrument to measure the acceptance of climate disinformation describe the five identified climate disinformation narratives and their accompanying claims and supporting claims.

In her report, Broz (2024) analyzed 90 articles that deal with climate disinformation that the Croatian fact-checking website Faktograf.hr published in the period 2015-2023. The analysis identified a correlation between climate disinformation,

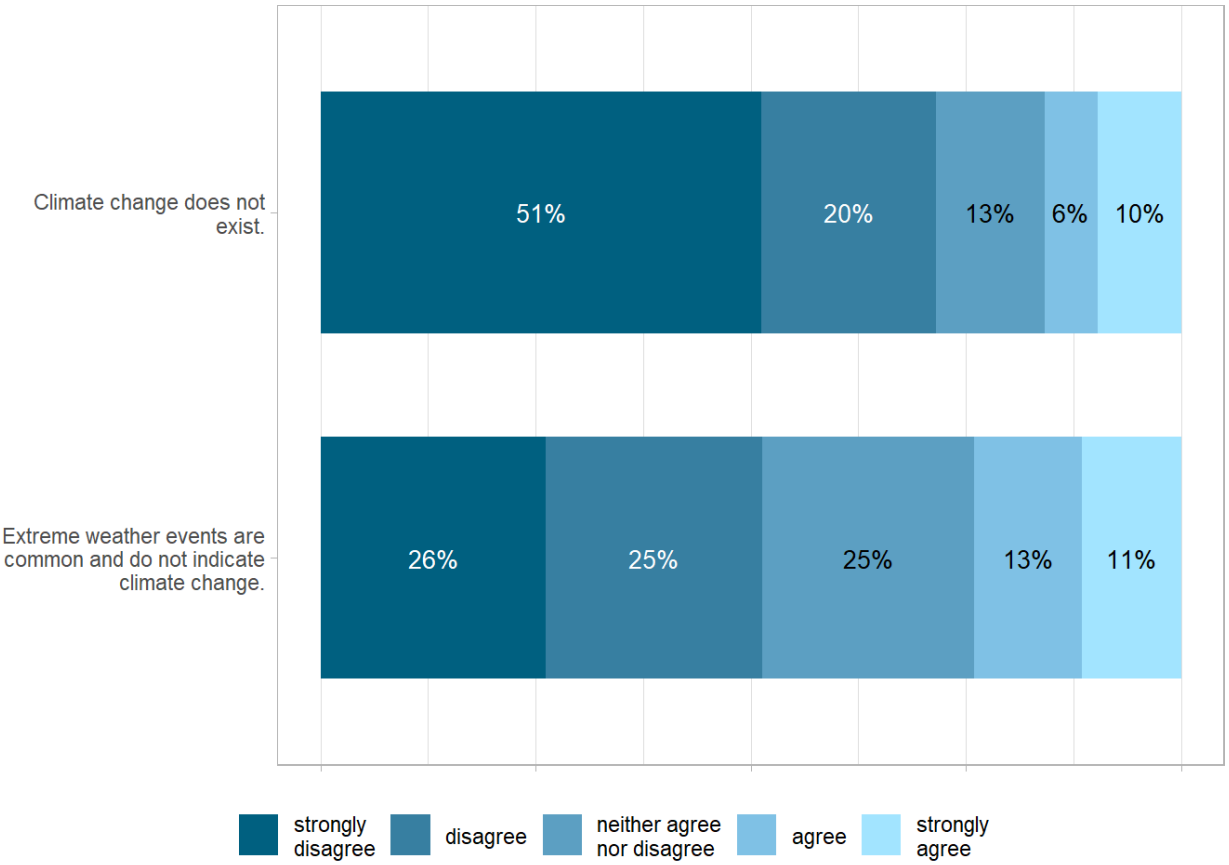
addressed in the articles written by Faktograf, and the CARD taxonomy (Broz, 2024). The analysis revealed another climate disinformation narrative, “overemphasis on extreme weather events” (Broz, 2024). That climate disinformation narrative, although present in the Croatian media landscape, could not be operationalized in this research to distinguish it from the narrative of “climate movement/science is unreliable.” It should be pointed out that the researchers had access to all the texts analyzed by Faktograf.hr, which served as the basis for defining items in the instrument.

An analysis of climate disinformation available on YouTube from 2018 to 2024 and conducted by the Centre for Countering Digital Hate (CCDH, 2024) revealed that the popularity of climate disinformation narratives changes over time. The authors used the CARDS taxonomy (Coan et al., 2021) in the analysis and established that the narratives of “global warming is not happening” and “human greenhouse gases are not causing global warming” became less popular. On the other hand, the narratives of “climate impacts are not bad”, “climate solutions won’t work” and “climate movement/science is unreliable” gain in popularity (CCDH, 2024). Accordingly, the conclusion is that disinformation actors are shifting their focus from denying the reality and anthropogenic nature of climate change to creating doubt about climate policies and climate science. The popularity of climate disinformation narratives was considered when constructing the instrument for measuring the acceptance of climate disinformation in this research, where certain narratives were examined with a larger number of items and others with a smaller number.

The climate disinformation narrative of “global warming is not happening,” according to the CARDS taxonomy (Coan et al., 2021) contains a series of claims and supporting claims that negate the existence of climate change, from the claim that the Earth’s climate is heading toward a new ice age to the claim negating rising sea levels and increasing extreme climate events. According to the CCDH report (2024), this narrative has been rapidly losing popularity over the last few years (falling from 48.1% in 2018 to 13.8% in 2023). Faktograf’s analysis of published articles presenting climate disinformation (Broz, 2024) shows that this narrative

has an 8% share. Based on the data in this research, the climate disinformation narrative “global warming is not happening” was operationalized using the two claims presented in Graph 4. The claim “Climate change does not exist" is the item within the instrument that respondents least agree with, i.e., 71% of respondents disagree or completely disagree with that claim.

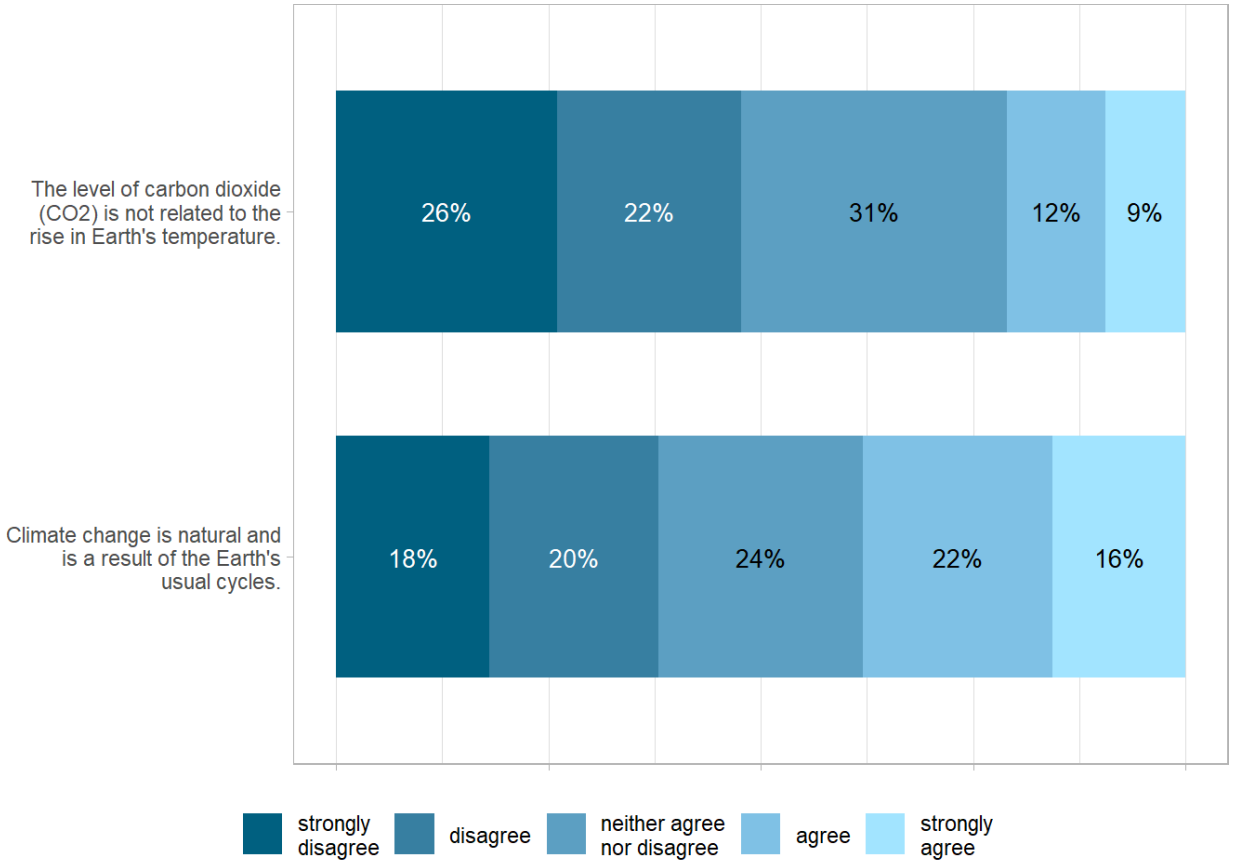
Graph 4: Level of agreement with the claim of the climate disinformation narrative “global warming is not happening”



According to the CARDS taxonomy (Coan et al., 2021), the climate disinformation narrative of “human greenhouse gases are not causing global warming” aims to negate the anthropogenic nature of climate change, presenting the modern concept of climate change as a natural cycle on the planet Earth. The popularity of this narrative, according to the CCDH report (2024), is slightly falling. Based on the analysis by Broz (2024), the published articles presenting the climate disinformation narrative of “human greenhouse gases are not causing global warming” account for 18%. In this research, the climate disinformation narrative in question was

measured using two claims, as shown in Graph 5. The claim “Climate change is natural and is a result of Earth’s usual cycles” is agreed upon by 38% of respondents. Slightly less than a third of respondents neither agree nor disagree with the claim that carbon dioxide (CO2) levels are not related to temperature increases on Earth.

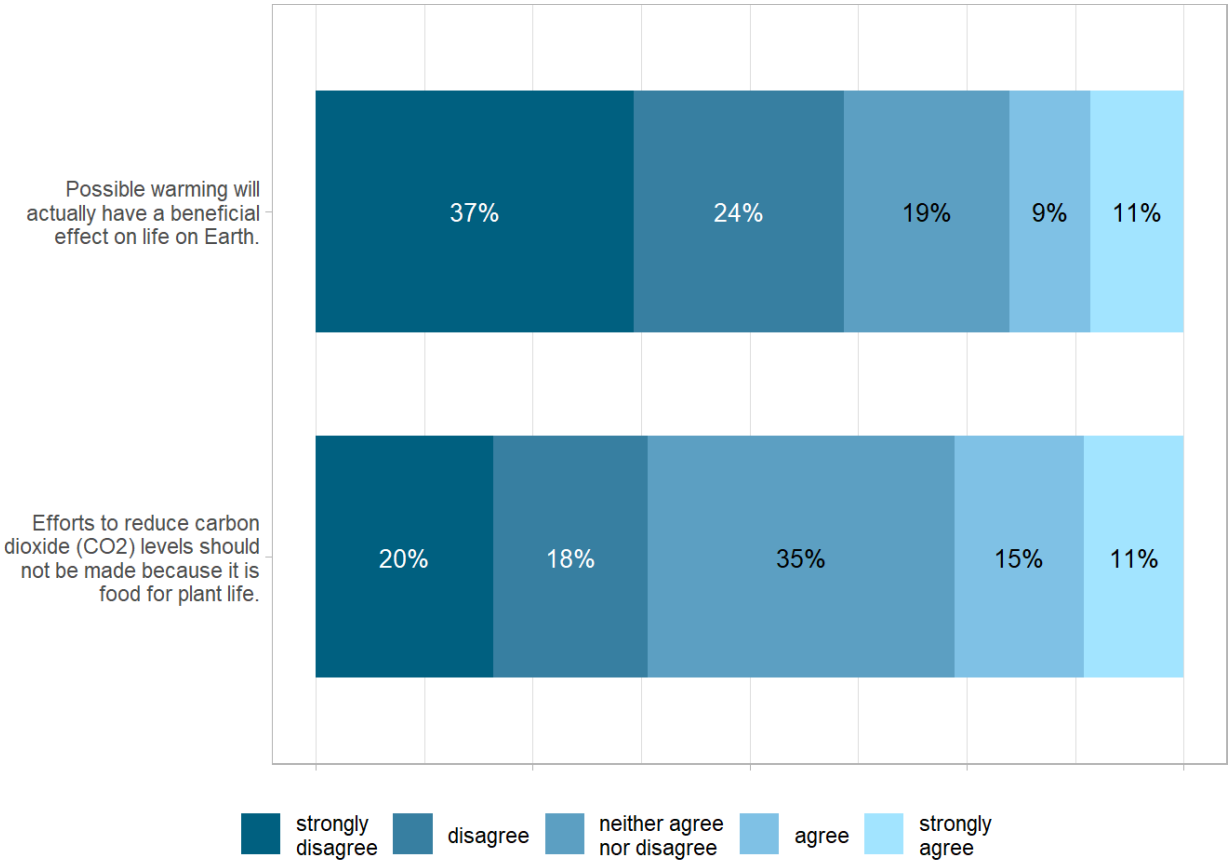
Graph 5: Level of agreement with the climate disinformation narrative of “human greenhouse gases are not causing global warming”



The narrative of “climate impacts are not bad” aggregates the claims which do not present the anthropogenic nature of climate change as a threat to the fauna and fora in the world (Coan et al., 2021). According to the CCDH report (2024), this climate disinformation narrative is least prevalent on YouTube, even though its popularity has been increasing in recent years (from 3.9% in 2018 to 5.5% in 2023). In the Faktograf’s analysis of articles that deal with climate disinformation in Croatia (Broz, 2024), this narrative is also the least prevalent, accounting for 3%. This climate disinformation narrative was operationalized using two claims

(Graph 6). The claim stating that “Possible warming will actually have a beneficial effect on life on Earth” faces disagreement or strong disagreement among 61% of respondents, making it the second least popular claim in the entire instrument. The claim “Efforts to reduce carbon dioxide (CO2) levels should not be made because it is food for plant life” finds agreement or strong agreement among 26% of respondents, whereas 35% say they are undecided.

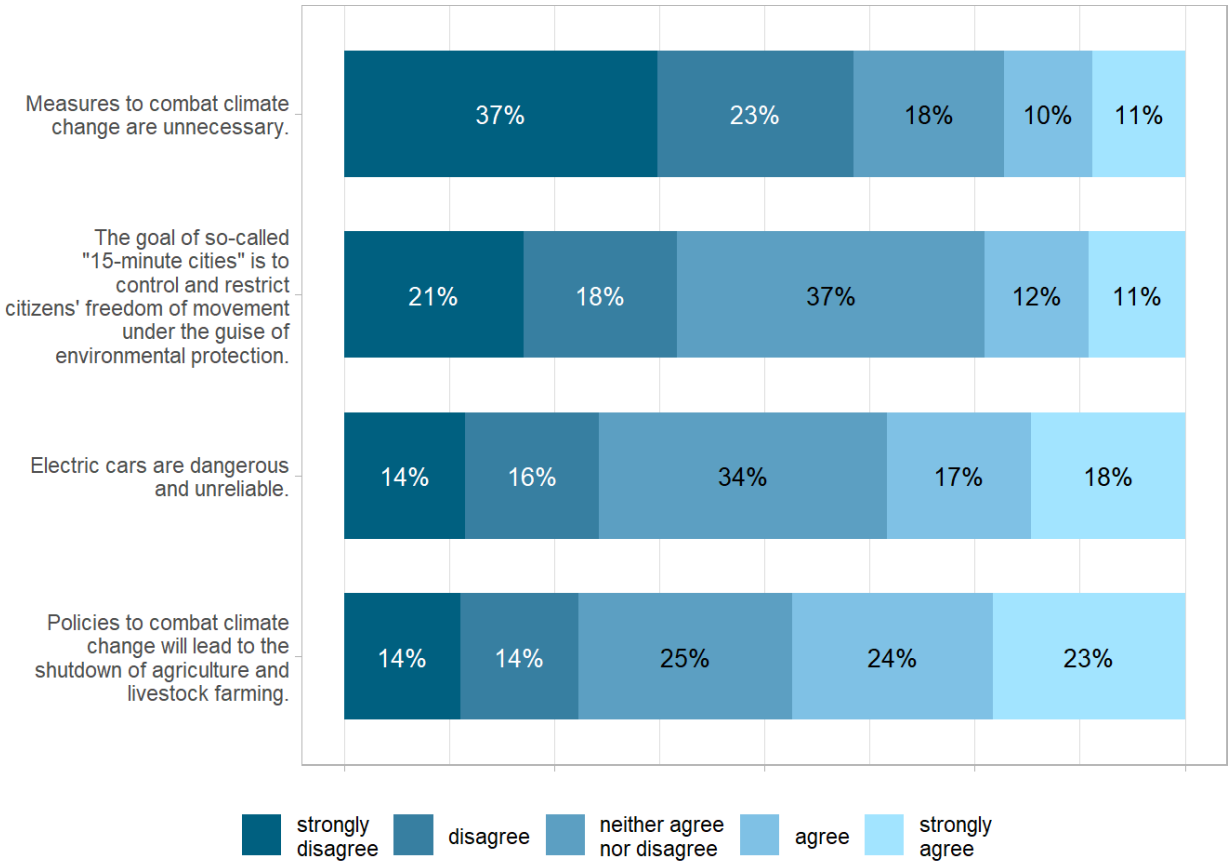
Graph 6: Level of agreement with the climate disinformation narrative of “climate impacts are not bad”



The climate disinformation narrative of “climate solutions won’t work” is the most complex narrative within the CARDS taxonomy (Coan et al., 2021) and groups claims that aim to undermine the justification, effectiveness and support for policies combating climate change. According to the report “*The New Climate Denial*” (CCDH, 2024), this disinformation narrative has been gaining popularity year after year (from 8.7% in 2018 to 30.1% in 2023). This narrative accounted for 17% of all articles on climate disinformation published by Faktograf.hr on its website (Broz, 2024). Considering all the above, the climate disinformation narrative “climate

solutions won't work" was measured using four items as shown in Graph 7. Among the respondents, 60% disagreed or strongly disagreed with the claim "Measures to combat climate change are unnecessary". The claim that "Policies to combat climate change will lead to the shutdown of agriculture and livestock farming" is agreed or strongly agreed by 47% of respondents, and is the item respondents most agree with. Slightly more than a third of respondents expressed indecisiveness toward the disinformation claim of "15-minute cities" and electric automobiles.

