

The Role of Outgroup Threat and Deprivation in People's Susceptibility to Disinformation

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Abstract

Disinformation efforts by foreign state actors are a serious threat to the legitimacy of the institutions of the target country, as well as to a democratic and harmonious coexistence. This research identified emotions of deprivation and outgroup threat as risk factors that facilitate people's susceptibility to disinformation, with political leaning, government- and interpersonal trust as covariates. Out of a sample of 174 participants, some were asked to read texts designed to evoke emotions of deprivation or outgroup threat, or both, while others were not. All participants were then asked to read a news article illustrating of scandals taking place in a fictional city. The scandals depicted the local government, businesses and institutions in a negative light, and were intended to provide participants who had read the manipulations with a convenient, conspiratory explanation for their own deprivation and negative impacts of outgroup presence. Participants were then asked to fill out a questionnaire. Susceptibility to disinformation was measured by inserting false statements that deviated from the article, and made the government look worse, into the questionnaire. Participants were asked to indicate the extent to which they agreed with 16 statements about the contents of the article and a susceptibility score was calculated according to the extent to which participants agreed with false statements. Results found that deprivation did not have an effect on susceptibility, while outgroup threat did. Further insights were gained on the effectiveness of the design of the experiment, as well as the impact of covariates such as age and political leaning. Recommendations were made on how to improve the study and the importance of guarding against disinformation.

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The Role of Outgroup Threat and Deprivation in People's Susceptibility to Disinformation

Following the Russian invasion of Ukraine beginning in late February of 2022, several Russian media companies and their subsidiaries connected to the Russian state were banned from broadcasting in the EU. The reasoning behind this ban was the alleged, persistent and large-scale spreading of disinformation via these media-outlets. The extensive scale of Russian state-controlled media networks includes Russia Today (RT) and Sputnik, with broadcasting licenses in all major EU countries as well as the United States and a number of subsidiaries. The difficulty of removing an operation on this scale is further increased by their presence on popular social media platforms such as Facebook, Twitter and others (Seddon, 2014). This disinformation campaign by the Russian government reaches a large number of people and seeks to create discord, distrust and disruption in Western countries.

Distrust of institutions undermines two of their core functions: providing people with a sense of safety and providing models for group norms and values. “Institutional distrust and conspiracy theories erode the fabric of society” (van Prooijen et al., 2022). As part of a long-term campaign to undermine the legitimacy of Western governments and institutions, conspiracy theories are spread, mistrust in institutions is encouraged and disunity between different groups is exaggerated (Gaddis, 2012, Karlsen, 2019, Röhlig, 2022). Certain groups and individuals are more susceptible to disinformation campaigns than others. People with a higher susceptibility to disinformation serve as a useful gateway by which disinformation can reach wider audiences. For example, via mechanisms such as the false consensus effect which they create when they share and comment on disinformation online (Lewandowsky et al. 2017). Groups of people who are seen as outsiders by the majority of society, so-called outgroups, as well as individuals who feel disadvantaged by society are more vulnerable to targeted disinformation.

Minorities, refugees and extremists are used to further this divide by taking advantage of the conflict potential behind intergroup differences (Karlsen, 2019). For instance, during the George Floyd protests in 2020, Russian state media outlets were actively playing both sides. While outlets such as RT and Sputnik were producing negative coverage of the Black Lives Matter movement, exaggerating the violence on the side of BLM activists, other Russian state-controlled outlets were producing videos criticizing racism in America and highlighting police violence (Bradshaw et al., 2022). These disinformation efforts are part of a wider effort to create

discord within Western society and to reduce trust in Western institutions, often by pitting one group against another and taking advantage of threatened or negative attitudes people hold towards others, or outgroups (Scott, 2021; Vanian, 2021).

People who feel that they are disadvantaged by society are also particularly vulnerable to these efforts (Spaulding & Nair, 2018). This deprivation includes both financial hardship and social exclusion. Being under psychological distress due to these factors makes people more accepting of extremist views (van Prooijen & Krouwel, 2019). Groups and individuals who are on the fringes of society are thus often targeted (Meister, 2016).

Fear of a changing society due to outgroup threats, and perceived deprivation are factors that increase people's susceptibility to disinformation campaigns which blame outside factors, such as outgroups or the government. Prior research has established that these emotions are particularly important to disinformation efforts as they can be exploited and used to widen divisions within society. This research will also consider whether these emotions can increase susceptibility to disinformation even further when they are combined, i.e., when someone is affected by both emotions of outgroup threat and perceived deprivation. In order to better understand how these emotions can affect susceptibility to disinformation, the following research question is proposed:

What is the effect of a perceived outgroup threat and societal deprivation on the susceptibility to disinformation?

Outgroup threat

Disinformation efforts often seek to capitalize on perceived threats from outgroups. Dividing people into in- and outgroups is a form of social categorization, where ingroups can include people with similar values, norms, ethnicity, religion and social class. Outgroups on the other hand consist of people that are perceived not to share the aforementioned traits. According to social identity theory, people link their feelings of self-esteem to the groups that they identify with, and this can be enhanced by stressing the relative superiority of their group over others (Tajfel et al., 1971; Forsyth, 2014). This motivation to protect their self-esteem and strong identification with their ingroups, leads people to exaggerate differences between their group and other groups, deny negative qualities of their ingroup and attribute blame to outgroups.

Evolutionary models suggest that human psychology has been profoundly influenced by fierce intergroup conflicts: we are more likely to favor ingroup members and regard outgroups as

threats and treat them with suspicion or even hostility (Bowles, 2008). One possible explanation suggests that more cooperative ingroups prevailed more successfully in the struggle for resources against other groups (Bowles, 2009). Furthermore, perceived outgroup threats can increase the cohesiveness of ingroups and provide a motivation to defend a common identity (Forsyth, 2014; Bowles, 2008). On the extreme end of the spectrum, narratives which provide a simplistic worldview that portrays the positive ingroup as suffering from the negative outgroups' nefarious actions have often been effective at enlisting supporters (Baele et al., 2019).