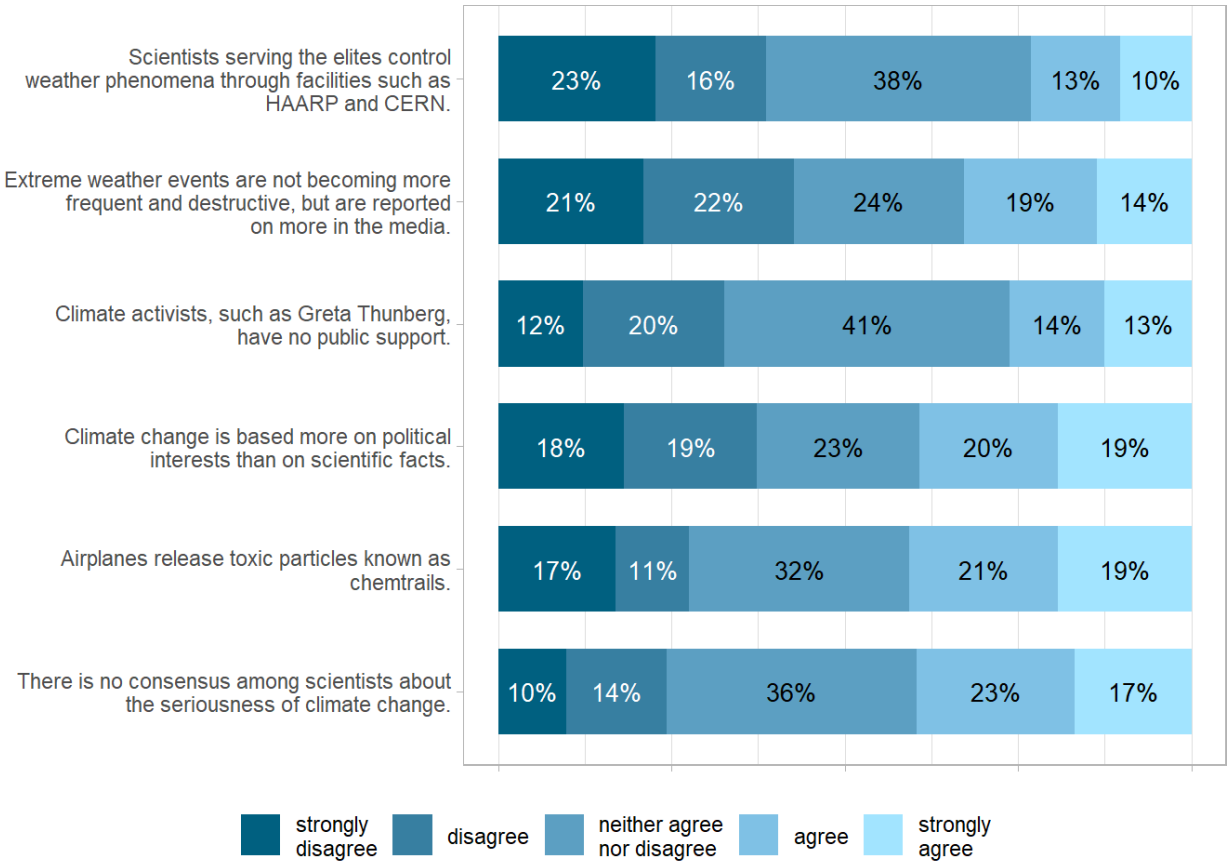
Graph 7: Level of agreement with the climate disinformation narrative of "climate solutions won't work"



Claims and supporting claims concerning the climate disinformation narrative "climate movement/science is unreliable" focus on presenting climate science, as well as politicians, media and activists gathered around the question of climate change as unreliable and conspiratorial (Coan et al., 2021). The CCDH report (2024) indicates that this is currently the most widespread climate disinformation narrative and appears to be growing in popularity. Similarly, the analysis by

Faktograf established that the prevalence of this narrative in the analyzed articles on the topic of climate misinformation was 44% (Broz, 2024). For these reasons, the narrative of "climate movement/science is unreliable" was operationalized using six items shown in Graph 8. The indicative claim is "There is no consensus among scientists about the seriousness of climate change," which is the second claim in the instrument with which the respondents agree the most. Taking that claim into account, 36% of respondents were undecided, while 40% disagreed that there is scientific consensus regarding the seriousness of climate change.

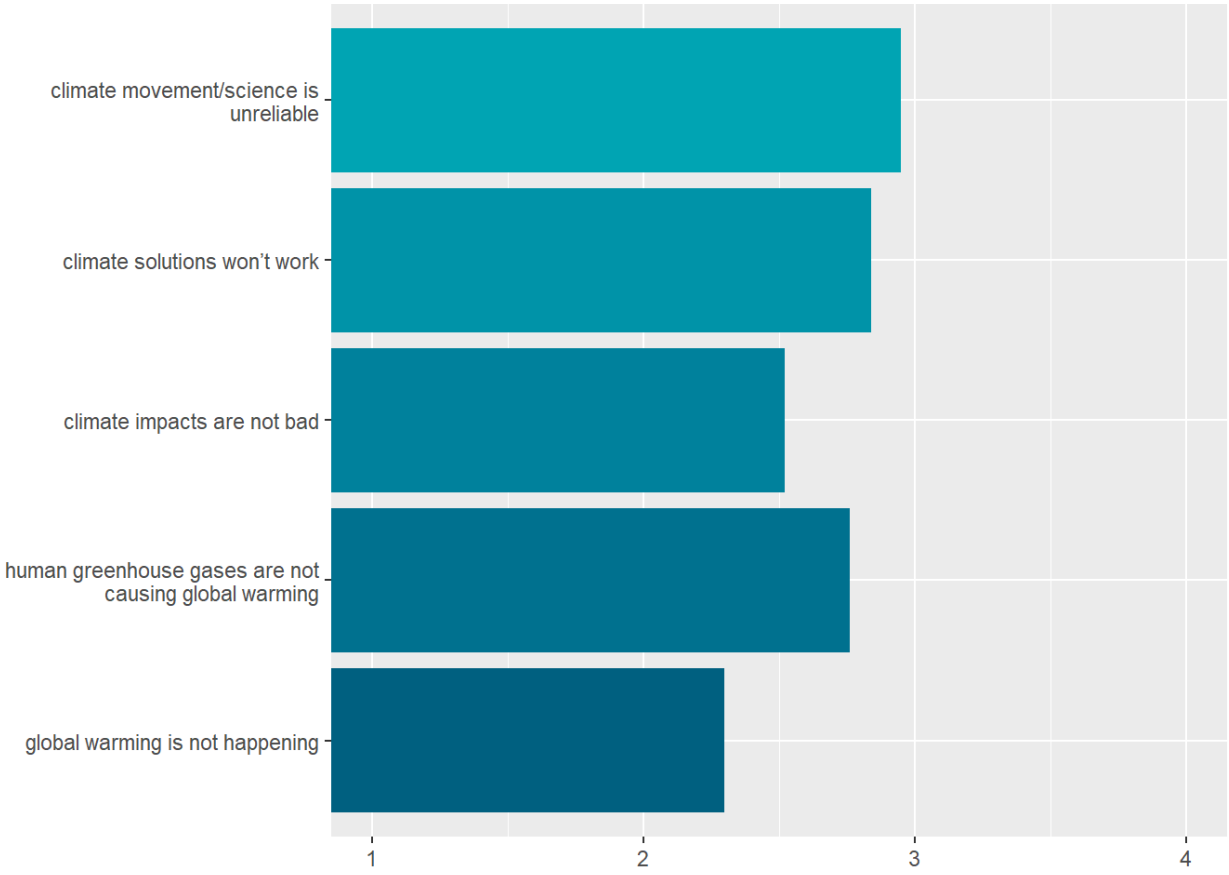
Graph 8: Level of agreement with the climate disinformation narrative of "climate movement/science is unreliable"



Graph 9 shows a comparison of the mean agreement among respondents with the claims of each climate disinformation narrative. On the findings concerning the popularity of certain climate disinformation narratives in the media landscape (Broz, 2024; CCDH, 2024), similar trends are noticeable when addressing the acceptance of certain narratives among the respondents. Finding the leastacceptance in the

sample is the narrative “global warming is not happening” (M = 2.3), for which the CCDH report (2024) shows that it is quickly losing popularity. Next is the climate disinformation narrative of “climate impacts are not bad” (M = 2.6), which both reports (Broz, 2024; CCDH, 2024) established to have the least presence in the analyzed media landscape, although the CCDH report (2024) indicates its popularity is slightly increasing. Faktograf’s analysis (Broz, 2024) shows that the climate disinformation narratives “human greenhouse gases are not causing global warming” and “climate solutions won’t work” are almost equally prevalent in content on the topic of climate disinformation that they published. Corresponding results are shown in this research, where respondents on average equally agree with the narratives of “human greenhouse gases are not causing global warming” (M = 2.8) and “climate solutions won’t work” (M = 2.9). Judging by the trends noted in the CCDH report (2024), the expectation is that the trend showing popularity and also the acceptance of these two narratives will change in the coming years. The narrative with which the respondents in this research most agree or accept the most is the climate disinformation narrative “climate movement/science is unreliable” (M = 3), the dominant popularity of which has been observed in the contemporary media landscape (Broz, 2024; CCDH, 2024).

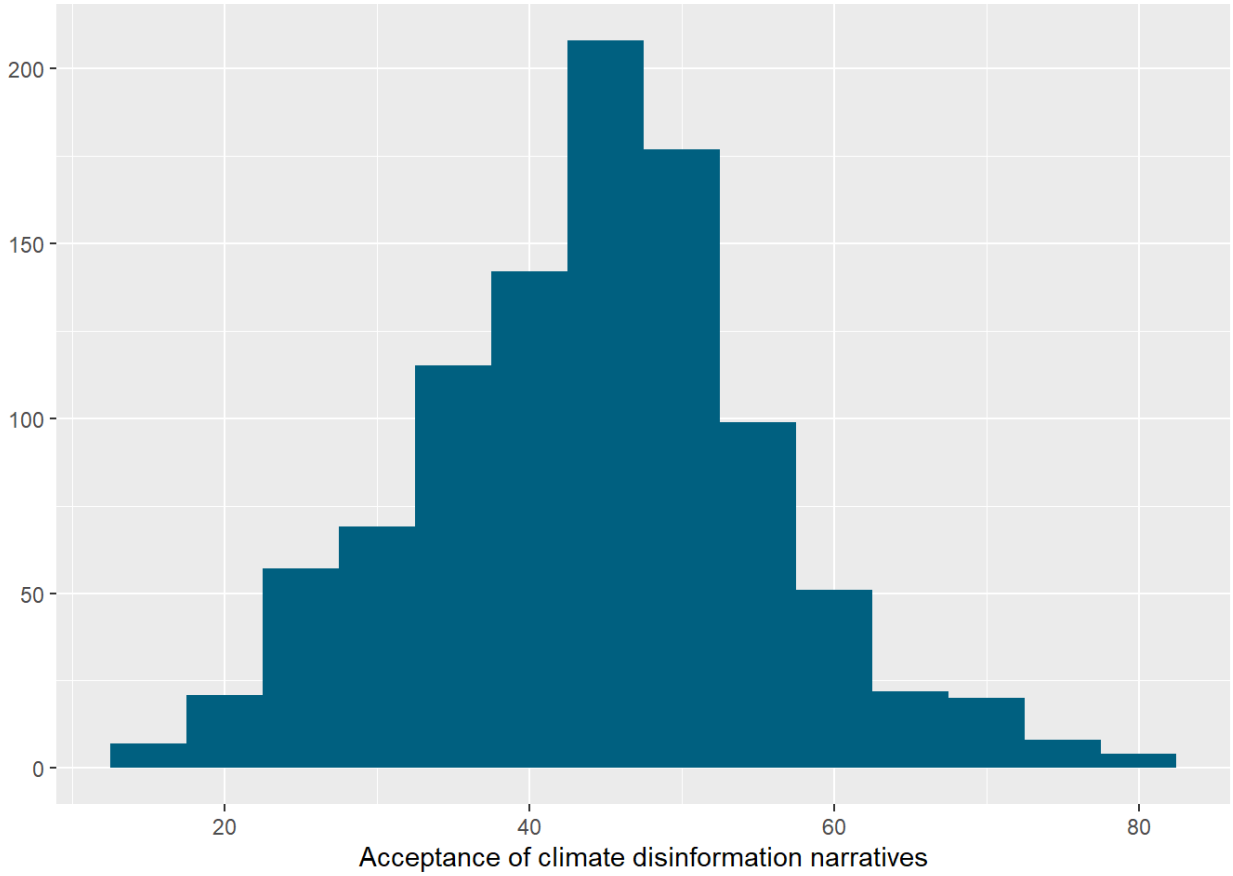
Graph 9: Mean agreement with climate disinformation narratives



Further in the report, the acceptance of climate disinformation narratives will be observed as a simple additive index[1] of all items shown in Graphs 4, 5, 6, 7 and 8. The lowest possible result on the additive index of the acceptance of climate disinformation narratives is 16 (if the respondent responded to all claims with 1 – "strongly disagree"), and the highest possible result amounts to 80 (if the respondent responded to the claims with 5 – "strong agree"). The arithmetic mean of the entire sample on the additive index of acceptance of climate disinformation narratives is M = 44.6. The distribution of the additive index of acceptance of climate disinformation narratives is shown in Graph 10.

[1] A dimensionality analysis was conducted, which, depending on the criterion, reveals one or two dimensions. The dimensions are highly correlated, suggesting the unidimensionality of the indicator. Cronbach's alpha is 0.86.

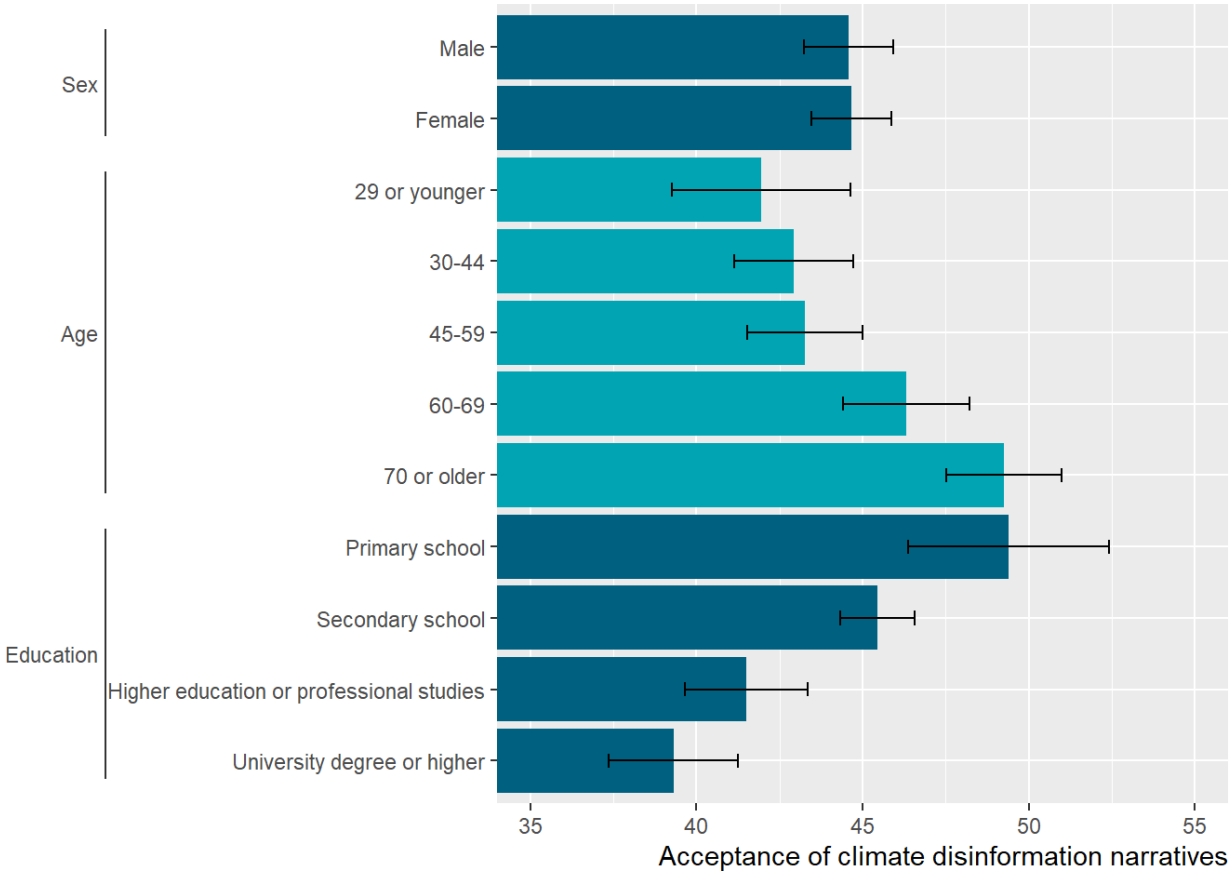
Graph 10: Distribution of the additive index measuring acceptance of climate disinformation narratives



4.1. Acceptance of climate disinformation narratives with respect to sociodemographic characteristics of the respondents

This part of the report addresses the sociodemographic characteristics of the respondents as predictors of the acceptance of climate disinformation narratives. Graph 11 shows the mean acceptance and confidence intervals of acceptance of climate disinformation narratives in relation to the sex, age, and level of education of respondents.

Graph 11: Mean acceptance and confidence intervals of the acceptance of climate disinformation narratives based on the sex, age and level of education of respondents



No significant differences in the acceptance of climate disinformation narratives between males and females were observed ($t = 0.11$, $p > 0.05$). Graph 11 clearly shows the differences in acceptance of the climate disinformation narrative based on age ($F = 12.1$, $p < 0.01$). The respondents who fall into the age group between 60 and 69 years of age and the age group 70 years and older are more prone to accepting climate disinformation ($M_{60\text{-}69} = 46.3$; $M_{70 \text{ or older}} = 49.2$), whereas younger respondents are less prone to accepting climate disinformation narratives ($M_{29 \text{ or younger}} = 42$; $M_{30\text{-}44} = 42.9$; $M_{45\text{-}59} = 43.3$). Notable are also the differences in acceptance of climate disinformation narratives based on level of education ($F = 22.72$, $p < 0.01$). Respondents who completed primary school show the highest tendency to accept climate disinformation narratives ($M = 49.4$), followed by respondents who finished a three-year or four-year secondary school ($M = 45.5$). Respondents who completed college accept climate misinformation narratives the least ($M = 39.3$),

followed by those who completed a professional study program, or undergraduate study program (M = 41.5).

The results of this research are comparable to the results of international research undertaken by Ejaz et al. (2024). The research by Ejaz et al. (2024) deals with the acceptance of climate disinformation and focuses on media practices as predictors of accepting them, but also considers sociodemographic characteristics as possible predictors of the acceptance of climate disinformation. The authors used the CARDS taxonomy (Coan et al., 2021) to research acceptance of climate disinformation, which was used in this research. Considering certain sociodemographic characteristics of the respondents as predictors of the acceptance of climate disinformation narratives, Ejaz et al. (2024) found that there are statistically significant differences based on sex and age. It was established that men have a greater tendency to accept climate disinformation, but this tendency was not noticed in this research. The research of Ejaz et al. (2024) showed that younger respondents were more prone to accepting climate disinformation, which is explained by the greater exposure of the younger generation to disinformation via social media. The opposite was shown in this research, where it was established that older respondents had a greater tendency to accept climate disinformation narratives. Moreover, this research found that respondents with higher levels of education had a lower tendency to believe in climate disinformation, though a significant link between climate disinformation and the level of education was not established in the study by Ejaz et al. (2024).

The contradictory results of Ejaz et al. (2024) and these research results can be explained through a systematic analysis of the literature, which was conducted by Kont et al. (2024), with the goal of identifying the micro, meso and macro factors that make people more resilient to disinformation. Based on sociodemographic characteristics as predictors of resilience to disinformation, the analysis of Kont et al. (2024) showed how studies depict ambivalent results. Research has confirmed the influence of age and level of education in accepting disinformation, with some studies showing that younger age groups are more resilient to disinformation, and other studies show the same trends for older age groups (Kont et al., 2024). This research clearly shows that the acceptance of climate disinformation increases

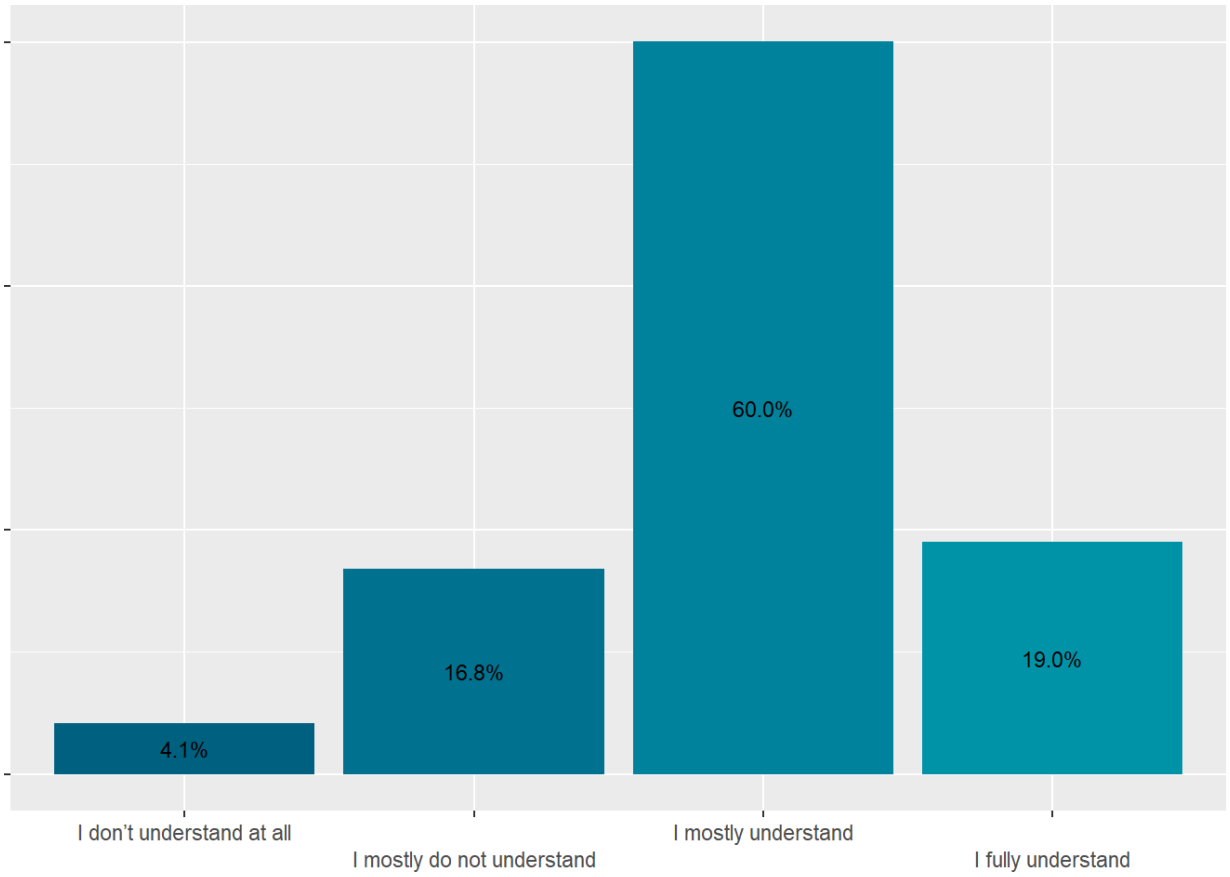
almost linearly with age and lower levels of education. The analysis by Kont et al. (2024) highlights other factors that properly explain resilience to disinformation and identify social groups vulnerable to disinformation and narratives. These factors will be discussed further in the report.