There are differences in how outgroups are perceived according to their power levels. It is important to make a distinction between conspiracy mentality, which is a generalized political attitude against outgroups which are high-power, perceived as less likeable and more threatening than low power groups, and right-wing authoritarianism and social-dominance orientation, which is directed against low-power groups (Imhoff & Bruder, 2014). Russian disinformation campaigns typically target both ends of the spectrum, as they both serve the purpose of weakening the establishment and its institutions at middle of the political spectrum (Karlsen, 2019; Gaddis, 2012; Scott, 2021).

Realistic threat

Integrated threat theory is a combination of earlier research that combines both realistic group conflict theory (realistic threat) and symbolic threat theory. The realistic threat is based on realistic group conflict theory. When groups compete over scarce resources, and the potential success of one group threatens the wellbeing of another, this can result in negative intergroup attitudes (Sherif & Sherif, 1969). Negative attitudes towards immigrants are often explained by the assertion that their gains come at the expense of resident groups. This could be observed for example in the Netherlands during the refugee crisis following the war in Syria, where housing programs for refugees were criticized on the basis that they were taking homes away from citizens (Rueb & Messaoud, 2021). Realistic threat also includes threats to the wellbeing of the ingroup. People frequently tend to overestimate the crime rates of immigrants (Hooghe & de Vroome, 2016). News stories of refugees committing crimes, especially crimes against women, contributed to negative attitudes towards immigrants during the refugee crisis (Eddy, 2016). Russian disinformation frequently exaggerated or fabricated incidents of violent crimes by immigrants (Janda & Sharibzhanov, 2019).

Symbolic threat

Intergroup threat perceptions are not only caused by competition for resources. Conflicting values can also lead to the perception of threat. These values include cultural norms, ideologies and traditions. Symbolic threats often come from marginalized groups which are perceived as inferior, also due to their differences from the dominant group (Stephan et al., 1999). These groups are perceived to threaten the societal status quo, often one that favors the ingroup. This includes existing power structures and privileges enjoyed by certain societal groups. This favorable status quo does not always need to be apparent, however. For example, many males may not believe that a systemic bias and prejudice against women still exists in their society. They may therefore perceive activities of feminists and policies that push for gender equality as a threat that gives women an unfair advantage (Weir, 2017). As such, symbolic threats are not purely symbolic, as they may imply tangible threats to material wealth in the future.

Research has shown that the size of a perceived gap in ingroup and outgroup values predicts negative outgroup attitudes; the larger the perceived difference in values between oneself and the outgroup, the higher the chance for negative attitudes towards the outgroup. (Dunbar et al., 2000; Riek et al., 2006). A 2003 study by McLaren has found that the fear that foreigners would negatively impact or undermine American values predicted negative attitudes towards immigrants more strongly than perceptions of realistic threats (McLaren, 2003; Riek et al., 2006). Symbolic threats are therefore perceived as more serious threats, particularly due to their long-term impact on values and norms, and how this can affect society. In Germany, a disconnect between the perceived values of the political mainstream and some segments of the population was fueled by disinformation campaigns that portrayed immigration as an existential threat to German cultural and historical values. The fear that the threat to what some perceived to be their cultural values were not being taken seriously by the media and politicians is seen as a contributing factor to the rise of the far right AfD (alternative for Germany) party (Beyer & Fleischhauer, 2016). Individuals who perceive these symbolic values as under threat can therefore be more receptive towards disinformation that echoes these sentiments.

Outgroup threat (cont.)

Due to the factors described above, humans are more receptive towards disinformation that echoes and reinforces perceived outgroup threats. Intergroup anxiety can lead to negative

attitudes towards an outgroup, which in turn can result in higher acceptance of conspiracy thinking (Grzesiak-Feldman, 2013). In Germany for example, pro-Russian protestors in the wake of the 2022 Russian invasion of Ukraine expressed views that Germany was being ruled by a secret elite that controls the media and spreads Russophobic views. These conspiracy theories received strong support from fringe groups such as the far right, and often originated from Russian-owned media outlets (Regis et al., 2022; Südwestrundfunk, 2022). Due to confirmation bias, exposure to this type of disinformation can trap individuals inside a disinformation spiral (Ling, 2020). For example, an online search about the threat posed by Muslim immigration can provide the searcher with access to disinformation on the topic published on a large scale through the use of many different channels and sources. Many of these point and link to each other and use similar terminology which is relevant for internet searches via key words (Paul & Matthews, 2016). In the wake of societal crises that provoke anxiety, conspiracy theories gain momentum, and outgroups have historically served as scapegoats during such times (Brotherton, 2016; van Prooijen & Douglas, 2017).

Disinformation that plays upon perceived outgroup threats is therefore more likely to be received positively by people who feel threatened. By manipulating and reinforcing feelings of outgroup threat, disinformation campaigns seek to undermine societal cohesion, increase divisions within society and sow distrust in institutions (Gaddis, 2012; Röhlig, 2022; van Prooijen et al., 2022; Paul & Matthews, 2016).

Deprivation

Another factor that makes people more susceptible to disinformation is a perception that one has been marginalized by society, which may result in feelings of deprivation and exclusion. Similar to outgroup threat, these are partly the same groups that are often specifically targeted by Russian disinformation (Spaulding & Nair, 2018; Howard et al., 2019). This can include individuals who belong to ethnic or religious minorities and those with political views which are considered radical. As part of their efforts to widen divisions within Western society, disinformation campaigns therefore specifically target those on its fringes, specifically those who may feel excluded, disadvantaged and not part of the mainstream establishment (Meister, 2016).