4.2. Acceptance of climate disinformation narratives based on perceptions of climate change

This section of the report elaborates on how respondents understand climate change and the factors influencing understanding and perceptions of climate change in accepting climate disinformation narratives.

Graph 12 shows the distribution of answers from respondents to the question of "On a scale of 1 - I don't understand at all to 4 - I fully understand, how would you assess your own knowledge of climate change?". It is evident that a majority of the respondents say that they mostly understand climate change. Slightly less than one-fifth of respondents estimate their knowledge of climate change to be at the highest level, while about one-fifth of respondents say that they do not understand climate change at all or to a great extent.

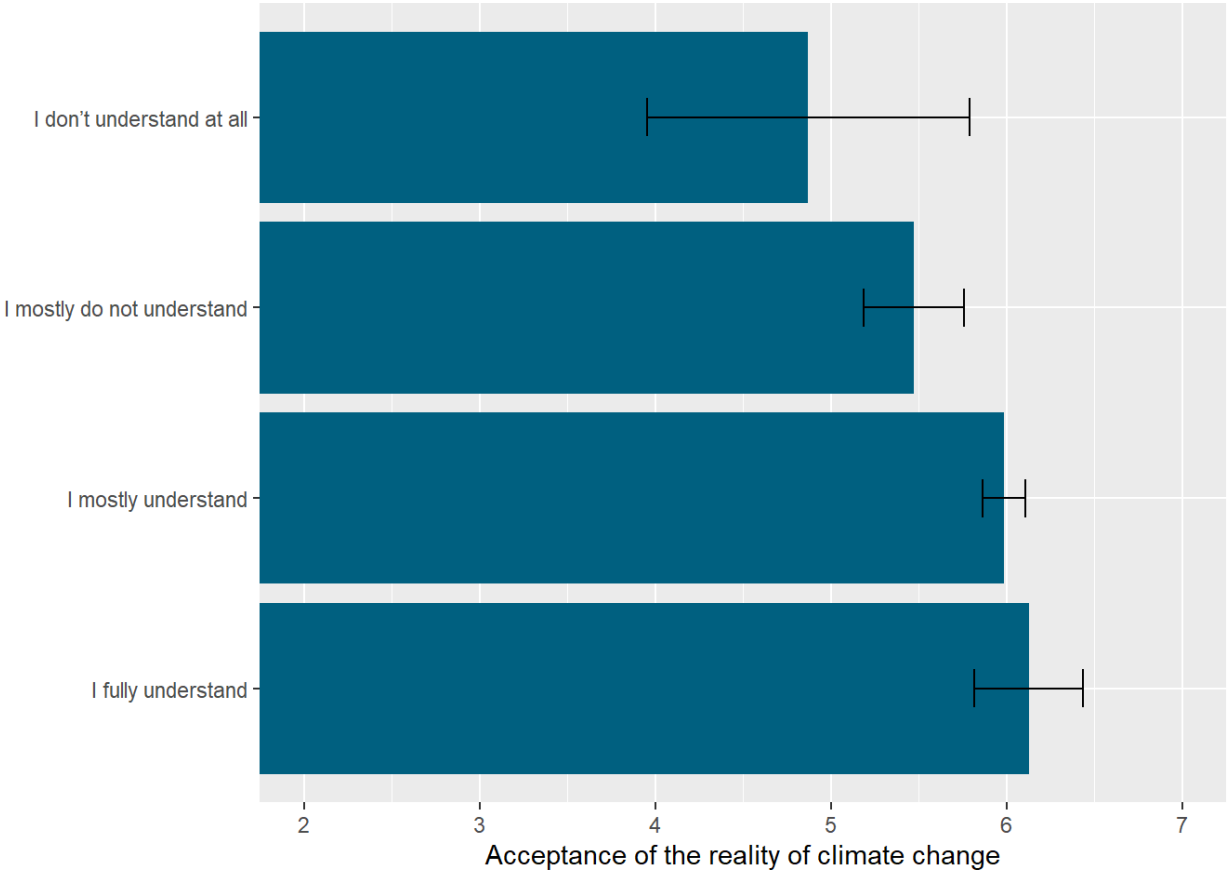
Graph 12: Self-assessed understanding of climate change



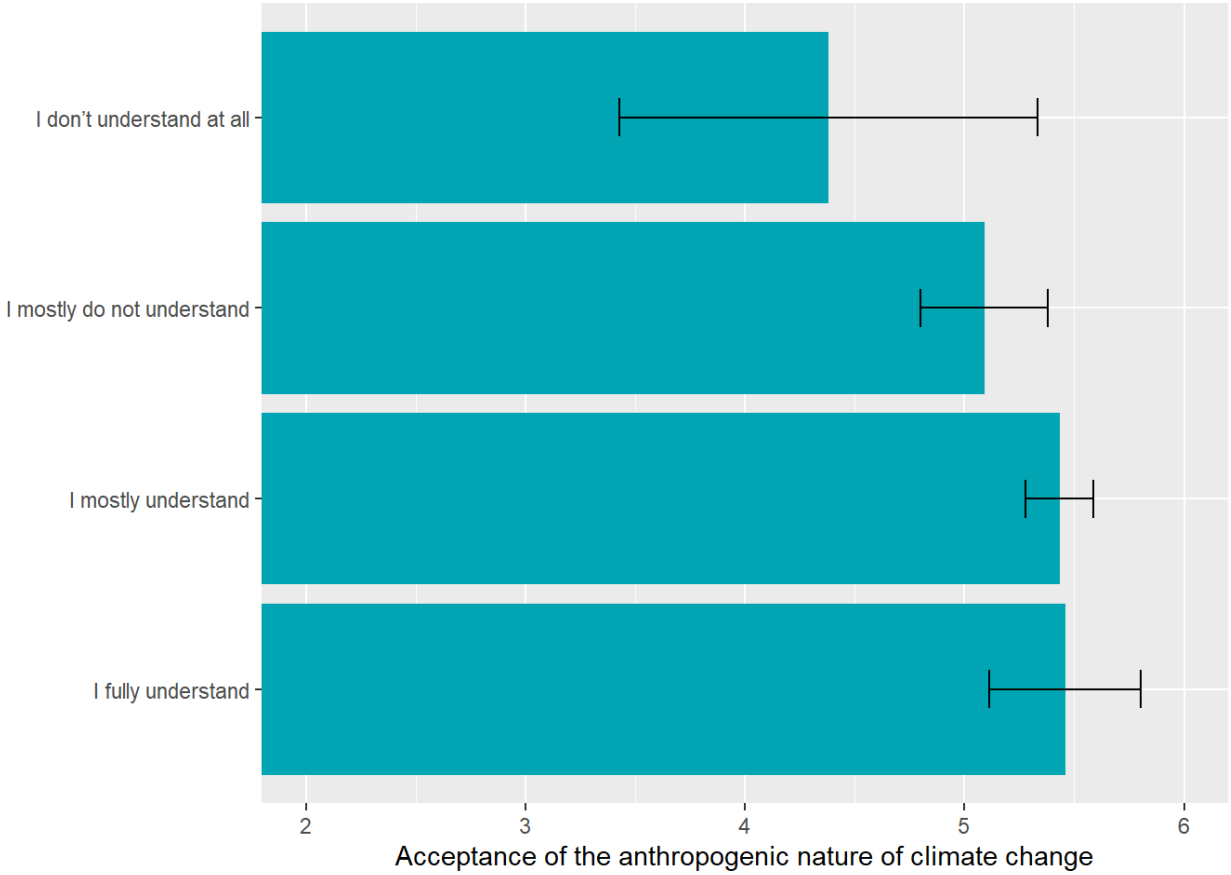
In the research by McCright and Dunlap (2011) and Krange et al. (2019), confidence in assessing one's understanding of climate change was shown to be an important predictor in the acceptance of reality and anthropogenic nature of climate change among certain social groups. In this research, Kruskal-Wallis tests were conducted to determine whether there is a link between self-assessment of one's understanding of climate change and acceptance of the reality and anthropogenic nature of climate change. The outcomes revealed statistically significant differences in the acceptance of the reality of climate change based on the self-assessment of one's understanding of climate change ($\chi^2 = 27.88$, $p < 0.01$). Moreover, the evidence also revealed statistically significant differences in the acceptance of the anthropogenic nature of climate change based on the self-assessment of one's understanding of climate change ($\chi^2 = 10.11$, $p < 0.05$). Graphs 13 and 14 show the mean values and confidence intervals. It was established that the greatest tendency to accept the reality of climate change was among respondents who

believed they fully understood climate change (M = 6.1). The same outcome was established in acceptance of the anthropogenic nature of climate change, which was most accepted by those who believe they too fully understand climate change (M = 5.5). Across the entire sample, confidence in one's understanding of climate change among respondents who deny the reality and anthropogenic nature of climate change was not observed.

Graph 13: Mean acceptance and confidence intervals in accepting the reality of climate change through a self-assessed understanding of climate change



Graph 14: Mean acceptance and confidence intervals in the anthropogenic nature of climate change through a self-assessed understanding of climate change

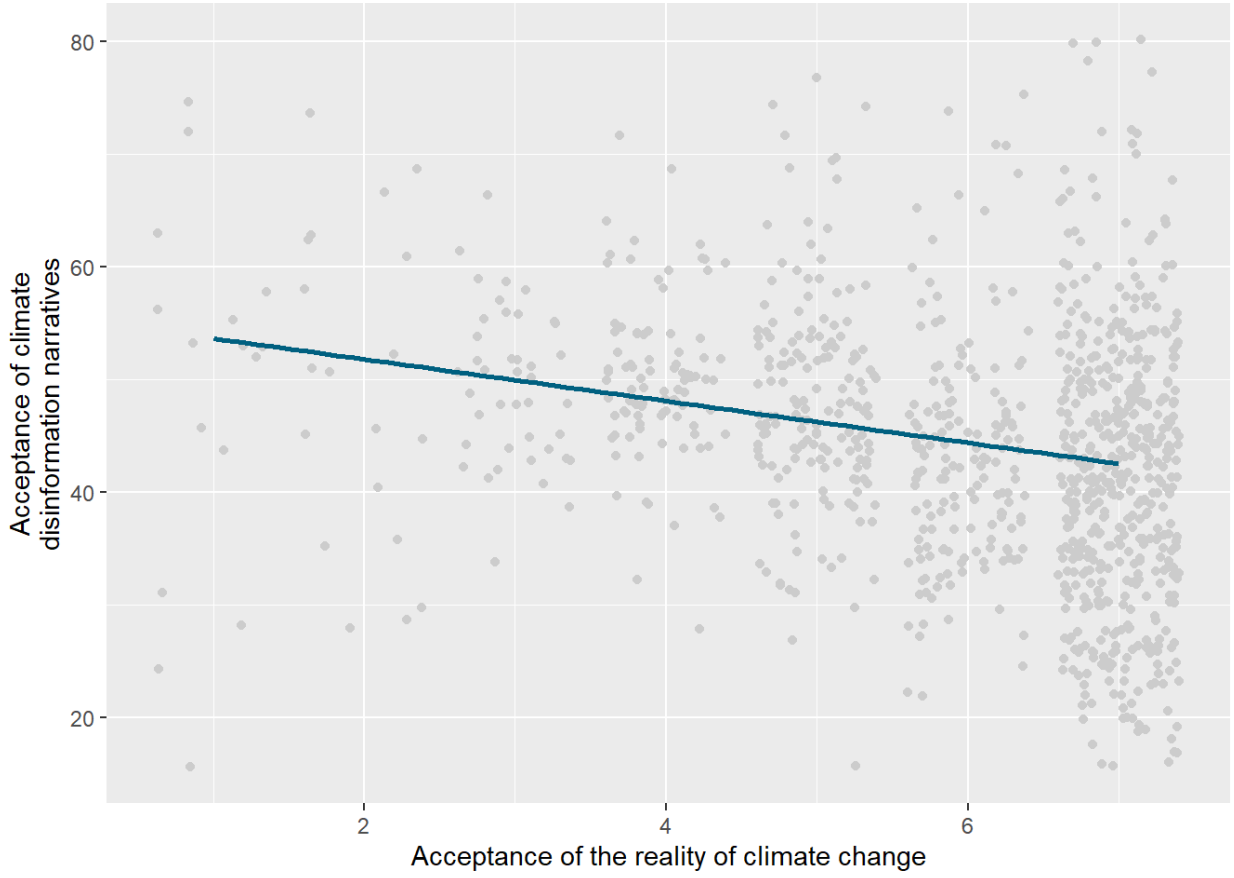


To identify a trend in the self-assessed understanding of climate change in relation to the acceptance of climate disinformation, acceptance of climate disinformation narratives was tested in relation to the self-assessed understanding of climate change. Kont et al. (2024) cited self-confidence in making assessments, which is a personality trait, as a characteristic revealed in studies and is a predictor of less resilience to disinformation. In this research, no statistically significant differences were observed between respondents who assessed their understanding of climate change as higher or lower and their acceptance of climate disinformation narratives ($F = 7.4$, $p > 0.05$).

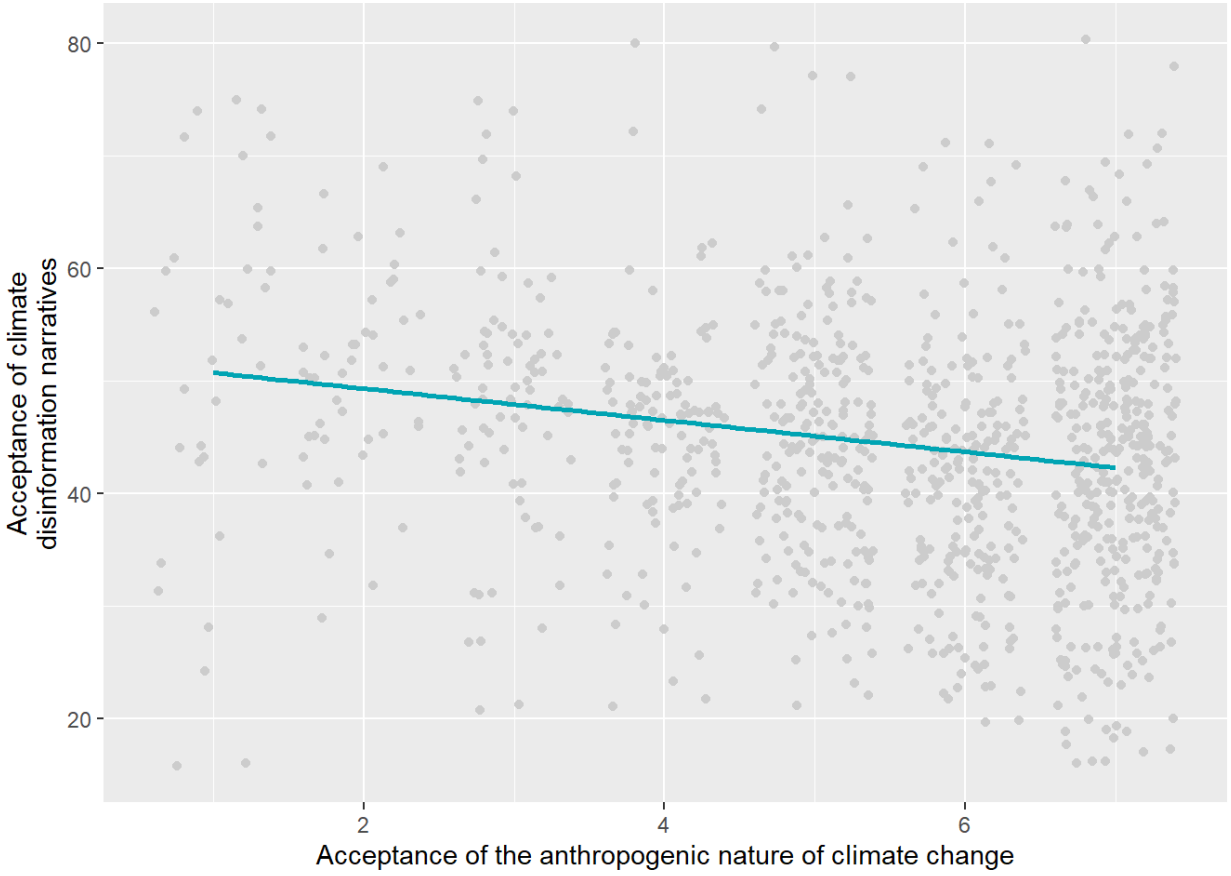
Also tested was the link between accepting the reality and anthropogenic nature of climate change and accepting climate disinformation narratives. A statistically significant link was established between accepting the reality of climate change and denial of climate disinformation narratives ($\rho = -0.27$, $p < 0.01$), or more

precisely, respondents who agreed with the claim that climate change is real accepted climate disinformation to a lesser extent. A similar finding was noted in the acceptance of the anthropogenic nature of climate change ($\rho = -0.18$, $p < 0.01$), indicating that respondents who agree with the claim that human activity is the leading cause of climate change accept climate disinformation narratives to a lesser extent. The regression lines for both tests are shown in Graphs 15 and 16. It should be pointed out that in both cases, a weak connection (especially in accepting the anthropogenic nature of climate change) exists, meaning that people who believe in the reality and anthropogenic nature of climate change are not fully resilient to climate disinformation narratives. The limited impact of attitudes and beliefs on resilience to disinformation is also confirmed by a review of the literature conducted by Kont et al. (2024).

Graph 15: Acceptance of the reality of climate change in relation to acceptance of climate disinformation narratives



Graph 16: Acceptance of the anthropogenic nature of climate change in relation to acceptance of climate disinformation narratives



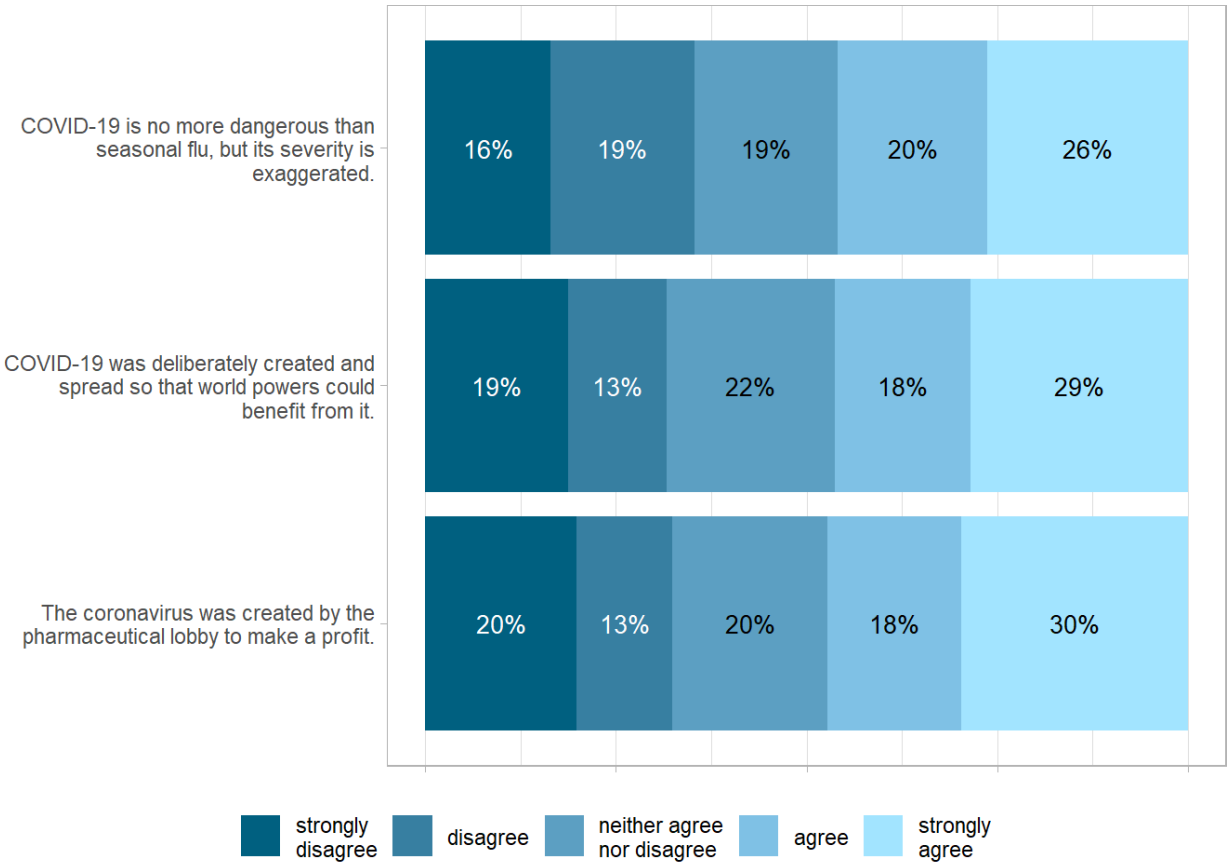
4.3. Acceptance of climate disinformation narratives with respect to acceptance of disinformation about the COVID-19 disease

Regarding the link between attitudes or convictions and resilience to disinformation, the mentioned analysis conducted by Kont et al. (2024) identified a consistent link between belief in disinformation and general conspiratorial convictions, specifically, the link between believing in a type of disinformation and believing in some other type of disinformation. In the report "*Fabricating Doubt and Persecuting Science*",

Broz (2024) identifes the overlap of disinformation narratives on the SARS-CoV-2 virus and COVID-19 disease with climate disinformation narratives in the media landscape. Brautović (2024) noted a similar trend in the media landscape in a report showing that more than half of the online disseminators of climate disinformation also disseminate disinformation about COVID-19.