Significance and sensemaking

People under psychological distress are more likely to adopt extremist views (van Prooijen & Krouwel, 2019). Forms of distress include negative emotions in general, and in

particular feelings of powerlessness (Abalakina-Paap et al., 1999) and feelings of relative deprivation (van Prooijen et al., 2018). Experiencing social exclusion can lead to a perception that life is not meaningful (Stillman et al., 2009), which can in turn lead to a greater desire to find meaning and make sense of this exclusion. This is known as sensemaking due to a perceived lack of control. Sensemaking involves an effort to understand distressing and complex events, not necessarily in an empirical and logical manner. It has long been linked to greater susceptibility to conspiracy thinking, which often provides seemingly coherent answers to complex questions, though recent research has been less conclusive (Abalakina-Paap et al. 1999, van Prooijen & Acker, 2015; Stojanov et al., 2020).

According to significance-quest theory, people have the need to feel important and respected by supporting a meaningful cause. Experiencing distress on a personal or societal level can lead people to perceive the world as less meaningful. A world in which one does not seem to matter can be particularly distressing. This can lead to a quest for a renewed sense of purpose through strong ideological convictions, which can lead to an increased receptiveness towards ideologies that support these convictions. For example, by blaming a corrupt government for one's own misfortune (van Prooijen & Krouwel, 2019; Webber et al., 2018).

Marginalization

Marginalization, or the perception of marginalization can occur as a result of belonging to a religious or ethnic minority, being economically or socially disadvantaged or for believing in or harboring political views that are considered radical, such as conspiracy theories or extremist views (Peace, 2001). A major component of marginalization is social exclusion, which consists of exclusion from economic life, exclusion from social services and exclusion from civic life. This can happen as a result of unemployment for example (Atkinson, 2018). Marginalized individuals may also experience society as systematically disadvantaging them (van Prooijen et al, 2018). This can result in greater acceptance of more radical ideologies (Renström et al., 2020; Graeupner & Coman, 2016).

Low levels of trust in political institutions are also predictive of belief in conspiracy theories which are critical of the establishment. The inverse can also occur, where an individual experiences exclusion because of their acceptance of radical ideologies. Intolerance of other political views impedes meaningful interaction and contact with people that have different ideological beliefs (Hadarics, 2019; van Prooijen & Krouwel, 2019). This would increase the

individual's receptiveness for information sources that support these views. Radical political movements often provide a sense of belonging through group-oriented rhetoric. This is particularly the case for nationalistic political ideologies but can be generalized to most radical movements, as they create an ingroup-outgroup perception and emphasize a struggle against an unfair or corrupt system that seeks to marginalize them (van Prooijen & Krouwel, 2019; Smeekes et al., 2021).

Regardless of whether such marginalization is the result of actual injustices of the political system and social order, self-inflicted or imagined, targeting individuals who experience these feelings with disinformation on the topic is more likely to be successful. People tend to selectively search for information that confirms their views, and echo chambers that satisfy these needs will also provide marginalized individuals with access to likeminded people that share their opinions (Del Vicario et al., 2016).

The present study

The aim of the present study is to test the effect of deprivation and outgroup threat on people's susceptibility to disinformation. As discussed previously, disinformation targeting deprivation plays upon the frustration and desperation experienced by individuals and blames it on external factors. Feelings of outgroup threat on the other hand can increase susceptibility to disinformation when the disinformation attempts to exploit the fear of perceived threats posed by outgroups. Disinformation that takes advantage of both feelings of outgroup threat and deprivation appeals to two different emotions that heighten susceptibility via different channels. It therefore possibly results in higher overall susceptibility. The consumer of the disinformation may thus be more likely to believe the disinformation that targets both negative emotions. This research will therefore also investigate a possible interaction effect of deprivation and outgroup threat on susceptibility to disinformation.

H1: Individuals with higher levels of Deprivation will show higher Susceptibility to Disinformation.

H2: Individuals with higher levels of Outgroup Threat will show higher Susceptibility to Disinformation.

H3: There is an interaction effect between Outgroup Threat and Deprivation. Higher levels of Outgroup Threat increase the effect of Deprivation on Susceptibility to Disinformation.

Higher levels of Deprivation increase the effect of Outgroup Threat on Susceptibility to Disinformation.

The study is intended to mirror one often employed method in which disinformation campaigns are conducted by state actors, namely by identifying divisive topics within Western society and inserting fabrications, falsehoods to portray aspects of Western society in a negative light and escalate the discourse (van Prooijen et al., 2022; Bradshaw et al., 2022; Scott, 2021).

Because much of the disinformation covered in this paper concerns state sponsored disinformation aimed at diminishing the legitimacy of the target country's institutions, government trust was chosen as an additional variable of interest for correlational exploration. Additionally, interpersonal trust is relevant with regards to both deprivation and outgroup threat; individuals who are high on interpersonal trust are likely to be less susceptible to feelings of outgroup threat and less likely to suffer from exclusion and deprivation (Yu et al., 2020, Krouwel et al., 2017). Political orientation was chosen because it represents a belief and value system. State sponsored disinformation often targets such factors, as previously outlined. Especially people with ideologies on the far ends of political orientation have been found to be susceptible to disinformation and conspiracy beliefs (Jost et al., 2012; Krouwel et al., 2017).