For these reasons, the acceptance of disinformation on the COVID-19 disease among respondents was tested in this research. The instrument for measuring the acceptance of disinformation on the COVID-19 disease was developed on the basis of research by Blanuša et al. (2022). The one-dimensional instrument used by Blanuša et al. (2022) in this research was used to select a number of key claims, which were subsequently modifed. The instrument is shortened and simplifed, particularly because the COVID-19 disease at the time of conducting the research (March 2024) was no longer a popular topic. Respondents were able to express their views on a fve-point scale, from 1 - “I don’t believe at all” to 5 - “I completely believe.” The claims and the distribution of responses from the respondents on the instrument for measuring acceptance of misinformation about COVID-19 are shown in Graph 17. The results indicate that disinformation about the COVID-19 disease remains entrenched, with just under 50% of respondents believing or completely believing in all three proposed disinformation claims.

Graph 17: Level of agreement with disinformation claims about the COVID-19 disease



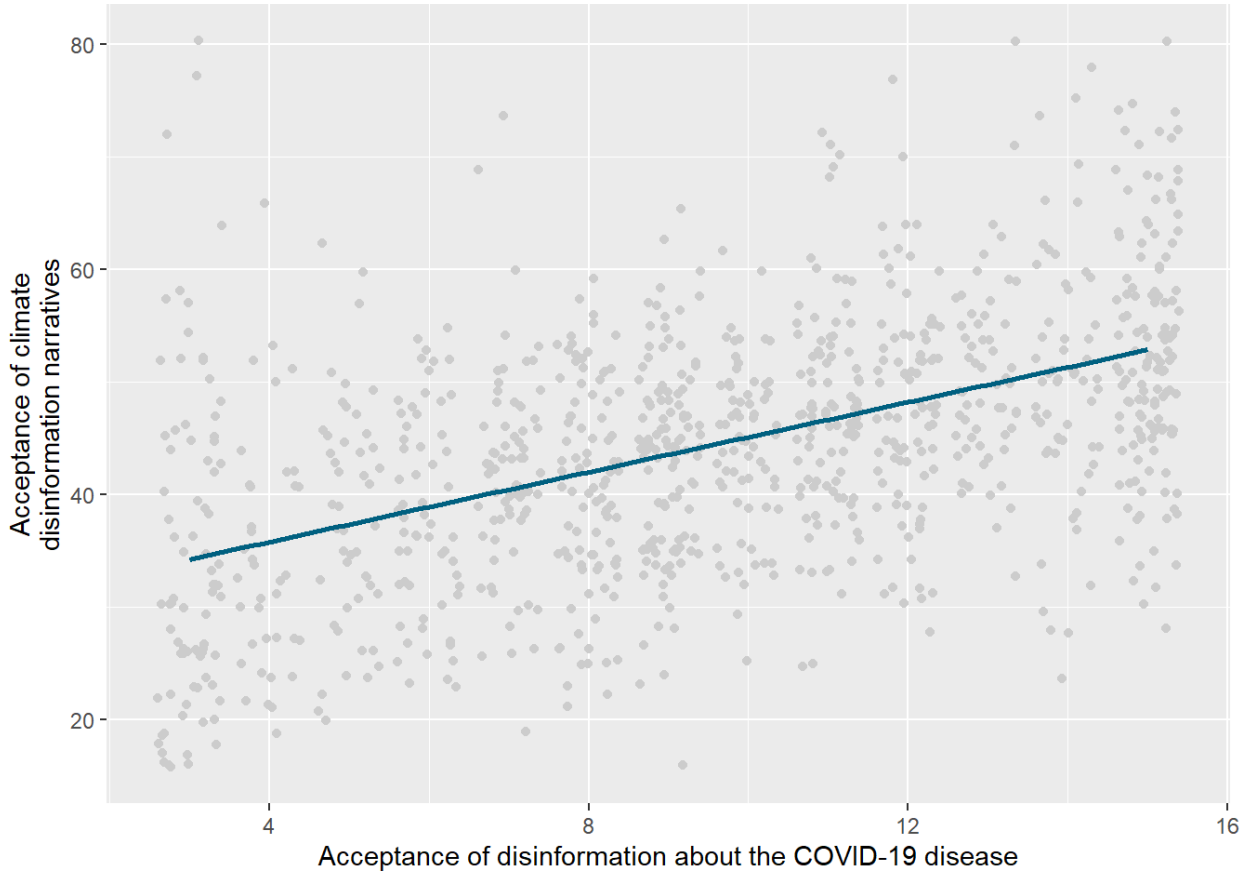
Based on the claims examining belief in the disinformation on the COVID-19 disease, a simple additive index[2] was defined. The lowest possible results on the additive index of belief in disinformation on the COVID-19 disease amounted to 3 (insomuch as the respondent replied to all claims with 1 – "don't believe at all"), where the maximum result amounts to 15 (insomuch as the respondent replied to all claims with 5 – "I completely believe"). The arithmetic mean of the entire sample on the additive index of acceptance of disinformation about the COVID-19 disease is M = 9.7.

Also examined was the link between acceptance of climate disinformation narratives and acceptance of disinformation on the COVID-19 disease. Graph 18 clearly shows the positive link between acceptance of climate disinformation

[2] A dimensionality analysis was conducted and indicates the unidimensionality of the indicator, with Cronbach's alpha being 0.84.

narratives and belief in disinformation about the COVID-19 disease ($r = 0.51$, $p < 0.01$). The analysis shows that respondents who are more inclined to accept climate disinformation narratives are also more likely to believe in disinformation about the COVID-19 disease. Conversely, respondents who are less inclined to accept climate disinformation narratives are less likely to believe in disinformation about the COVID-19 disease. This finding is consistent with the results of the research analyzed by Kont et al. (2024). Moreover, given the reports of Brautović (2024) and Broz (2024), it seems that disinformation campaigns, conducted in the media landscape and which intertwine multiple disinformation narratives, are successful on multiple fronts.

Graph 18: Link between acceptance of climate disinformation narratives and acceptance of disinformation about the COVID-19 disease



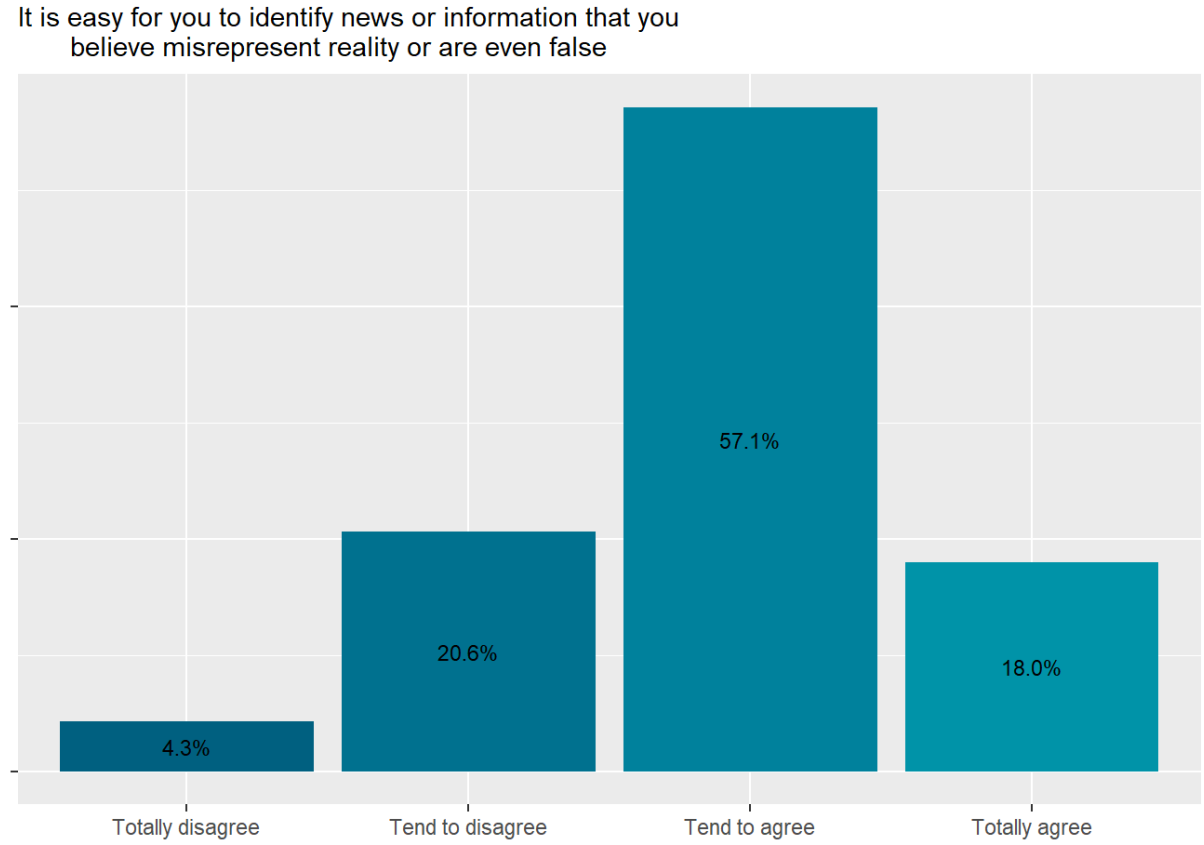
5.

Sources used for informing and media practices

In contemporary discussions in the media, special attention is given to the (in)ability of recognizing true from false content. For example, a recent report by the Reuters Institute for the Study of Journalism (Newman et al., 2024) dedicates a whole chapter to trust in the news and attitudes toward using artificial intelligence in journalism. A comparison of data from previous years shows that concern about what is real and what is not in the news on the Internet is increasing (a 3% increase compared to the previous year), with 59% of respondents worldwide expressing this concern. The response to a slightly differently worded question in this study shows a much lower level of concern - over 75% of respondents agree or strongly agree that they can easily identify news or information that misrepresents reality, as shown in Graph 19.

Given that technological advancement, especially of artificial intelligence tools, makes sophisticated forms of false news possible, the hypothesis on the link between autonomous assessment of the possibilities of recognizing disinformation and the results on a scale of the acceptance of climate disinformation narratives was examined. The goal was to verify the hypothesis as to whether (excessive) self-confidence in one's ability to distinguish true from false news is linked to a greater acceptance of (climate) disinformation (Kont et al., 2024). The analysis did not reveal any significant differences in the acceptance of climate disinformation narratives based on a self-assessment of one's ability to recognize news and information that misrepresents reality or is even false ($F = 3.51$, $p > 0.05$).

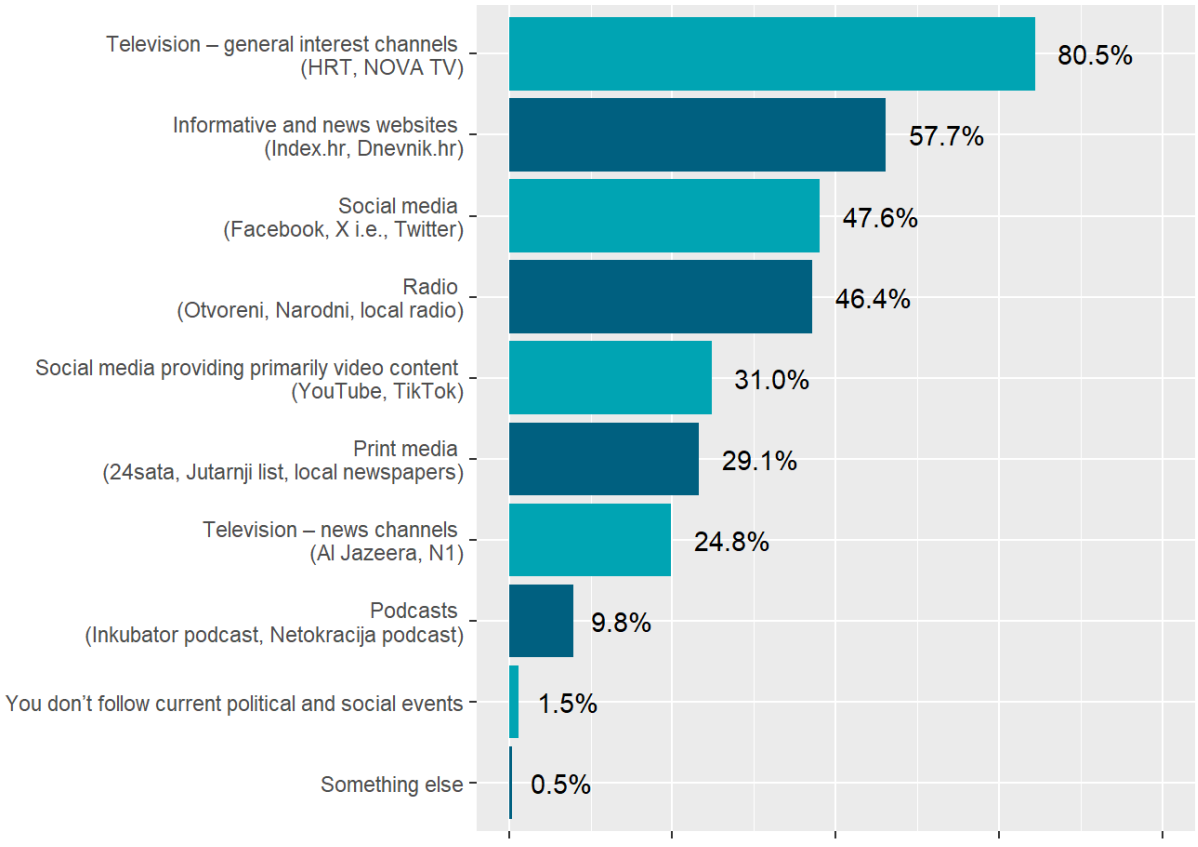
Graph 19: Self-assessed ability to recognize news or information that misrepresents reality or is false



Despite the increasing importance of so-called new media as sources for informing the public, a majority of respondents cited sources used for informing about current political and social events as television, more precisely, television channels presenting general information (accounting for more than 80% of respondents). Importantly, it should be pointed out that it involves all sources used for informing, and not the target process of arriving at news or information. The second most important source used for informing the public is websites, which 58% of respondents cite as their source of information. The third most important source used for informing is social media platforms, such as Facebook or X, and is used by almost half (48%) of respondents. A comparison of these percentages shows that the significance of digital sources for informing is clear, and that digital media and platforms are nearly as important as television in informing the public. In such circumstances, the relatively low proportion of the population (about one-fourth) who rely on special informative TV channels, such as N1 or Al Jazeera, for obtaining information is an important fact. On the other hand, video-based platforms

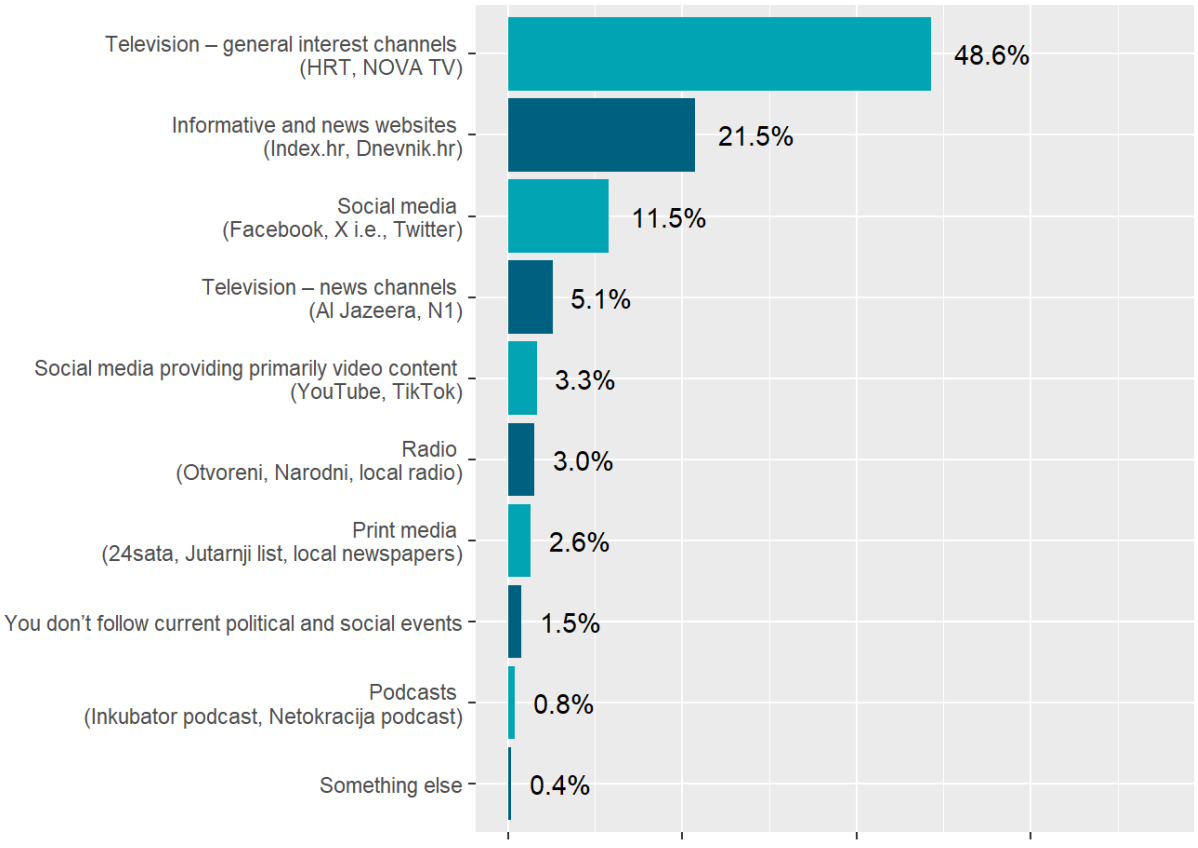
(YouTube and TikTok) are very close to print media as sources of information, and for about 30% of respondents, they are one of the primary information sources. Regarding climate disinformation and the tracking of news, conveying research findings that demonstrate the link between the dominant way of informing the public via traditional channels (television, print media and radio) and a lower level of acceptance of climate disinformation is important (Ejaz et al., 2024).