Method

Design

To test the effect of Outgroup Threat and Deprivation on people's Susceptibility to Disinformation, a 2 (Deprivation: no versus yes) x 2 (Outgroup Threat: no versus yes) experimental, between-participants design was employed, with Susceptibility to Disinformation as the main dependent variable. Participants were randomly assigned to either the control group, in which relative deprivation and outgroup threat were not manipulated, Outgroup Threat manipulation, Deprivation manipulation or both manipulations. The manipulations were delivered in form of texts that participants were asked to read, designed to evoke emotions of Deprivation and Outgroup Threat.

Participants and materials

The questionnaire was created using Qualtrics and distributed online via social media by the researcher, by contacting acquaintances and recruiting students at the University of Twente through SONA systems. A total of 285 participants between the ages of 13 and 85 took part in the survey. Due to incomplete responses, 111 participants were removed from the data set, with

174 remaining ($M = 32.18$, $SD = 18.19$). 93 participants were female, 72 male, and nine selected a third gender or did not specify. 40 participants were in the Deprivation: no / Outgroup Threat: no condition, 50 participants in the Deprivation: Yes / Outgroup Threat: No condition, 40 participants in the Deprivation: No / Outgroup Threat: Yes condition and 44 participants in the Deprivation: Yes / Outgroup Threat: Yes condition.

Procedure

All participants were asked to read a fictional news article about a series of scandals taking place in an imaginary city called Stad. The scandals depicted the local government, businesses and institutions in a negative light, and were intended to provide participants who had read the manipulations with a convenient, conspiratory explanation for their own Deprivation and the transformation the city had undergone due to an outsider influx. Participants who had read the manipulations were hypothesized to see the people in charge of the city as even more corrupt than the scandal asserted, and more readily accept statements exaggerating and fabricating additional scandalous events as true.

The manipulations (see appendix for manipulations and news article) were background stories that inserted the participants into the story of the article, by providing additional background information, asking them to imagine themselves as an inhabitant of Stad. In the Outgroup Threat: Yes condition, participants were asked to read a text that intended to simulate the emotion of outgroup threat prior to reading the main story, whereas in the Outgroup Threat: No condition they did not read this text. In the Deprivation: Yes condition, participants were asked to read a background story intended to simulate feelings of Deprivation, which they did not in the Deprivation: No condition. Participants in the Deprivation: Yes / Outgroup Threat: Yes condition were asked to read a story which combined both Outgroup Threat and Deprivation manipulation stories. Participants in the Deprivation: No / Outgroup Threat: No condition did not read a manipulation text. In the case of Deprivation, the emotions were evoked by describing a situation of financial hardship and social exclusion and asking participants to imagine that they were feeling excluded and, rejected and out of money. Participants in the Outgroup Threat manipulation were presented with a detailed description of a changing neighborhood due to an influx of outsiders, and asked to imagine feelings of estrangement, feeling like a foreigner in their own city and undervalued as a member of a society they no longer recognized.

Participants had to then fill out a questionnaire with several statements related to the news article that they had read. Some of the statements were true, reflecting the contents of the article while some statements were falsehoods, exaggerating or distorting the events described in the article. All statements highlighted negative events that occurred in the city of Stad, and the false statements were meant to represent disinformation. Participants were asked to indicate the extent to which they agreed with 16 statements about the contents of the article. Higher agreement with false statements was intended to reflect higher Susceptibility to Disinformation. The questionnaire also asked participants who underwent the manipulations to indicate to what extent they felt Outgroup Threat, Deprivation, or both, after reading the manipulations.

The design of the manipulations was based on studies that measured how imagining future scenarios influences affect (see appendix for manipulations and news article). This study induced feelings of Outgroup Threat and Deprivation in participants through mood induction, and the scenarios used a guided imagery technique. In guided imagery, people are asked to use their imagination to picture a place, person or time and also a corresponding emotion. Studies found that imagining the future has a moderate to strong impact on affect, and this study correspondingly asked participants to imagine a future scenario for themselves (Fakhrhosseini & Jeon, 2017; Mayer et al., 1995; Joseph, et al., 2020; Schubert et al., 2020; Schacter et al., 2007; Schacter et al., 2012).

Measures

The following measures were all taken in the questionnaire after participants had read the manipulations and the article. The manipulations and article can be found in appendix.

Main dependent variable

Susceptibility to disinformation

Following the manipulation, participants were asked to read the article. Susceptibility to disinformation was measured by inserting false statements that deviate from the article story into the questionnaire. Participants were asked to indicate the extent to which they agreed with 16 statements about the contents of the article. Nine statements accurately reflected what was written in the news article (true statements) and the other nine statements included things that were not mentioned in the article (false statements). The statements all represented negative events occurring in the city of Stad. Higher Susceptibility to Disinformation was equated to higher agreement with false statements. The extent to which participants indicated agreement

with these false statements was added up and the mean formed the Susceptibility score ($\alpha = .81$). The Susceptibility score was a number between 1 and 5, with 1.00 meaning rejecting all false statements, and 5.00 accepting all.

Based on the story you have just read, please indicate to what extent you agree with the following statements (1-5 scale, where 1 = disagree a lot, 2 = disagree a little, 3 = neutral, 4 = agree a little, 5 = agree a lot):

- The inhabitants of District 1 were forced to sell their homes (false)
- The inhabitants who refused to move out were treated violently by the authorities (false)
- A city councilor used taxpayer money for a holiday in the Bahamas (false)
- The city council was accused of corruption (true)
- Not everyone in District 1 received their compensation payments on time (true)
- The city council gave out contracts for bribes (true)
- A city councilor used taxpayer money to buy a yacht (false)
- Several people died due to groundwater polluted by large companies in the city (false)
- The inhabitants of District 1 received no compensation for their homes (false)
- The inhabitants of District 1 had to move out immediately (false)
- The city's courts were accused of corruption (true)
- The businessmen damaged property of the inhabitants (false)
- Several companies in the city smuggled weapons (false)
- Several companies in the city smuggled people (false)
- A court case to let the inhabitants of District 1 keep their homes failed (true)
- Companies in the city hired undocumented workers (true)

Additional variables of interest

Political orientation

Participants were asked to indicate their political orientation on a single (1-7) item scale: Strongly, moderately, slightly liberal – neutral – slightly, moderately, strongly conservative. While the measure is rather simple, it is a common measure in political psychology with strong validity evidence and is internationally applicable (Imhoff et al, 2022; Jost et al., 2008).