Graph 20: Sources through which respondents receive information on current political and social events



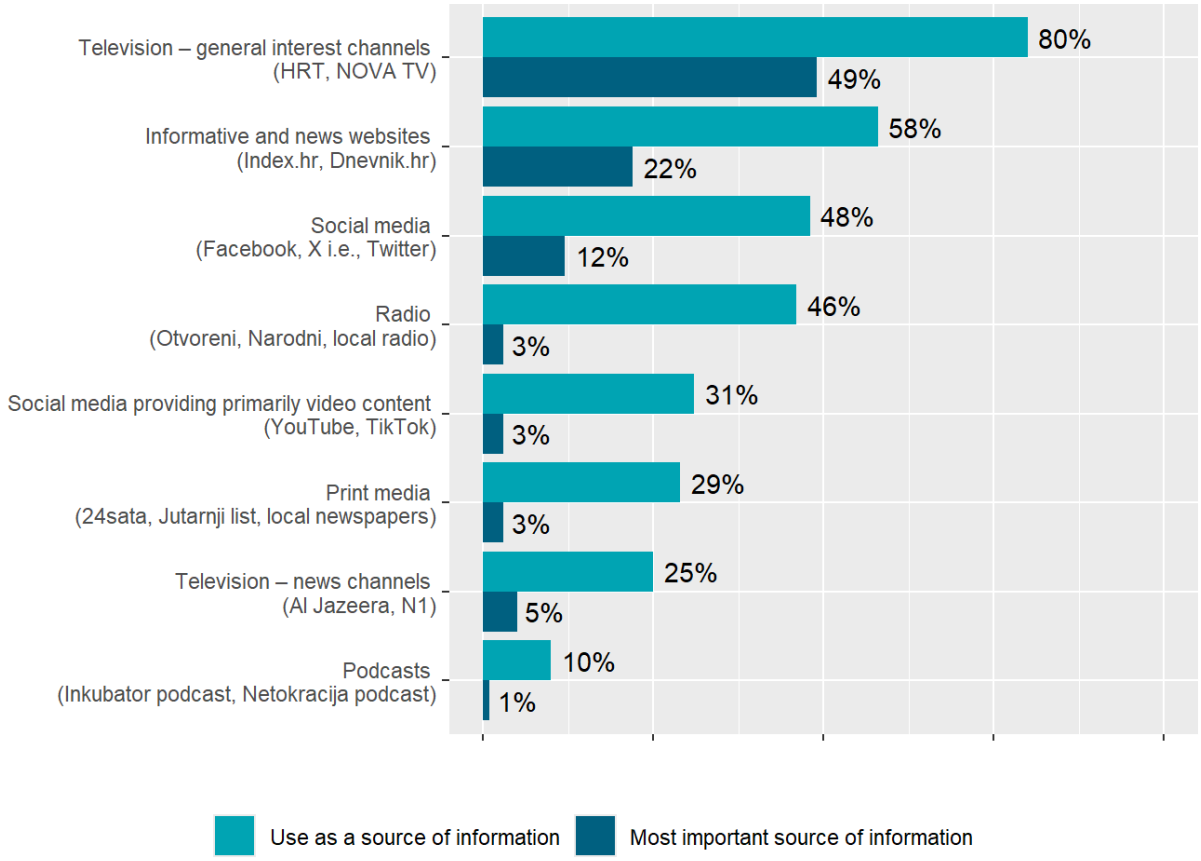
A somewhat different picture answers the question of what is the most important source used by respondents for informing about current events (Graph 21). General television programs continue to be the most important source, with almost half of the respondents citing these programs as their main source of information. Next are websites (22%) and social media (12%), but informative TV channels have gained relative importance, cited by just over 5% of respondents as the main source of information.

Graph 21: The main source through which respondents get information on current political and social events



Graph 22 compares the popularity of specifc sources used for informing and their importance for informing about current political and social events among respondents. The greatest difference is evident with radio, which is one of the media forms highly prevalent as a source used for informing the public (see Graph 20), but is the main source of information for only 3% of respondents. Print media are relatively underrepresented across both scales, with 29% of respondents citing them as a source of information and 2.6% considering them the most important source. This aligns with the Reuters report (Newman et al., 2024), which notes a continuing decline in the importance of print media as an information source. Among the sources used for informing, podcasts are considered the least important, with about 10% of respondents mentioning them as a source of information and only 0.8% citing them as the most important.

Graph 22: A comparison of the popularity of a particular information source and its importance for staying informed about current political and social events among respondents

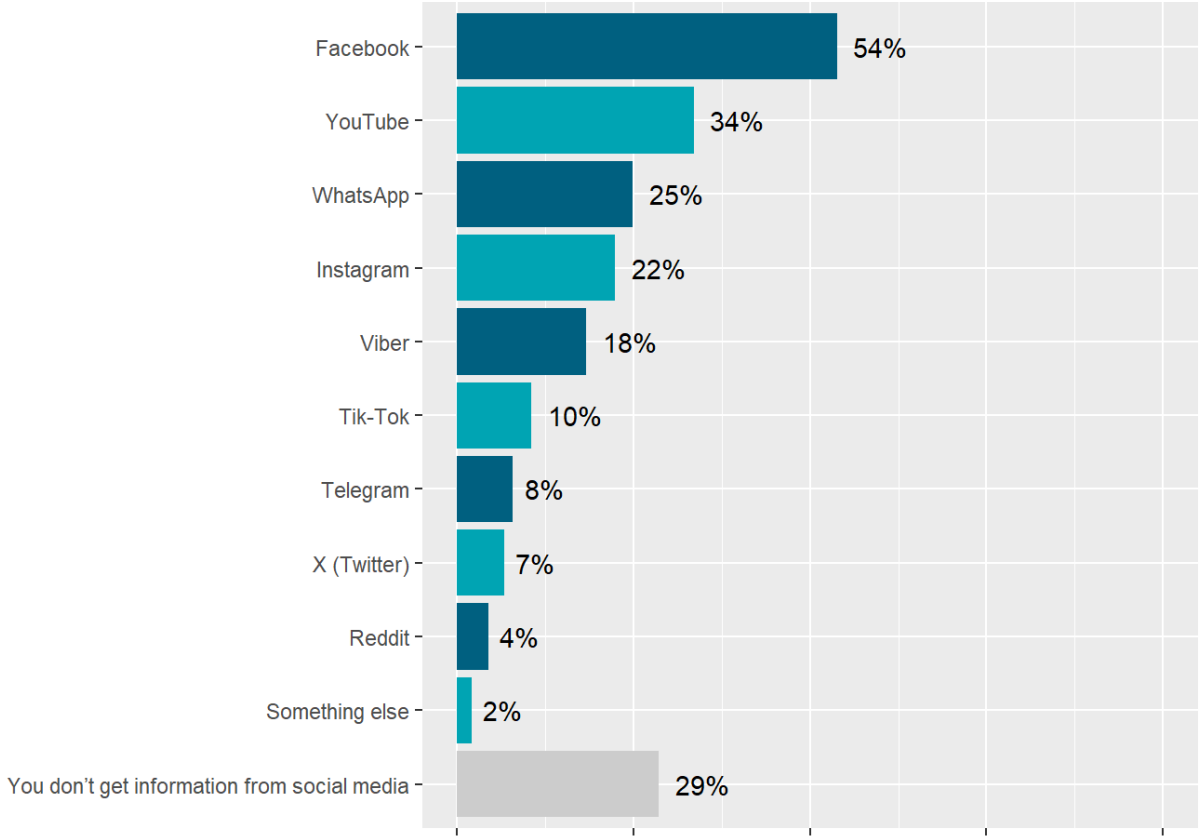


This study places particular importance on information consumption via social networks. Getting information on social media implies many factors not present in traditional media. One of these factors is the algorithms that social media use to manage content that appears in users feeds, creating new phenomenon, such as “echo chambers” and total exclusion of news that does not align with the user’s worldviews (Cinelli et al., 2021). In an attempt to analytically address this problem, Kont et al. (2024) relied on a systematic review of literature to establish determinants of resilience to disinformation. The review of research they conducted highlights the potential of social media to weaken resilience to disinformation among people. This weakening of resilience to disinformation results from the so-called “amplification effect of social media,” which happens when active social media users unintentionally share content that spreads false information (Buchanan & Kempley, 2021, as cited in Kont et al., 2024). Some additional factors that weaken resilience to disinformation include low trust in news sources, the presence of

“weak” public media, and fragmented audiences who are not exposed to diverse information sources (Humprecht et al., 2020). When juxtaposing traditional and new forms of media, the relationship between social media giant Facebook and traditional media remains particularly interesting. Facebook has built much of its popularity and influence on content from traditional media, mainly online sites and digital versions of print media, by enabling sharing and interaction with such content on its platform (cf. Benačić, 2017). In negotiations over whether Facebook should pay media outlets for content or if media will pay Facebook, which has provided them with a reach that would otherwise be impossible, Facebook's response was to reduce the visibility of news, which has led to a gradual shift from an informational to an entertainment-focused social network, centred on content created by independent “content creators” (Newman et al., 2024).

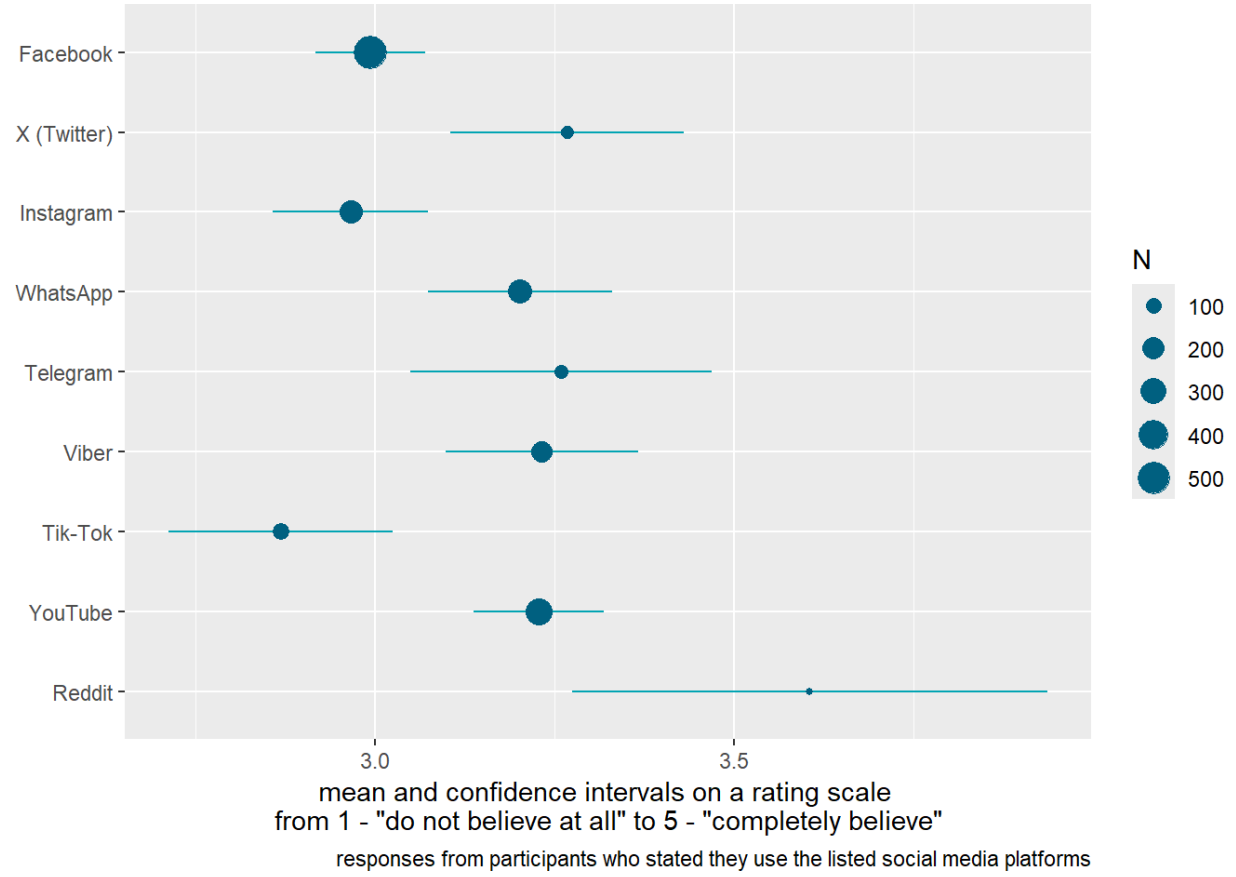
Graph 23 clearly shows that Facebook continues to be the most important informative social media platform and is used by slightly more than half of the respondents for gaining information. YouTube is another important social media platform that provides information to about one-third of the respondents, followed by WhatsApp and Instagram, with about a fourth of the sample using them to stay informed. Importantly, all the listed platforms are quite different: Facebook is a social network where various types of content are shared; YouTube is a video platform with limited interactivity; WhatsApp is a messaging tool where news usually spreads within closed groups; and Instagram focuses on sharing photos and short videos. The user base is clearly a bigger factor than the platform's actual features, as shown by the example of the X platform, which is well-suited for following current events but doesn't have a large user base in Croatia and therefore is not significant in tracking news.

Graph 23: Social media platforms used by respondents to inform themselves about current political and social events



Among the four mentioned and most important internet platforms, respondents place the greatest trust in YouTube, followed by WhatsApp, as shown in Graph 24. Importantly, there is less trust in Facebook, especially Instagram. The respondents trust TikTok the least, suggesting that the content type (video) has less influence on trust than the content format, with longer videos on YouTube and shorter ones on TikTok. Reddit stands out for the high trust of its information, but has a significantly smaller number of users than any other social media or platform.

Graph 24: Trust in information received from the mentioned social media platforms

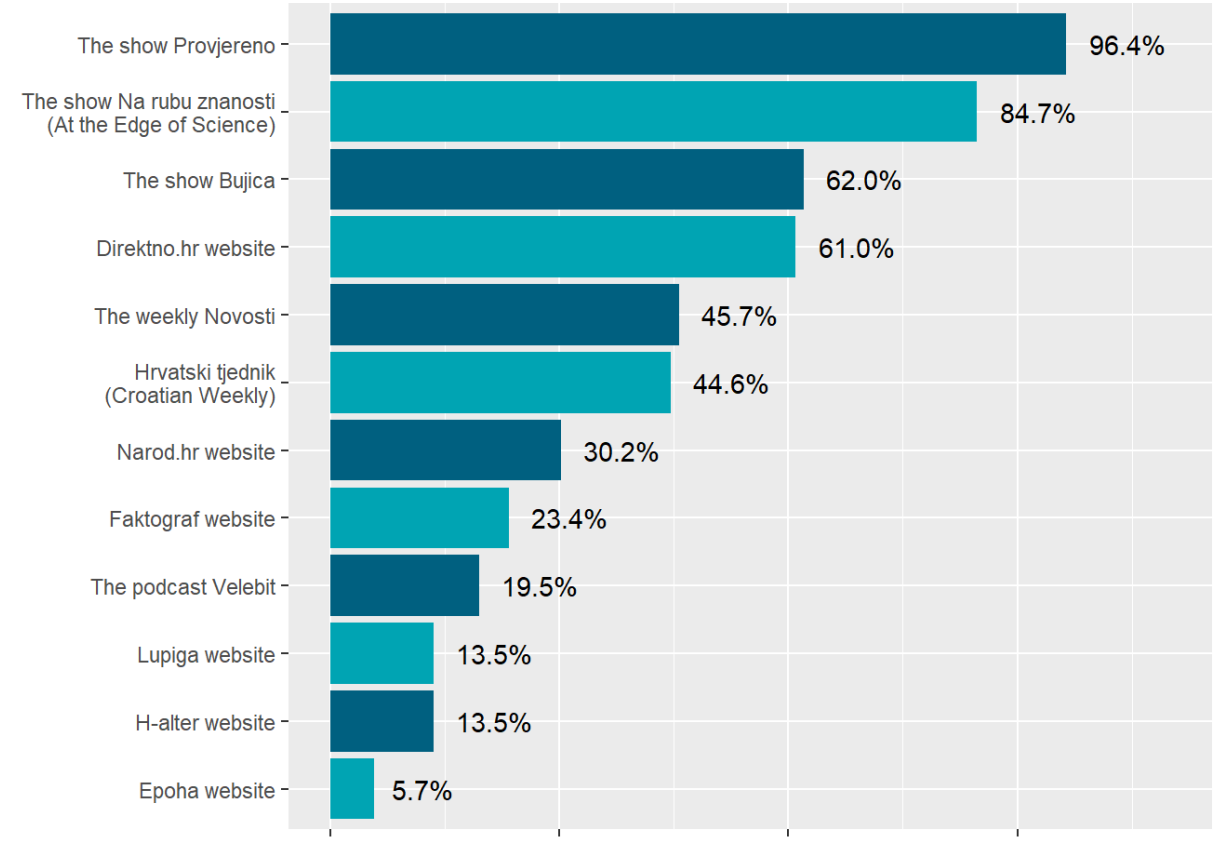


The goal of the next section is to examine familiarity with certain print media, TV shows, informative websites and podcasts among the respondents (Graph 25), and their opinion on the content which they are familiar with (Graph 26). By far, most respondents have heard of the TV shows broadcast on general interest TV channels, such as the TV shows *Provjereno* and *Na rubu znanosti*[3], and concerning which the majority of respondents have a positive opinion. Other TV shows and smaller media outlets were selected according to the criterion that these TV shows address specifc social groups. The *Bujica* show stands out in that it polarizes opinion among respondents, resulting in a relatively high familiarity with the

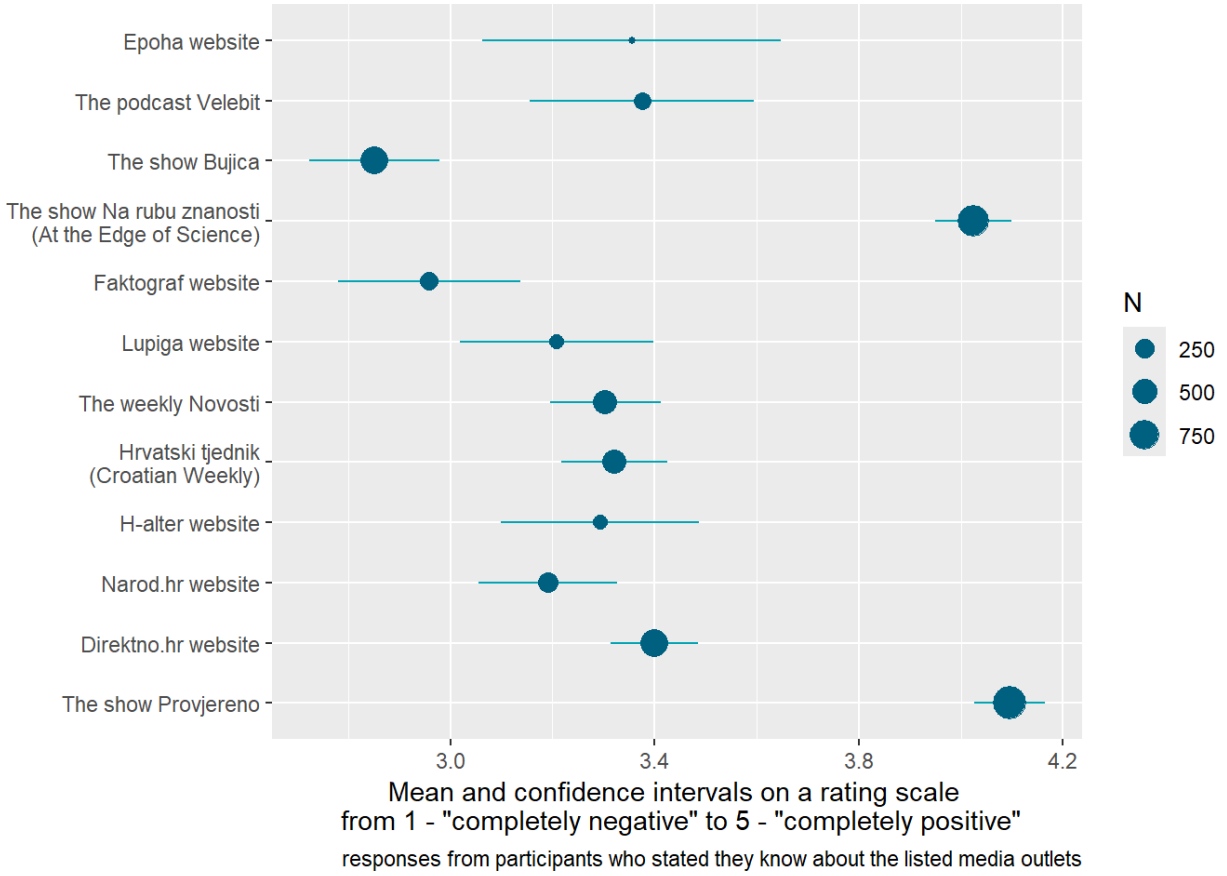
[3] The TV show *Na rubu znanosti* (On the Edge of Science) has often been the subject of discussions and criticism as to whether it is truly a scientific show. In 2010, a group of scientists initiated a petition to no longer classify *Na rubu znanosti* as an educational-scientific TV show (Jutarnji list, 2010). The main reason for the petition was dissatisfaction with the fact that the program, which is part of the educational-scientific series of programs, covers topics considered to have a pseudoscientific character, such as UFOs, healing, and conspiracy theories.

TV show, but also, on average, a negative opinion of the show content (M = 2.9). Among the media on the other side of the media spectrum, the fact-checking website *Faktograf* stands out, with respondents showing, on average, a negative opinion about its content (M = 3). The mentioned results demonstrate the success of the campaign waged against fact-checking media, as documented in the study "*Harassment of Fact-checking Media Outlets in Europe*" (Cvjetićanin, 2023).

Graph 25: Percentage of respondents familiar with the mentioned newspapers, shows, websites, and podcasts



Plot 26: Opinions on the content of the mentioned newspapers, shows, websites, and podcasts

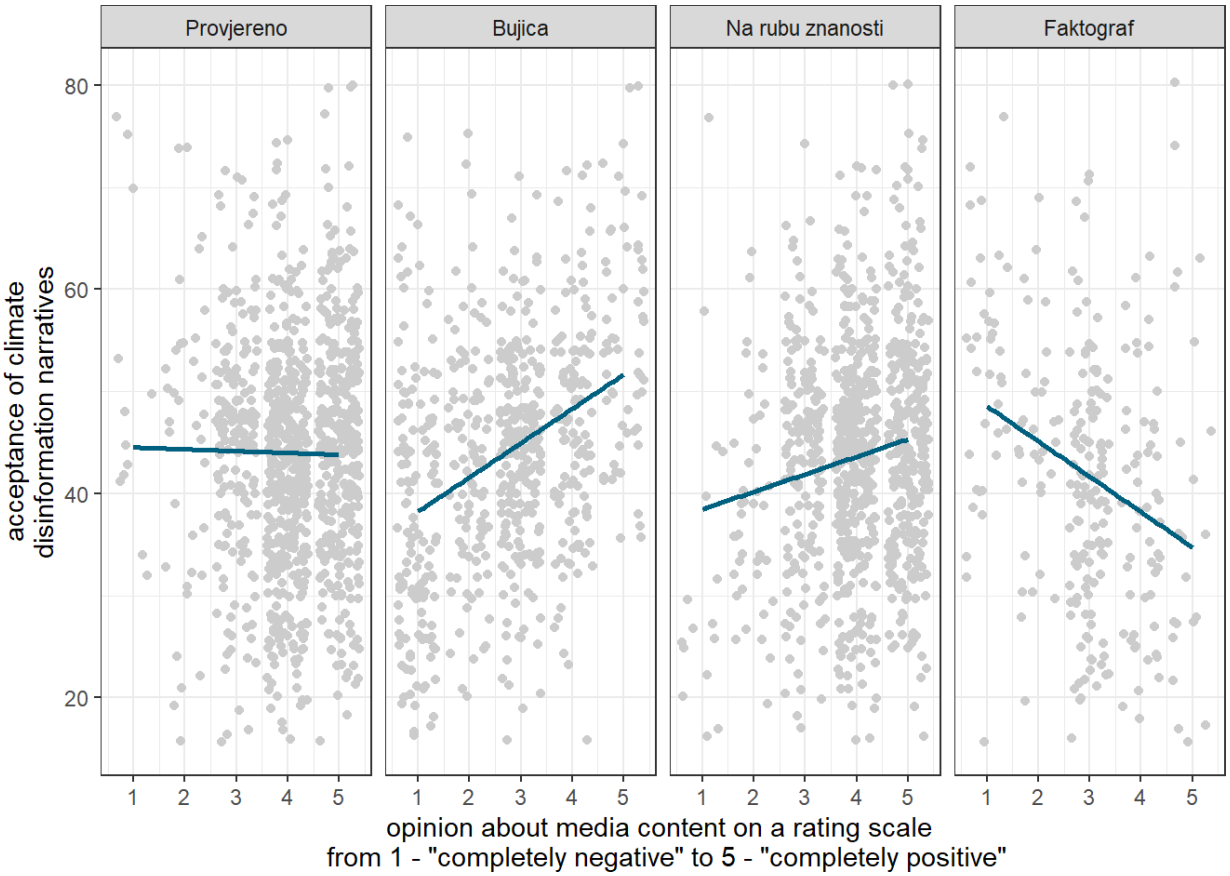


Further analysis was conducted to test the link between the positive and negative opinions on content from selected media and the acceptance of climate disinformation narratives. In other words, the goal of the analysis was to gauge whether positive opinions on the content of certain media influence the level of acceptance of climate disinformation narratives. The show *Provjereno* was found to have extremely high recognition (96% of respondents stated they were familiar with it), and based on its content, respondents in this study expressed, on average, the most positive opinion toward it. For these reasons, the show *Provjereno* was selected as the first to analyze. Other media were also chosen for analysis based on familiarity, including the popular show *Na rubu znanosti* and the widely recognized *Bujica*, along with *Faktograf* as Croatia's first fact-checking website.

The results of the analysis, shown in Graph 27, suggest a statistically significant correlation between the opinions on the content of specific media and the tendency

to accept climate disinformation narratives. The highest correlation exists between respondents who are familiar with the show *Bujica*, and among those who have a more positive opinion of the show, they also exhibit a higher level of acceptance of climate disinformation narratives ($\rho = 0.35$, $p < 0.01$). A high but also negative correlation was identified between respondents familiar with the *Faktograf* website ($\rho = -0.28$, $p < 0.01$), where a positive opinion of the website's content suggests a lower tendency to accept climate disinformation. There is a weak correlation between those with a more positive opinion of the content of the show *Na rubu znanosti* and acceptance of climate disinformation ($\rho = 0.09$, $p < 0.01$), whereas the attitudes toward the content of the show *Provjereno* did not show a correlation with acceptance of climate disinformation narratives ($\rho = 0.00$, $p > 0.05$).

Graph 27: Correlation between acceptance of climate disinformation narratives and opinions on the content of certain media



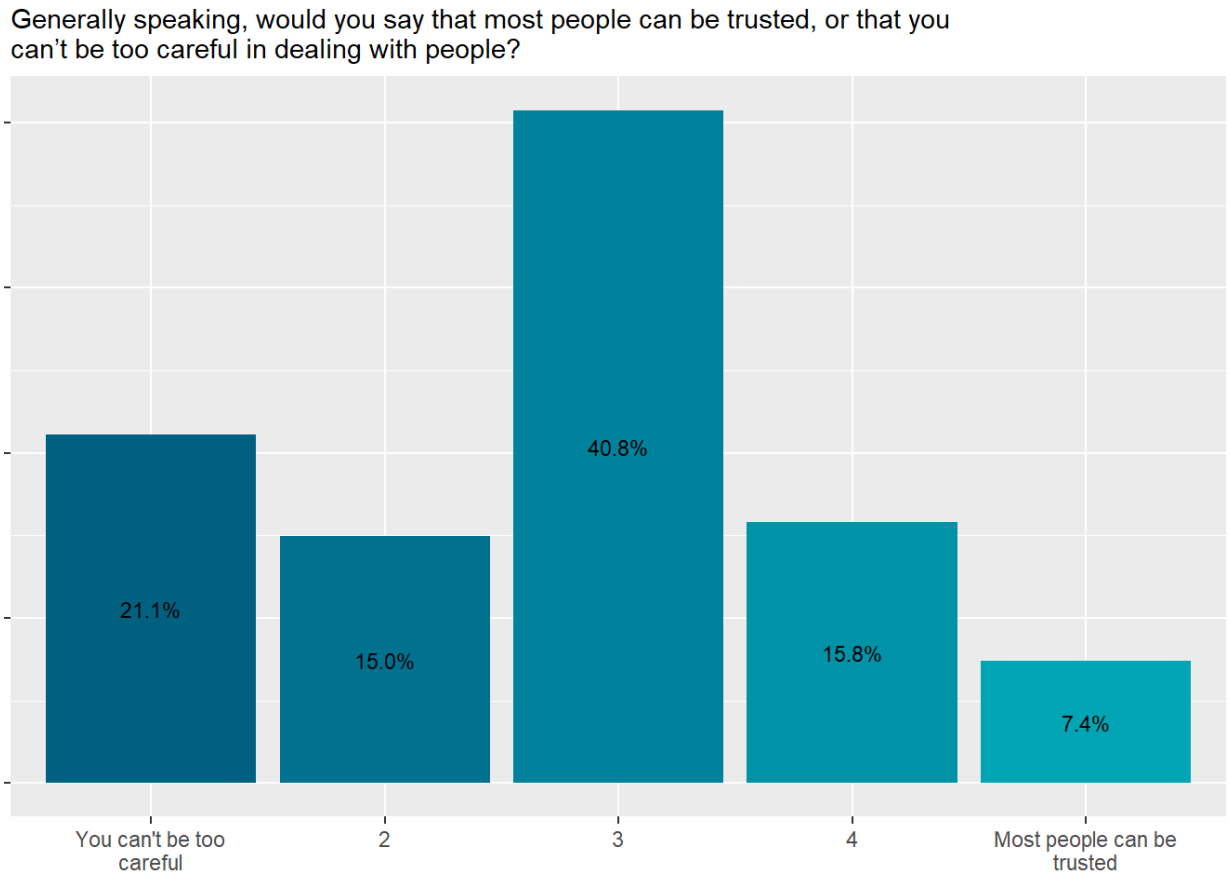
6.

Trust in institutions and science

In the scientifc paper under the symbolic title of "*Trust is key: Determinants of false beliefs about climate change in eight countries*" Ejaz et al. (2024) highlight existing trust in the different actors and institutions as a key predictor of acceptance of climate disinformation narratives. The authors determine in the analysis that the distrust in information about climate change presented by scientists, climate activists, and international organizations is linked to a stronger acceptance of climate disinformation. The link between trust and resilience to disinformation was also established by Kont et al. (2024). In the study, the authors determined that most research suggests a link between resilience to disinformation and trust in institutions, politics and scientists. The research results suggesting a link between resilience to disinformation and interpersonal trust and trust in the media appeared to be ambivalent. This section discusses the link between interpersonal trust, trust in institutions, trust in science and scientists, and acceptance of climate disinformation narratives.

To examine interpersonal trust among respondents, questions from the International Social Survey Programme 2020 were used (ISSP Research Group, 2023). The question, "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" was answered by respondents on a fve-point assessment scale, from 1 – "you can't be too careful" to 5 – "most people can be trusted". The distribution of responses is given in Graph 28. Most respondents, i.e., 41%, were undecided as to whether other people can be trusted, followed by those who think that being cautious with other people is always necessary.

Graph 28: Interpersonal trust

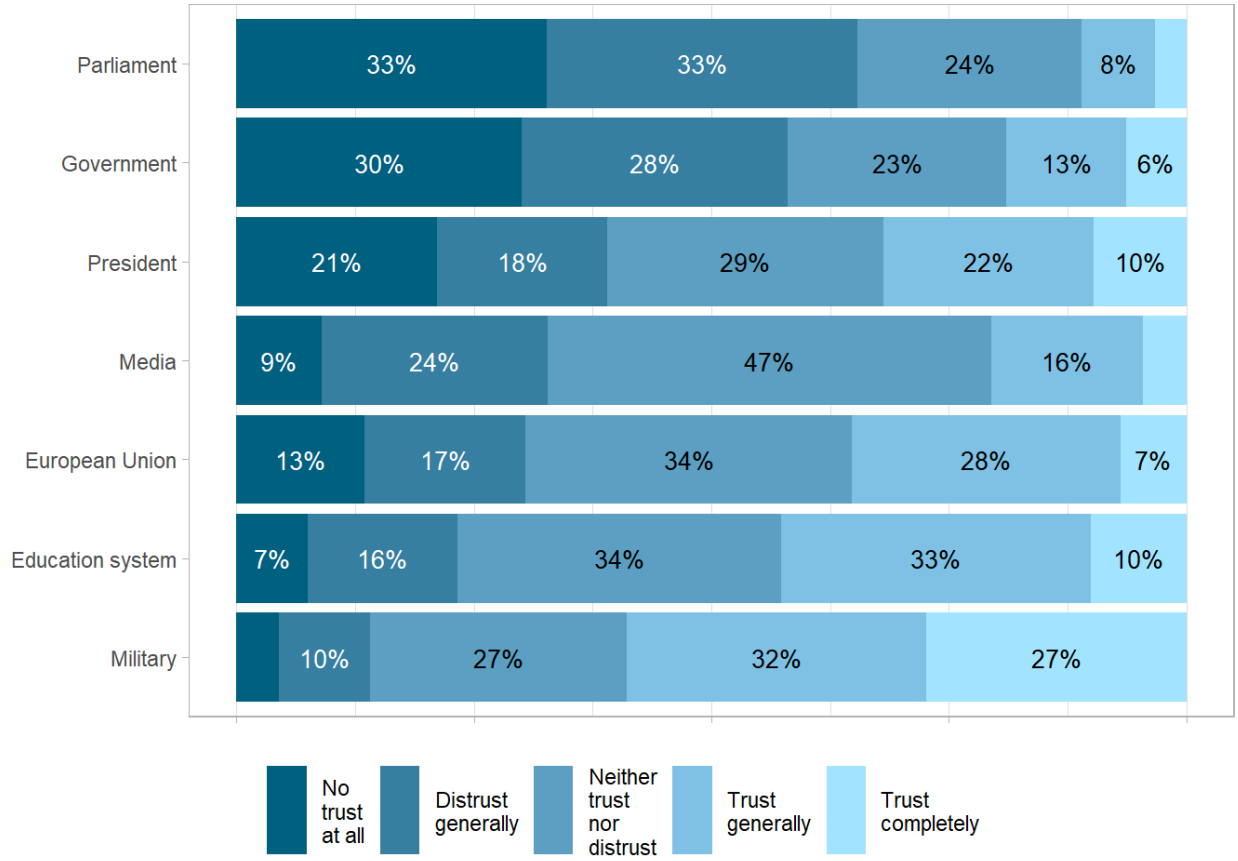


To establish whether there exists a link between interpersonal trust and acceptance of disinformation, which was identi f ed in the analysis of the literature by Kont et al. (2024), this research tested the interpersonal trust with respect to the acceptance of climate disinformation narratives. Correlation analysis did not identify any link between interpersonal trust and acceptance of climate misinformation narratives ($\rho = -0.08$, $p > 0.05$).

The research also examined trust in institutions by respondents. Respondents could answer the question “How much do you trust the listed institutions?” by answering on a scale from 1 – “I don’t trust this institution at all” to 5 – “I completely trust this institution”, where the institutions in question are Parliament, the Government, the President, the media, the European Union, the education system and the military. The distribution of the collected data is shown in Graph 29. Respondents expressed the highest trust in the military, with 60% of respondents generally or completely

trusting the military, followed by trust in the educational system and the European Union. The least trust was reported in Parliament and the Government, with about 60% of respondents having little to no trust in those institutions. The results are consistent with the findings of the longitudinal study by Bovan and Baketa (2022) who established that mean trust in institutions among the citizens of Croatia, on a scale from 1 – "I don't trust this institution at all" to 5 – "I completely trust this institution", falls under the median value except in the case of the military and the police. Moreover, this research identified a low level of trust among citizens in representative institutions, which is also consistent with the findings of Bovan and Baketa (2022) who describe this trend as "the alienation of citizens from the main actors who should mediate the interests of citizens (political parties) within the representative democracy, and those who should make (Parliament) and implement (Government) policies in the public interest" (Bovan & Baketa, 2022, p. 53).

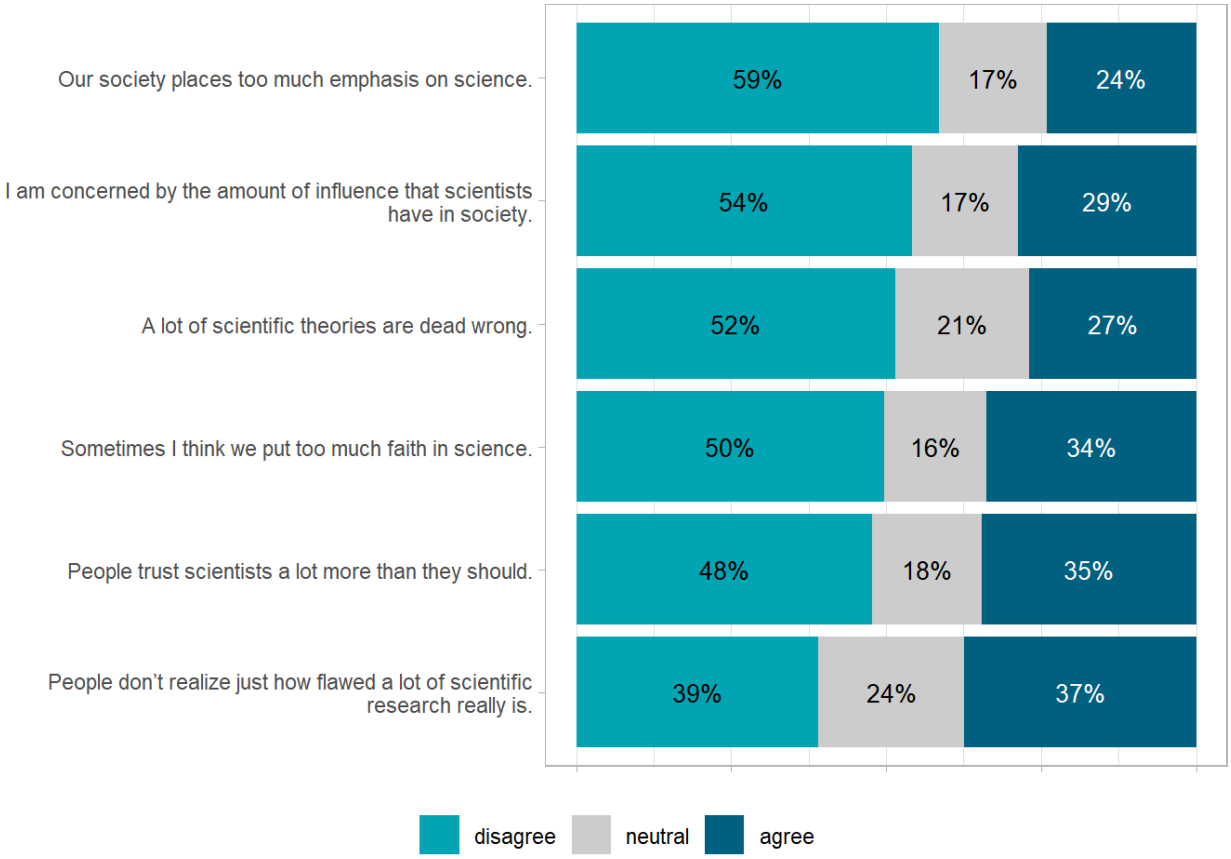
Graph 29: Trust in institutions



Tests were conducted to determine the possible correlation between acceptance of climate disinformation narratives and the level of trust in the listed institutions. No statistically significant correlation was found between acceptance of climate disinformation narratives and trust in Parliament ($\rho = 0.00$, $p > 0.05$), the Government ($\rho = 0.01$, $p > 0.05$), the President ($\rho = 0.00$, $p > 0.05$), the media ($\rho = 0.05$, $p > 0.05$), the European Union ($\rho = -0.1$, $p > 0.05$), or the education system ($\rho = -0.01$, $p > 0.05$). The statistical significance was found only in the link between trust in the military and acceptance of climate disinformation narratives ($\rho = 0.15$, $p < 0.01$), where respondents who have trust in the military are more inclined to accept climate disinformation. This finding can be linked to the conclusions of the research by Ejaz et al. (2024), which identified a greater tendency to accept climate disinformation narratives among respondents who have more trust in certain actors and institutions. However, it is important to emphasize that the statistically significant correlation is weak.

To examine the attitudes of respondents toward science and scientists, an instrument, the credibility of science scale, devised by Hartman et al. (2017), was utilized. The instrument contains six items designed to examine respondents' attitudes about the role and influence of science and scientists in society. Respondents could express their views on a seven-point scale from 1 – “totally disagree” to 7 – “totally agree”. Graph 30 shows the claims of the credibility of science scale and the distribution of the answers provided by the respondents. For presentation purposes, the seven points on the scale were aggregated such that responses 1 (“totally disagree”), 2 and 3 were recoded into the category of “disagree”, response 4 was recoded into the category of “neutral” and responses 5, 6 and 7 (“totally agree”) were recoded into the “agree” category. The claim with which respondents mostly agree is “People don’t realize how flawed a lot of scientific research really is,” with a third of respondents agreeing. The claim “Our society places too much emphasis on science” finds agreement with the least number of respondents, i.e., slightly less than one-fourth. The acquired data is comparable to the data presented in the work of Šuljok (2020), where a certain level of scepticism towards science was observed, which the author notes will continue to increase in the future.