Trust in government

Trust in government was measured using four items ($\alpha = .80$ (all alphas are from the sample used for this research, N=174)) taken from the General Social Survey (Davis & Smith, 1996), and adapted by van Prooijen et al. (2015). Participants were asked to indicate trust in government on a 1-5 scale, (1 = strongly disagree, 5 = strongly agree). The mean of these four items formed a

trust in government score. Some measures were recoded; reversed so 5 would still represent high trust and 1 low trust. The items in the scale are listed below:

- Those we elect to public office usually try to keep the promises they have made during the election
- The people running the country don't really care what happens to you (recoded)
- The people in government are out of touch with the rest of the country (recoded)
- You can generally trust the people who run our government to do what is right

Interpersonal trust

The interpersonal trust scale was also a 1-5 scale, single item measure, adapted from Krouwel et al. (2017). It asked people to indicate their trust of people from 1) do not trust them at all to 5 (trust them a lot).

- How much do you trust other people?

Manipulation checks

To gain insight into how effective the experiment design was at inducing emotions of Deprivation and Outgroup Threat, participants were asked to indicate the extent to which they felt those emotions. However, due to an oversight by the researcher, only participants who underwent the manipulations had been included. The data from the manipulation checks has therefore only been used to gain insights into the effectiveness of the manipulations, as indicated by the participants.

Perceived outgroup threat

Perceived outgroup threat from the manipulation was measured using six items ($\alpha = .69$) that measured realistic threat (three items) and symbolic threat (three items). The six scores were combined into a mean score. They were also combined into separate symbolic threat and realistic threat scores (three items each). These items were based on McLaren (2003) and slightly changed to fit the current study.

After reading the background story I was able to imagine that (1-7 scale, where 1 = disagree a lot, 2 = disagree 3 = disagree a little, 4 = neutral, 5 = agree a little, 6 = agree, 7 = agree a lot):

Realistic threat ($\alpha = .84$)

- The large number of people moving into my neighborhood reduced my chances of finding housing
- The large number of people moving into my neighborhood reduced my chances of finding employment
- The large number of people moving into my neighborhood reduced my chances of receiving social services

Symbolic threat ($\alpha = .72$)

- Due to the influx of people from outside my neighborhood was losing its character
- Due to the influx of people from outside the local culture was being lost

- Due to the influx of people from outside the cultural life of the city was enriched (recoded)

Perceived deprivation

Deprivation was measured using six items ($\alpha = .78$) that measured perceived significance (three items) and marginalization (three items). The six scores were combined into a mean score. They were also combined into separate significance and marginalization scores (three items each). The marginalization items were based on the social exclusion index (UNDP, EU Fundamental Rights Agency, 2013).

After reading the background story I was able to imagine that (1-7 scale, where 1 = disagree a lot, 2 = disagree 3= disagree a little, 4 = neutral, 5 = agree a little, 6 = agree, 7 = agree a lot):

Significance ($\alpha = .81$)

- I was not valued as a member of society
- I had little control over events in my life
- My life felt less meaningful

Marginalization ($\alpha = .78$)

- I felt excluded from public and social life
- I felt that I could not afford basic necessities
- I felt like that my access to social services like unemployment benefits was restricted

Results

Descriptive statistics

The means and standard deviations of the measured variables are displayed in Table 1. The mean level of Susceptibility to Disinformation was 2.55, with 1.00 meaning rejecting all false statements and exaggerations, and 5.00 accepting all. A significant, negative correlation was found between age and Susceptibility (-.18); older participants were likely to have a lower Susceptibility score. Another significant correlation was found between trust in government and interpersonal trust (.29), and between trust in government and age (.21). Generally, participants indicated a mostly liberal political orientation (1.38 out of 7, 1 = strongly liberal), and were overwhelmingly young, (mean age = 32.18, median age = 23.52).

The perceived Outgroup Threat score consisted of symbolic threat and realistic threat (only participants who took part in the Outgroup Threat manipulation). A paired samples t-test was conducted to compare the means of perceived symbolic threat and perceived realistic threat. There was no significant difference in the means of symbolic ($M = 4.50$, $SD = 1.27$) and realistic threat ($M = 4.68$, $SD = 1.39$); $t(83) = -.98$, $p = .33$.

The perceived Deprivation score consisted of significance and marginalization (only participants who took part in the Deprivation manipulation). A paired samples t-test was conducted to compare the means of perceived significance and perceived marginalization. There was a significant difference in the means of significance ($M = 5.38$, $SD = 1.06$) and marginalization ($M = 5.56$, $SD = 0.95$); $t(83) = -2.01$, $p = .05$.

Table 1

Means, standard deviations and intercorrelations among the variables

Variables	M	SD	1 SC	2 PL	3 GT	4 IT	5 AG
1. Susceptibility	2.55	0.66					
2. Political leaning	1.38	0.69	.07				
3. Trust in government	2.63	0.81	-.12	.12			
4. Interpersonal trust	3.51	0.99	-.07	-.14	.29**		
5. Age	32.18	18.19	-.18**	-.02	.21**	.12	
6. Gender**	1.56	0.50	.04	-.09	-.04	-.00	-.10

* $p < .01$ ** (1 = male, 2 = female, gender correlations were run separately excluding other gender options, $N = 165$)

Effects of Deprivation and Outgroup Threat on Susceptibility to Disinformation

Due to the significant correlation with Susceptibility, age was added to the model as a covariate. A two-way between-participants ANCOVA, with Deprivation no/yes and Outgroup Threat no/yes as independent, Susceptibility to Disinformation as dependent variable and age, political leaning, government trust and interpersonal trust was used to investigate whether Susceptibility differed according to which experimental condition participants had been assigned to. Main effects analysis showed that Deprivation did not have a statistically significant effect on Susceptibility: ($F(1, 166) = 1.20$, $p = .28$). On the other hand, main effects analysis showed a significant effect of Outgroup Threat on Susceptibility: ($F(1, 166) = 3.89$, $p = .05$). The two-way ANOVA found no statistically significant interaction between Deprivation and Outgroup Threat: ($F(1, 166) = 0.59$, $p = .44$). Of the covariates, only age was significantly related to participants' Susceptibility to Disinformation, ($F(1, 166) = 4.33$, $p = .04$)

These results give support to Hypothesis 2. Participants' Susceptibility scores were significantly higher in the Outgroup Threat condition. Hypothesis 1 is rejected; no significant

effect of Deprivation was found. Furthermore, there was no significant interaction effect, thus Hypothesis 3 is rejected.

Table 2

Susceptibility to Disinformation for participants in the different experimental conditions (five-point scale; higher scores indicate higher Susceptibility)

Experimental Condition	Experimental Condition								
	Deprivation: no			Deprivation: yes			Total		
	M	SD	N	M	SD	N	M	SD	N
Outgroup Threat: no	2.36	0.51	40	2.55	0.71	50	2.47	0.63	90
Outgroup Threat: yes	2.64	0.68	40	2.65	0.70	44	2.65	0.69	84
Total	2.50	0.61	80	2.60	0.70	94	2.55	0.66	174

Table 3

Perceived Deprivation and Outgroup Threat levels indicated by participants post manipulation (seven-point scale; higher scores indicate higher perceived Deprivation or Outgroup Threat)

Condition	Emotion	N	Mean	SD
Deprivation: Y	Deprivation	50	5.56	0.85
Outgroup Threat: N				
Deprivation: N	Outgroup Threat	40	4.62	0.98
Outgroup Threat: Y				
Deprivation: Y	Deprivation	44	5.36	0.98
Outgroup Threat: Y	Outgroup Threat		4.56	1.12

Discussion

This study sought to investigate the effect of emotions of deprivation and outgroup threat on people's susceptibility to disinformation. Results indicated that deprivation does not affect susceptibility to disinformation, while outgroup threat showed a weak effect. No interaction effect of deprivation and outgroup threat on susceptibility to disinformation was found. While most covariates did not add predictive value to the model, age did, suggesting that younger participants were more susceptible to disinformation than older ones. The separate components

of the constructs deprivation and outgroup threat were also investigated, with results suggesting no difference between realistic and symbolic threat, but a difference in marginalization and sensemaking.

Deprivation

The results are not in line with previous research which suggested that deprivation can lead to higher vulnerability to disinformation campaigns. Prior research had found deprivation, specifically the marginalization and lack of meaning in life that this study tried to portray, to be a cause of resentment towards the government and institutions and increase susceptibility to more radical messaging (Renström et al., 2020). Though the experiment depicted government and institutions as a convenient target for the emotions of marginalization the participants were asked to feel, the results were inconclusive. Previous studies often asked participants for their actual levels of deprivation, while participants of this study were merely asked to imagine these emotions (Graeupner & Coman, 2016). On the other hand, participants' perceived levels of deprivation were rather high, indicating that the manipulation was convincing. The discrepancy between high perceived deprivation levels and the lack of an effect on susceptibility could again point to a difference between imagined deprivation and real deprivation.

Another possible explanation for the lack of an effect of deprivation is the issue of blame attribution. The presence of outgroups and the perceived threats associated with them can be much more easily blamed on governments and other institutions. When social cohesion and identity are perceived to be threatened by an outgroup, as was depicted in the manipulation, people may blame those in power, such as the politicians, courts and businesses in the article. Conspiracy theories, such as replacement theory blame those in power for high immigration and the influx of foreigners, which are perceived as threats to identity and social cohesion (Obaidi et al., 2021). This may be different in the case of deprivation. While financial deprivation, particularly lack of financial aid from the government, can be blamed on the authorities, the social deprivation illustrated in the scenario much less so.

Sensemaking due to a perceived lack of control was one of the main aspects of deprivation investigated by this study (van Prooijen & Acker, 2015). The lack of results for deprivation supports research findings which suggest that conspiracy theories and disinformation do not compensate for a perceived lack of control. A large meta study blamed the previous findings regarding lack of control on Type 1 errors due to low sample sizes. In fact, the

relationship between lack of control and susceptibility to disinformation may be correlational rather than causal (Stojanov et al., 2020).

Lastly, the fact that participants who took part in the deprivation manipulation indicated high levels of perceived deprivation suggests that the manipulation was indeed successful (see Table 3). The lack of an effect on susceptibility again points to the possibility that deprivation in this government themed context is of limited predictive value with regards to susceptibility to disinformation.

Outgroup threat

Symbolic threats to values and norms featured prominently in the outgroup threat manipulation, more so than realistic threats (see appendix for annotated manipulations and which construct featured where). The levels of significant threat and realistic threat indicated by participants did not differ, contradicting previous research on the greater potency of symbolic threat (perceived differences in intergroup values and norms) compared to realistic threat in evoking threatened emotions that facilitate vulnerability to disinformation (Dunbar et al., 2000; McLaren, 2003). This gives strength to the argument that symbolic threat and realistic threat are more complementary than separate constructs, with significant overlaps, and should be treated as such under integrated threat theory, which combines them, as was done in this experiment (Riek, 2006).