Graph 30: Attitudes toward the credibility of science



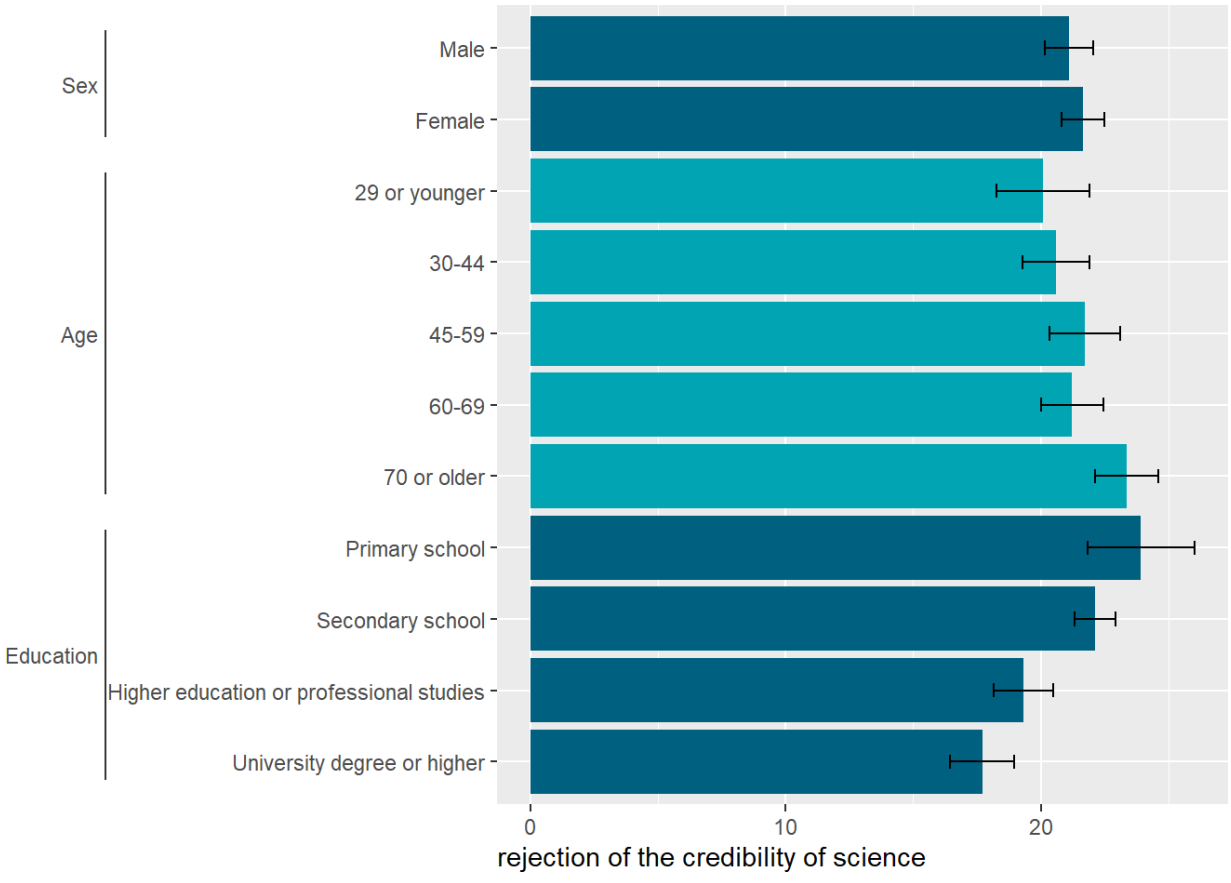
The credibility of science scale was used to define the simple additive index[4] of all claims as shown in Graph 30. The lowest possible result on the additive index of science credibility amounts to 6 (if the respondent responded to all claims with 1 – "totally disagree"), and the highest possible result amounts to 42 (if the respondent replied with 7 – "totally disagree" to all claims). A higher score on the additive index of science credibility suggests rejection of the credibility of science, whereas a lower score indicates acceptance. The arithmetic mean of the entire sample on the additive index of science credibility is M = 21.4.

Acceptance of the credibility of science was tested with respect to certain sociodemographic characteristics of the respondents. The mean acceptance and confidence intervals of acceptance of the credibility of science based on the sex, age and level of education of respondents are given in Graph 31. No differences

[4] A dimensionality analysis was conducted and indicates the unidimensionality of the indicator, with Cronbach's alpha equivalent to 0.84.

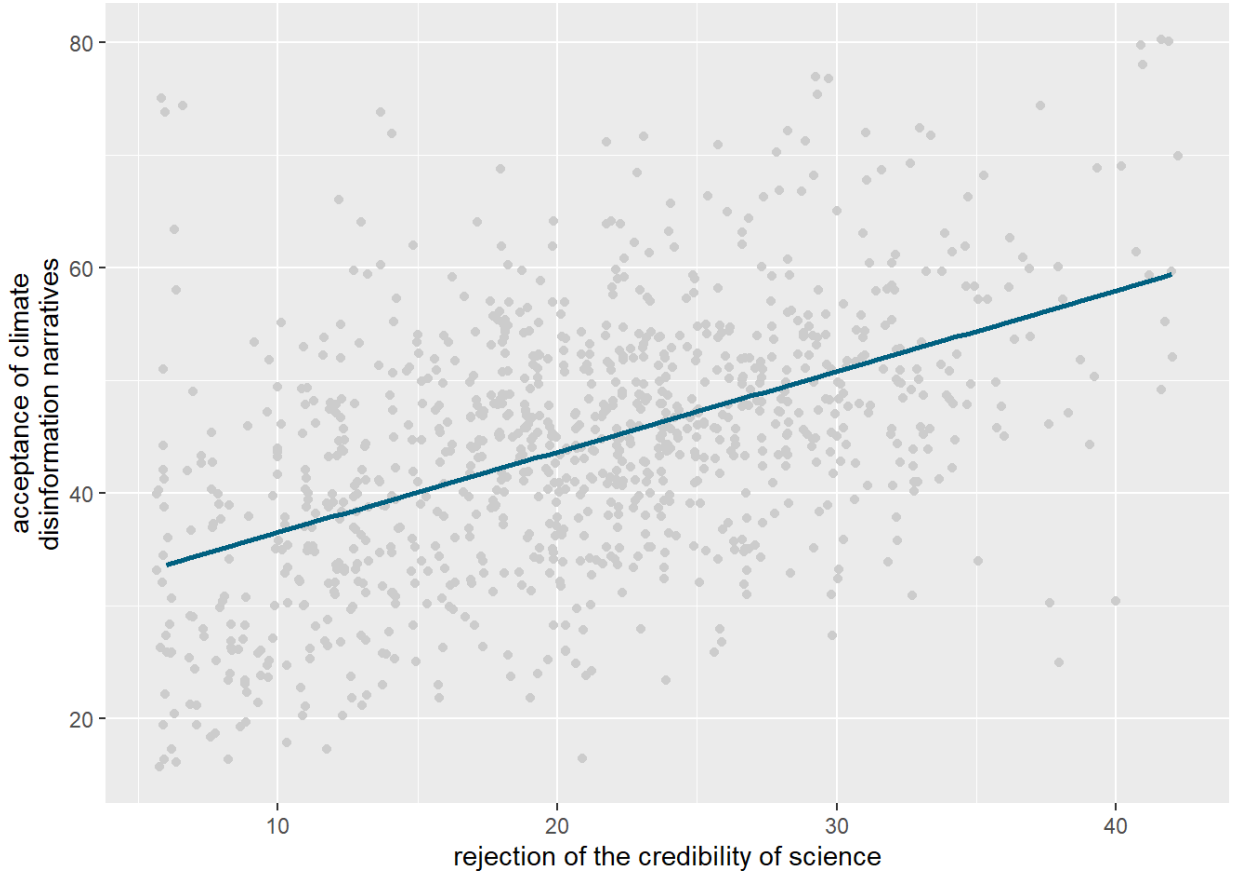
in accepting the credibility of science among women and men were observed (t = 1.04, p > 0.05). Differences in the acceptance of the credibility of science based on age were identified (F = 4.12, p < 0.01). Respondents over 70 years of age were more inclined to reject the credibility of science (M = 23.4) than respondents in younger age groups. Differences based on the level of education were also established (F = 18.93, p < 0.01). A greater tendency to deny the credibility of science was expressed by respondents who had finished primary school (M = 23.9), followed by respondents who completed three-year or four-year secondary school (M = 22.1). Respondents who completed a university degree showed the greatest acceptance of the credibility of science (M = 17.7), followed by those who completed a professional study program, or undergraduate study program (M = 19.3). The findings of this research are consistent with those of Šuljok (2020), which also establishes a link between higher levels of education and lower scepticism towards science.

Graph 31: Mean acceptance and confidence intervals in the credibility of science by the sex, age, and level of education of respondents



Kont et al. (2024) drew attention to research that suggests trust in science as one of the most important forms of trust when referring to resilience to disinformation. The research by Ejaz et al. (2024) addressing the acceptance of climate disinformation also identified trust in science as one of the most important factors in the lower acceptance of climate disinformation. This relationship was examined in this research as well. Correlation analysis revealed a statistically significant and strong positive link between accepting climate disinformation narratives and rejecting the credibility of science ($r = 0.5$, $p < 0.01$). The results suggest that respondents who showed an inclination toward acceptance of climate disinformation narratives harbour more negative attitudes and less trust in science and scientists. These results are consistent with the already mentioned research and studies. The connection between attitudes toward science and acceptance of scientific facts, along with its influence on behaviour, became more apparent during the COVID-19 pandemic. Hence, Pavić et al. (2023), in a study conducted on a representative sample of the Croatian population, pointed out acceptance of the credibility of science as the most important predictor in deciding to get vaccinated against the SARS-CoV-2 virus. The results of this study show a strong correlation between more positive attitudes toward science and scientists and a lower tendency to accept climate disinformation.

Graph 32: Correlation between acceptance of climate disinformation narratives and rejection of the credibility of science



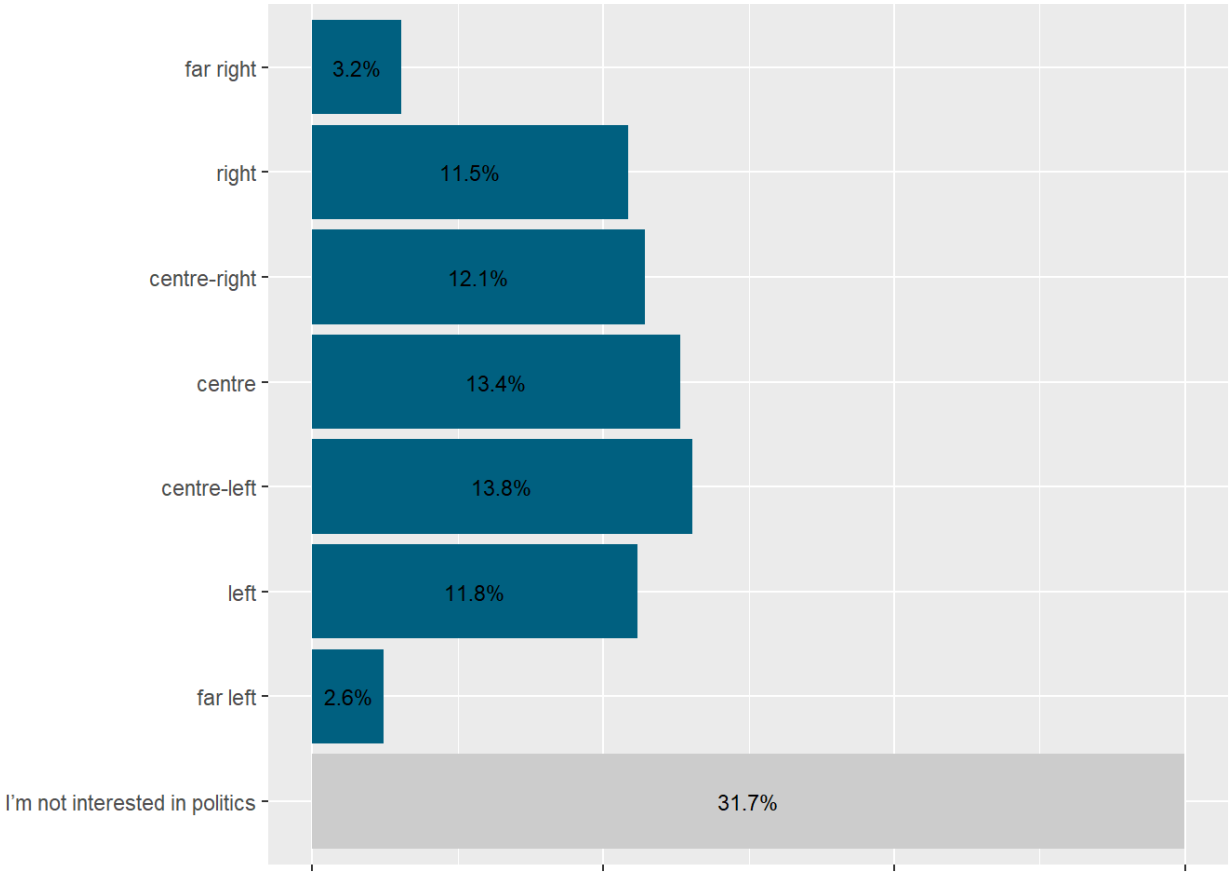
7.

Political orientation and political views

Political orientation and political views are ubiquitous as predictors in previous research addressing disinformation, as confirmed in the analysis by Kont et al. (2024). The role of political orientation and the political views of persons in accepting climate disinformation has also been considered in this research. It should be pointed out that the data was collected in March 2024, more precisely, during the pre-election campaign for parliamentary elections held on 17 April 2024 in Croatia.

Graph 33 shows the distribution of responses to the question whereby respondents had to evaluate their political orientation. The respondents were given a seven-point assessment scale, from “far left” to “far right”, along with an additional category of “I’m not interested in politics”. Most respondents gravitated toward the centre of the political spectrum. Thus, just under 40% of respondents identify themselves as belonging to the political centre, including centre-right or centre-left. The smallest group aligns with either the far left or the far right, while nearly a third of respondents said they were not interested in politics.

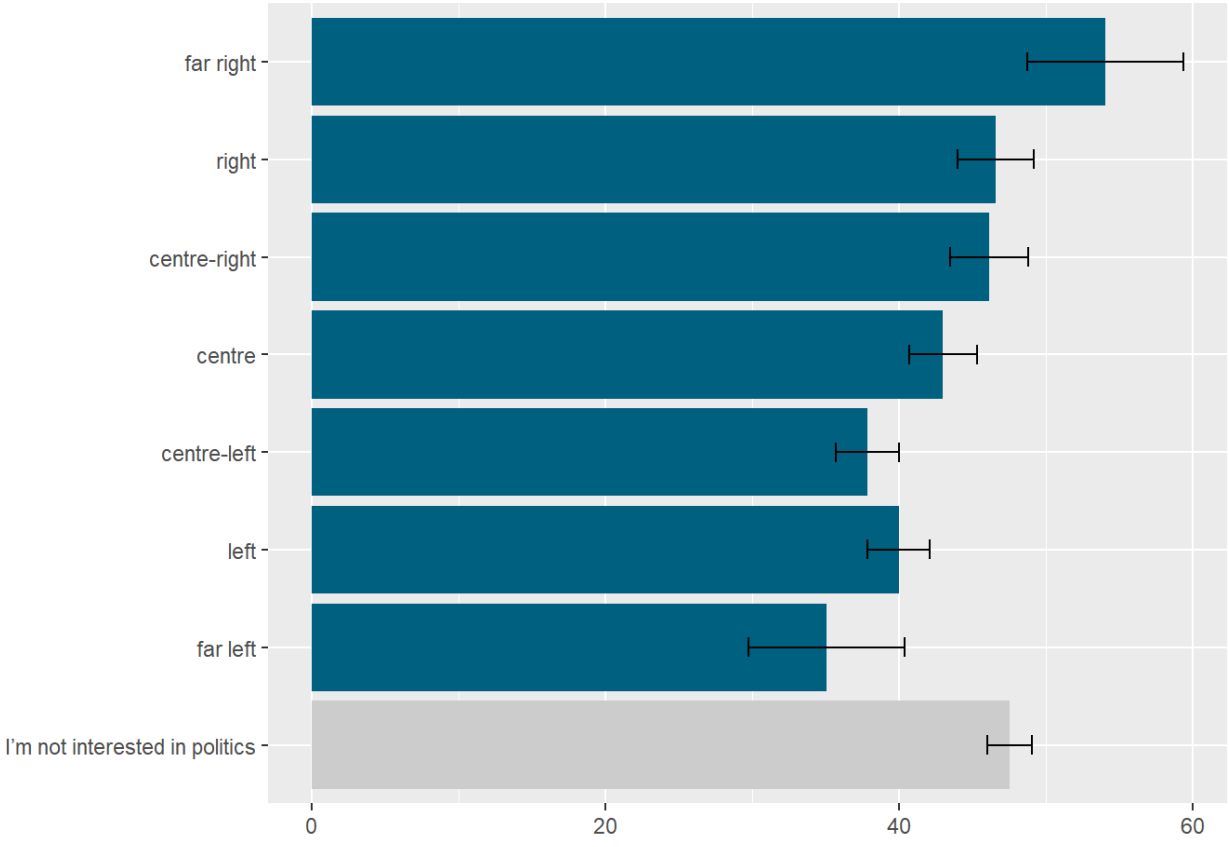
Graph 33: Political orientation of respondents



The relationship between the political orientation of respondents and acceptance of climate disinformation narratives was tested. It was asserted that a statistically significant difference exists in acceptance of climate disinformation narratives based on the political orientation of respondents ($F = 19.67$, $p < 0.01$). Graph 34 shows the mean acceptance and confidence intervals in accepting climate disinformation narratives with respect to the political orientation of the respondents. Respondents who position themselves on the left of the political spectrum show the lowest tendency to accept climate disinformation ($M_{far\ left} = 35.1$; $M_{left} = 40$; $M_{centre\text{-}left} = 37.9$). They are followed by respondents who place themselves in the centre of the political spectrum ($M = 43$). A greater tendency to accept disinformation about climate change is shown by respondents who position themselves on the right of the political spectrum ($M_{centre\text{-}right} = 46.1$; $M_{right} = 46.6$; $M_{far\ right} = 54.1$). Respondents who are not interested in politics also showed a tendency to accept climate disinformation narratives ($M = 47.5$). The research by Ejaz et al. (2024), which focused on the acceptance of climate disinformation in eight countries, also

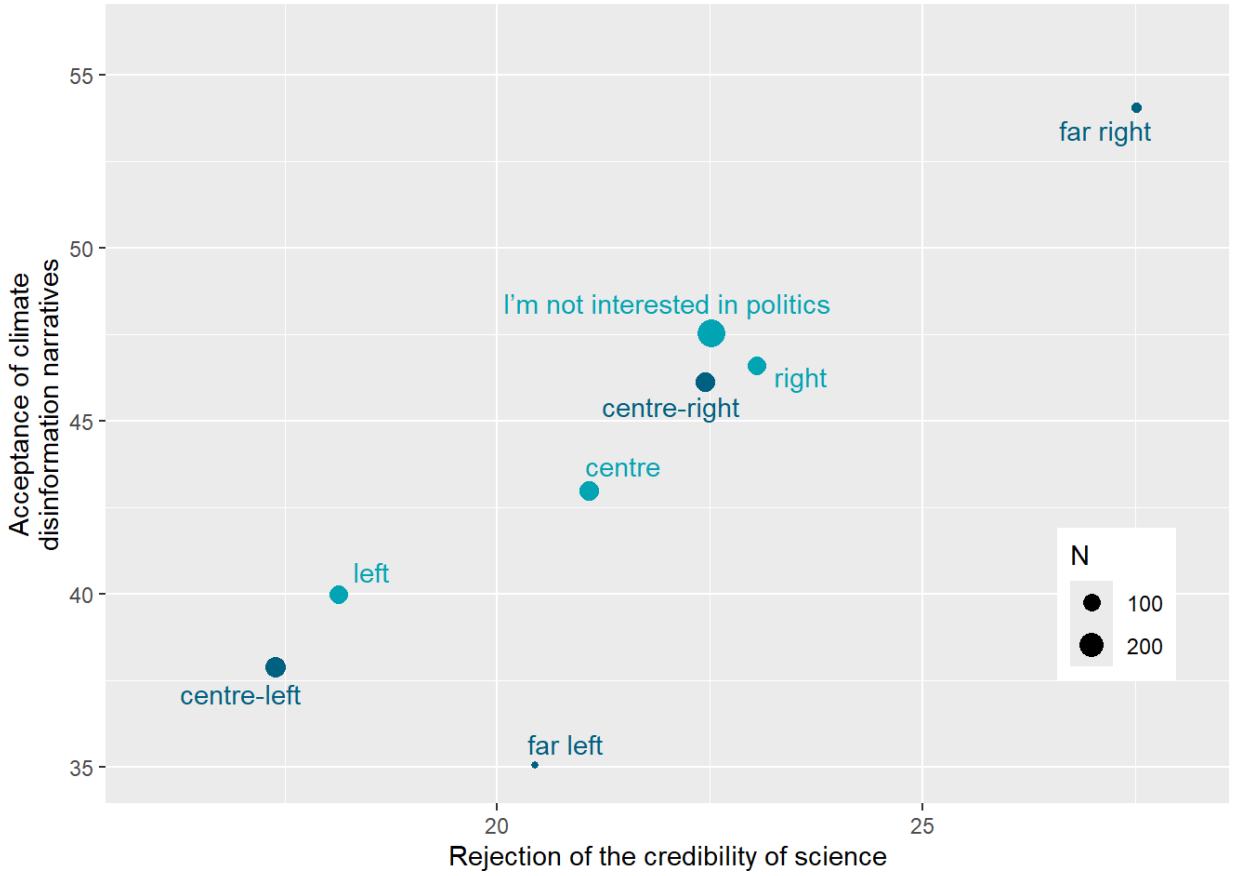
identified a right-wing political orientation as a key predictor of accepting climate disinformation. Moreover, this is also confirmed by the analysis of Kont et al. (2024) involving social groups vulnerable to disinformation. The authors of the study note that while most research confirms greater acceptance of disinformation among right leaning and conservative populations, potential explanations should be sought in the reasoning patterns of individuals who identify with either right-wing or left-wing political orientations. Kont et al. (2024) explain how representing certain political ideologies leads to motivated reasoning. In addition to motivated reasoning, the explanation for the greater prevalence of climate disinformation among right leaning populations should also be sought in the fact that climate science denial has become embedded in far-right political discourse. The attitude of European far-right parties towards environmental issues and climate change has been extensively documented in the book "*The Far Right and the Environment: Politics, Discourse and Communication*" (Forchtner, 2019).