While not as high as the perceived levels of deprivation, perceived levels of outgroup threat post manipulation were high nonetheless, suggesting that this manipulation too was successful. This, coupled with the marginally statistically significant effect on susceptibility indicates that outgroup threat is a much more potent emotion with regards to fostering vulnerability to disinformation than deprivation (though this may be context related). The findings imply that intergroup conflict is an effective tool to deceive people with, by heightening emotions, playing upon psychological distress, and making them more susceptible to disinformation (Grzesiak-Feldman, 2013; van Prooijen & Krouwel, 2019). This also explains why intergroup conflict is the most prominent theme in Russian disinformation (U.S. State Department, 2022).

Other variables

Age correlated negatively with susceptibility, and was a significant predictor in the model, meaning that older participants likely had lower scores (see Table 1 for correlations). A

possible explanation is provided by the correlation between age and government trust, where older participants were also likely to have higher trust in government. They may therefore have also been less likely to accept disinformation about the government scandal described in the news article. Older citizens are on average more wealthy and less eager for social change, and therefore have a vested interest in maintaining the political status quo and support the government (Dalton, 2005; Christensen et al., 2020). By extension, they are therefore less susceptible to disinformation that attempts to portray the government in a negative way.

While a majority of participants indicated more liberal political attitudes, political orientation did not have a notable effect on the model. Previous findings indicate that a right-wing political orientation predicts intolerance towards outsiders, and much less so with left-wing individuals (van Prooijen & Krouwel, 2019; Verkuyten & Martinovic, 2015). The results suggest instead that threatened attitudes towards outgroups can also have an effect on a sample that overwhelmingly self identifies as liberal, when they are manipulated accordingly, as was done in this experiment.

Limitations

Arguably the main limitation of this research is the failed manipulation check. While the manipulation check still yielded useful data, not being able to compare the perceived emotion levels of the manipulation groups with those of the control group reduces their validity. Furthermore, the presence of societal norms concerning what opinions about members of outgroups are considered socially acceptable may influence responses and also reduce the validity of the results. This was mainly the case for outgroup threat, indicated by the lower mean values of perceived outgroup threat vs perceived deprivation.

The experiment asked participants to imagine themselves in the situations described in the manipulations and the article asked them to feel the emotions of deprivation and outgroup threat. The degree to which participants really were able to feel the emotions therefore depended on the strength of their imagination and their willingness. While participants who were presented with the manipulations intended to heighten deprivation and outgroup threat indicated that they were able to imagine these emotions, the manipulation check should be administered to all participants and not just those who were assigned to the manipulations. Furthermore, future research could administer the manipulations more effectively, for example through the use of multimedia methods, enabling a more immersive experience that can better evoke emotions

(Mayer & Fiorella, 2014). This could be achieved by combining the text with pictures, the use of video, music or virtual reality.

The extent to which someone believes fake news can vary wildly according to how knowledgeable they are on the specific topic of disinformation. It also depends on other factors such as how important the topic is to them personally, or their political views. The susceptibility score also depended on people's ability to remember information. Immediately after reading the news article, 16 statements were presented to participants of which nine were false. Because not much time passed between reading the article and having to evaluate the statements, participants were unlikely to get many statements wrong. They were therefore unlikely to attain high susceptibility scores if they had read the article more carefully and remembered its content. This likely reduced the effect size of manipulations. To improve on this experiment, the time between reading the article and evaluating the statements could be increased. Also showing real world examples of disinformation articles to populations that are the original intended target group of those spreading the disinformation and measuring their levels of disinformation and outgroup threat could yield more accurate results.

Implications

One of the strengths of this study was that the manipulations were apparently successful in inducing emotions of deprivation and outgroup threat. The high perceived levels of the emotions imagined by participants, while not the same as actual emotions of deprivation or outgroup threat, suggest that this format has potential. Future research could explore the differences between imagined emotions and actual emotions and how they affect susceptibility to disinformation.

The perceived effectiveness of the manipulations notwithstanding, future studies could design an experiment that more accurately allows deprivation to unfold its hypothesized effect on susceptibility. This could be accomplished by presenting a scenario in which the target of the disinformation can be more plausibly blamed for deprivation than the government in this experiment. For instance, a specific group of people, or an institution more relevant for deprivation such as social services. While this study treated deprivation and outgroup threat separately, a future study could examine the effect of deprivation on susceptibility with outgroup threat as a moderator, for example when an outgroup is directly blamed for the deprivation versus when no one is blamed.

Furthermore, trust in government and institutions, which this research briefly touched on, is worth expanding upon. Trust in government suffers especially in countries with increasing partisanship and polarization of opinions. Division into opposing camps reduces the effectiveness of government, increases the implementation of policies that likely favor the ruling ingroup over outgroups and leads to a net loss of confidence in our governments (Forrest & Daymude, 2022, Torcal & Magalhães, 2022). Incidentally, foreign disinformation campaigns are more likely to succeed in societies that are politically divided (Karlsen, 2019). Further research into how the problem of increasing political divisions and declining trust in our institutions can be tackled is necessary. This includes research into bringing different in- and outgroups together and reducing factors that lead to the marginalization of people onto the fringes of society.

With regards to outgroup threat, the weak effect of the manipulation on susceptibility, especially considering that the sample consisted of participants that mostly identified as liberal, explains why perceived threats by outsiders are such fertile ground for disinformation efforts. Threatened attitudes towards outgroups can invoke reactions which are damaging to a democratic and harmonious coexistence, and this issue is as relevant today as ever. The interrelated mechanisms of ingroup favoritism, outgroup threat, or tribalism, are inherent in human cognition and grounded in our evolution. This makes it difficult to reduce the resulting cognitive biases which facilitate vulnerability to disinformation (Clark et al. 2019). Clear and consistent messaging that debunks disinformation efforts is necessary to counter these biases (Lewandowsky et al., 2012).