Graph 34: Mean acceptance and confidence intervals in climate disinformation narratives based on the political orientation of respondents



The paper titled "*Climate Change Disinformation and How to Combat It*" (Lewandowsky, 2021) presents the intersection between climate disinformation, political ideology, political rhetoric and trust in science. Moreover, the antagonism between scientific facts and political objectives is presented in "*Science-related populism*" (Mede & Schäfer, 2020) and in the book titled "*Merchants of Doubt*" (Oreskes & Conway, 2022). The relationship between the acceptance of climate disinformation and the rejection of the credibility of science, as well as the relationship between the acceptance of climate disinformation narratives and political orientation, has already been presented in this paper. To further deepen the understanding of how these three indicators interact, the relationship between the political orientation of the respondents with respect to the acceptance of climate disinformation narratives and the acceptance of the credibility of science was examined. Graph 35 shows the positioning of respondents from various political orientations with respect to the mentioned indicators, highlighting a number of trends. The respondents who identified as belonging to the political left expressed a weaker tendency to accept climate disinformation and a greater tendency to accept the credibility of science. Respondents who are far-left oriented showed a slightly lesser tendency to accept the credibility of science. A somewhat greater tendency to accept climate disinformation narratives and reject the credibility of science was found among respondents who position themselves in the centre of the political spectrum. In line with the previously mentioned results, a somewhat greater value for both indicators is shown by respondents who position themselves in the centre-right and right of the political spectrum. This group also includes those who stated that they are not interested in politics. The respondents who are far-right oriented show the greatest tendency to accept climate disinformation narratives and the least tendency to accept the credibility of science.

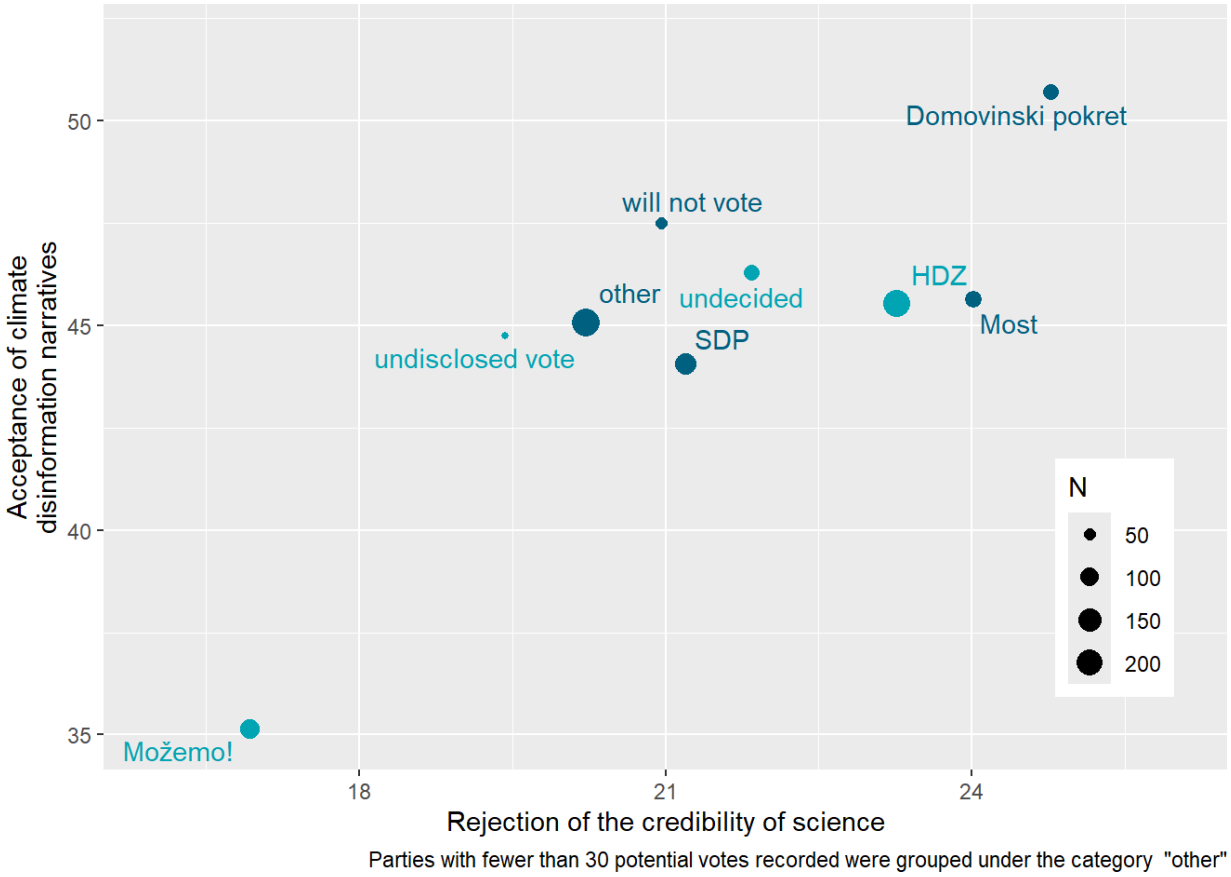
Graph 35: Positioning of respondents with different political orientations by acceptance of climate disinformation narratives and rejection of scientific credibility



The relationship between acceptance of climate disinformation and credibility of science with respect to the political orientation of respondents is well reflected in their voting preferences. Given that data collection took place immediately prior to parliamentary elections in Croatia in 2024, the respondents were asked whether they intend to vote for someone at the elections. The positioning of potential voters with respect to acceptance of climate disinformation narratives and denial of the credibility of science is shown in Graph 36. The most noticeable differences were among potential voters of the left-green party *Možemo!* (We Can!) and the party *Domovinski pokret* (Homeland Movement), a national conservative party. Potential voters of the *Možemo!* party showed the least tendency to accept climate disinformation narratives and to reject the credibility of science. On the other hand, potential voters of *Domovinski pokret* party exhibited a greater tendency to accept climate disinformation and reject the credibility of science. Potential voters from the other larger parties in Croatia, such as *HDZ* (Croatian Democratic Union),

SDP (Social Democratic Party of Croatia) and *Most* (The Bridge), fall between the voters of *Možemo!* and (closer) to the voters of *Domovinski pokret*. Potential voters from these three parties do not differ significantly with respect to acceptance of climate disinformation, but the potential voters of *SDP* show a somewhat greater inclination to accept the credibility of science than the potential voters of *HDZ* and *Most*. Potential voters for the *SDP* party, based on their ranked values on the scale of acceptance of climate disinformation narratives and the credibility of science, gravitate towards respondents who indicated they would vote for a smaller party, those who are undecided, those who do not wish to disclose for which party they intend to vote, and those who stated they will not vote at all.

Graph 36: Positioning of potential voters by acceptance of climate disinformation narratives and rejection of scientific credibility

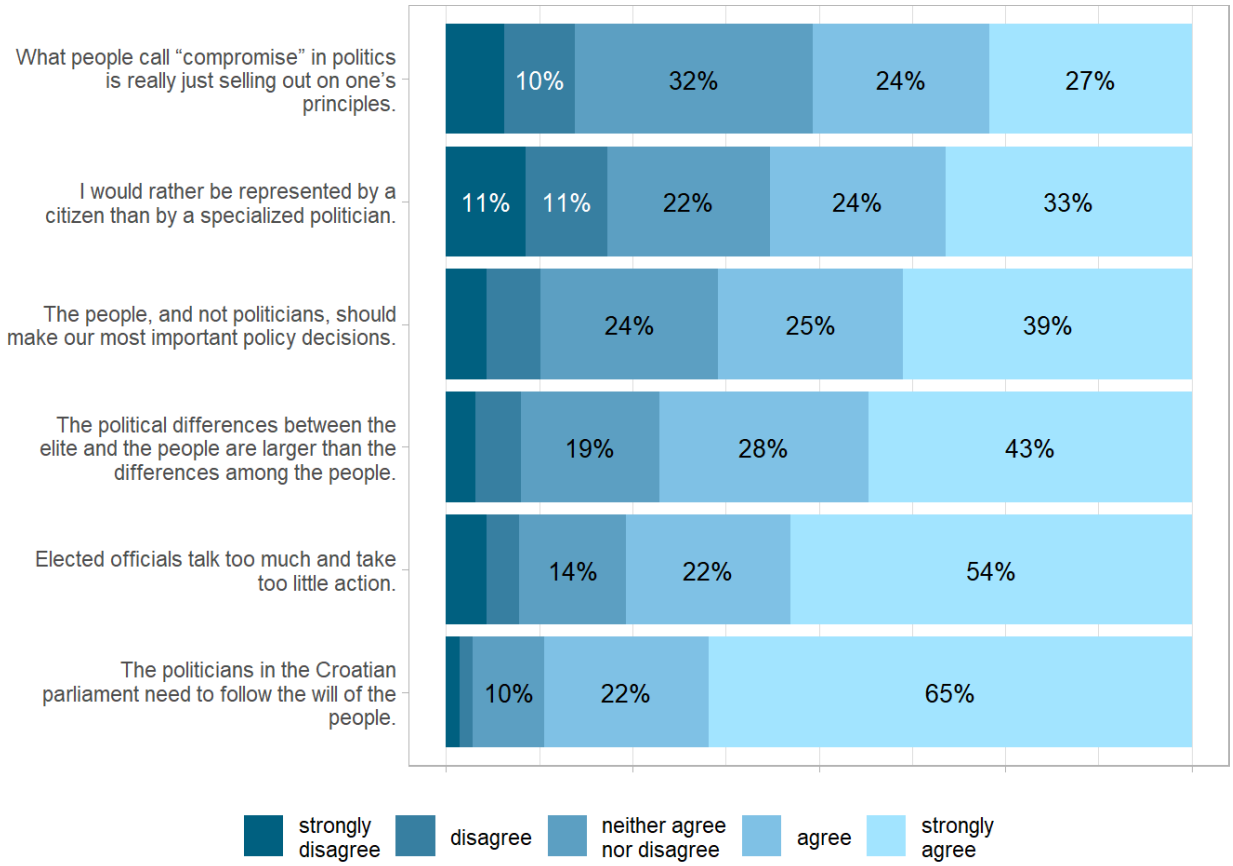


Mudde and Kaltwasser (2017) argue that the term “populism” has become the main catchphrase of 21st-century politics, whose widespread use increasingly creates ambiguities around its meaning. The authors define populism as an

“ideology that considers society to be ultimately separated into two homogenous and antagonistic groups: “the pure people” and “the corrupt elite,” and argues that politics should be an expression of the *volonté générale* (general will) of the people” (Mudde & Kaltwasser, 2017: 6). They point out that populism, as an ideology, does not offer clear guidelines on how to achieve the desired vision of the world, unlike “comprehensive” ideologies such as liberalism, socialism, or fascism. For this reason, populism almost always appears as an “addition” to other ideologies. The compatibility of populism with other ideologies offers flexibility to the categories of “honest people”, “the corrupt elite” and “the will of the people”, and which can be assumed by various actors and practices, depending on the political and social circumstances (Mudde & Kaltwasser, 2017). Lewandowsky (2021) states that denial of climate change has become “a pervasive attribute of many, though not all, populist movements and many, though not all, far-right European parties and actors” (Lewandowsky, 2021: 3). In the cited text, the author refers to the work of Lockwood (2018), which explores the reasons why climate scepticism and opposition to policies on the mitigation of climate change are the characteristic rhetoric of right-wing populist parties and their voters.

To explore the populist views of respondents in this research, the instrument devised by Akkerman et al. (2014) was used. This instrument for gauging populist views comprises six items. In agreeing with the claims, the respondents are positioned on a five-point scale, from 1 – “strongly disagree” to 5 – “strongly agree”. The claims of populist viewpoints and the distribution of responses are shown in Graph 37. Evidently, the majority of respondents, specifically between 51% and 87% of them, agree or strongly agree with claims attributed to populist views. The results placed on the scale of populist attitudes can be compared with the results of Blanuša (2024), who also examines populist views of the Croatian population and its relationship with conspiracism in his research. Given the results of the research, Blanuša (2024) notes that populism in Croatia has become integrated into the entire political spectrum, supporting the hypothesis of the adaptability of populism to various political ideologies as pointed out by Mudde and Kaltwasser (2017). This research also supports this hypothesis.

Graph 37: Level of agreement with the claims on the scale of populist views



A simple additive index was devised based on the claims that examine the populist views[5]. The lowest possible result on the additive index of populist attitudes is 6 (if the respondent answered all the claims with 1 – "strongly disagree"), and the maximum possible result is 30 (if the respondent answered all the claims with 5 – "strongly agree"). The arithmetic mean of the entire sample on the additive index of populist attitudes is M = 23.6. A higher score on the additive index indicates more pronounced populist attitudes among the respondents.

To examine the possible correlation between populist attitudes among respondents and acceptance of climate disinformation narratives, a correlation analysis was conducted. A positive correlation ($r = 0.16$, $p < 0.01$) was established, indicating that respondents who were more inclined to hold populist attitudes were also more

[5] A dimensionality analysis was conducted and indicates the unidimensionality of the indicator, with Cronbach's alpha equivalent to 0.72.

inclined to accept climate disinformation. It is worth mentioning that the correlation is weak, and the conclusion should be accepted with caution. The research by Kulin et al. (2021) shows that voters of right-wing populist parties are inclined to deny climate change and oppose policies aimed at combating climate change, a finding also confirmed by Lockwood (2018). Similar results were observed in this research, implying that the political orientation and voting preferences of respondents are better predictors of the acceptance of climate disinformation than the populist attitudes of the respondents.

8.

Conclusion

The results of this research, conducted in 2024 with the aim of determining the presence, characteristics and predictors of the acceptance of climate disinformation among the citizens of Croatia, reveal a number of signi f cant trends. This section of the report will present a synthesis of the most signi f cant f ndings, along with the role this and similar studies play in developing e f ective strategies to counter climate-related and other types of disinformation in media and public discourse. Limited experimental research that links exposure to disinformation with individual behaviour, such as Bastick (2021), highlight the importance of the f ndings of this study and the need to develop strategies to f ght climate disinformation in the current climate crisis. Bastick (2021) highlights that the issue of widespread disinformation, particularly visual, audio, and audio-visual content through social media, will gain in complexity in the coming years due to arti f cial intelligence.

This research shows that the majority of the adult population in Croatia accepts the reality of climate change. The case is similar to the acceptance of the anthropogenic nature of climate change, which a fourth of respondents do not agree with or are unsure about. Further analyses have established that there are no signi f cant di f erences in the acceptance of the reality and anthropogenic nature of climate change with respect to the sociodemographic and socioeconomic characteristics of the respondents. This shows that in Croatian society, the realitie and anthropogenic nature of climate change are highly and universally accepted among almost all social groups.

After examining the perceptions of climate change among respondents, the focus

of the research was directed to the presence and characteristics of acceptance of climate disinformation. It was shown that acceptance of climate disinformation narratives among the adult population of Croatia reflects the popularity of certain climate disinformation narratives in the media landscape. Similar research (Broz, 2024; CCDH, 2024; Coan et al., 2021) shows that disinformation narratives that deny the existence, anthropogenic nature, and harmfulness of climate change are losing popularity in the media landscape. However, disinformation narratives that spread doubt in the role and purpose of policies that mitigate climate change, and the credibility of climate science and scientists are gaining traction. A familiar tactic of disinformation campaigns that involves the initial negation and later promotion of doubt concerning particular problems (Oreskes & Conway, 2022) has again shown to be successful, hence the most accepted climate disinformation narratives among the adult population of Croatia are narratives presenting climate science as unreliable and narratives suggesting that public policies in combatting climate change are not needed.

The research was also directed to identifying factors that possibly influence the acceptance of climate disinformation among respondents to a greater or lesser extent. Considering the sociodemographic characteristics, it becomes clear that the young and those with a higher level of education in Croatia are less inclined to accept climate disinformation. A comparison of the perception of climate change and the acceptance of climate disinformation leads to establishing that those who accept the reality and anthropogenic nature of climate change are less likely to accept climate disinformation narratives. Nonetheless, it is important to note that those who accept the reality and anthropogenic nature of climate change are not completely resilient to accepting climate disinformation. Furthermore, this research has shown that persons who accept climate disinformation are also more prone to accepting disinformation about the COVID-19 disease. This finding is linked to another phenomenon in the media landscape, which is the spread of disinformation concerning various topics by the same disinformation actors.

Special attention in the research was directed to identifying the link between sources used for informing and media practices, trust in institutions and science, the

political orientation and political views and the acceptance of climate disinformation narratives. A deeper insight into the media practices and habits of respondents shows a high level of self-confidence in their ability to recognize false content in the media. The most widely followed media continues to be television, which presents general interest programs; however, online sources (websites and social media) were also prevalent among the responses. Social networks are especially useful for tracking climate disinformation because this media can easily form thematic and value-based echo chambers through algorithmically recommended content and organic sharing among like-minded people. Accepting the credibility of science has been shown to be an important predictor of accepting climate disinformation; hence, those who accept the credibility of science are inclined to a lesser extent to accept climate disinformation. It has also been established that younger persons and those with a higher level of education are more inclined to accept the credibility of science. Regarding attitudes towards science, the political orientation of respondents has proven to be a significant predictor of the acceptance of climate disinformation narratives. For instance, those who identify with right-wing political views and those who are uninterested in politics are more likely to accept climate disinformation than respondents who see themselves at the centre or left of the political spectrum.

Understanding causes, consequences, and possible solutions to climate change is a cognitive and worldview challenge (Lewandowsky, 2021). Consequently, an increasing amount of research is directed to devising strategies for the clear communication of scientific discoveries related to climate change (Holmes & Richardson, 2020). Communicating climate change is further hindered by disinformation campaigns from various interest groups in the media landscape and public space (Lewandowsky, 2021), which were the focus of this research. As effective strategies for combating climate disinformation, Lewandowsky (2021) cites inoculation (prebunking) and debunking. Inoculation against (climate) disinformation is directed to the creation of resilience of the individual to disinformation content, whereas the main role of debunking disinformation content is attributed to fact-checking organizations. Both strategies reveal a limited success in combating disinformation content in the media landscape and

public space, and the ongoing progress of artificial intelligence is making their effectiveness more questionable. Strengthening existing and developing new strategies and mechanisms to combat climate disinformation is a necessary step in urgently and adequately addressing climate change. The results of this research provide potential directions for their further development.

9.

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