Another interesting aspect is the aforementioned lower perceived outgroup threat when compared to perceived deprivation. This contrast between the observed effect of the outgroup threat manipulation and perceived outgroup threat levels indicated by participants is notable and relevant to researchers investigating topics that may be seen as sensitive. This may indicate that people harbor more negative feelings towards outgroups than they are willing to admit. Future research could further investigate this by controlling for implicit biases against outgroups.

Conclusion

The aim of this study was to provide insight into the effects of deprivation and outgroup threat on people's susceptibility to disinformation. Though the experiment failed to find an effect of deprivation, it remains a strong candidate as a risk factor. Much research links deprivation, marginalization and the resulting distress to increased receptiveness of more radical thought and

by extension, disinformation that seeks to take advantage of these emotions (Renström et al., 2020; Graeupner & Coman, 2017). More effort must thus be undertaken to both understand the issue and to protect those that are affected.

Finally, the experiment gave weak support that susceptibility to disinformation is heightened by outgroup threat. The story of a neighborhood transforming due to the presence of outgroups resonated with participants, and not in a positive manner. While banning foreign state media such as Russia Today and Sputnik can reduce the number of disinformation sources in our media landscape, tackling the psychological risk factors of people's vulnerability to disinformation can inoculate people against disinformation efforts and help them better protect themselves and protect society more effectively at a fundamental level.

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Appendix

Deprivation manipulation

Please read the following background story and try to imagine yourself in this situation.

(Significance & Sensemaking) In the last years, your best friends have all moved away, and even though you have tried, for a while now you have found it difficult to connect with people here and make friends. *(Marginalization)* Some time ago you have lost your job, and even though you have been looking for a new job, you have so far been unable to find one. You have had some interviews but keep receiving rejections. *(Both)* You are feeling excluded and deprived. You find yourself feeling excluded from life in this city, and without a job it is getting harder to pay the bills. *(Marginalization)* You have tried applying for unemployment benefits, but the process is long and exhaustive, and it is not guaranteed that you will receive the benefits in the end. To make matters worse, you are no longer able to afford the rent and you have to move out of your home by the end of the month. *(Significance & Sensemaking)* This state of affairs really weighs on your mood, and you feel unvalued as a member of society.

Outgroup threat manipulation

Please read the following background story and try to imagine yourself in this situation.

You are a resident of a city called Stad. You have lived here all your life and even though it is not perfect, this is your hometown. You like the local culture, are proud of your heritage, and you speak the local dialect. *(Realistic Threat)* As part of the city's plans to attract new residents, they have made it much easier for people with high incomes and with families to move to the city. *(Symbolic Threat)* As a result, you have seen large numbers of people from other parts of the country and also foreigners settle in your neighborhood. Sometimes as you walk around your neighborhood you hardly recognize it anymore. Many of the shops that you were used to seeing as you grew up are gone. In their place, you see a lot of big city franchise stores like McDonalds everywhere. There are also lots of foreign stores with strange smells coming out of them. You have never been in any of those stores because they sell strange foods and items, you would not know what to do with them. People barely speak the local dialect anymore and you feel like the city is losing its identity. The government has introduced a program that will help people from

outside get cheaper housing and tax breaks. You do not recognize your neighborhood anymore and are beginning to feel like a foreigner in your own city.

Combined manipulation

Please read the following background story and try to imagine yourself in this situation.

(Deprivation) You are a resident of a city called Stad. *(Significance & Sensemaking)* In the last years, your best friends have all moved away, and even though you have tried, for a while now you have found it difficult to connect with people here and make friends. *(Marginalization)* Some time ago you have lost your job, and even though you have been looking for a new job, you have so far been unable to find one. You have had some interviews but keep receiving rejections. *(Both)* You are feeling excluded and deprived. You find yourself feeling excluded from life in this city, and without a job it is getting harder to pay the bills. *(Marginalization)* You have tried applying for unemployment benefits, but the process is long and exhaustive, and it is not guaranteed that you will receive the benefits in the end. To make matters worse, you are no longer able to afford the rent and you have to move out of your home by the end of the month.

(Outgroup Threat) Even though things are not perfect, this is still your hometown. You like the local culture, are proud of your heritage, and you speak the local dialect. *(Realistic Threat)* As part of the city's plans to attract new residents, they have made it much easier for people with high incomes and with families to move to the city. *(Symbolic Threat)* As a result, you have seen large numbers of people from other parts of the country and also foreigners settle in your neighborhood. Sometimes as you walk around your neighborhood you hardly recognize it anymore. Many of the shops that you were used to seeing as you grew up are gone. In their place, you see a lot of big city franchise stores like McDonalds everywhere. There are also lots of foreign stores with strange smells coming out of them. You have never been in any of those stores because they sell strange foods and items, you would not know what to do with them. People barely speak the local dialect anymore and you feel like the city is losing its identity. The government has introduced a program that will help people from outside get cheaper housing and tax breaks. You do not recognize your neighborhood anymore and are beginning to feel like a foreigner in your own city. *(Significance & Sensemaking, Symbolic Threat)* This state of affairs really weighs on your mood, and you feel unvalued as a member of a society that you no longer recognize.

News article

Please read the following news articles carefully and try to imagine yourself as an inhabitant of Stad.

In the city of Stad, a group of businessmen have recently bought the majority of the buildings in an old neighborhood of the city, called District 1. Plans are to turn most of the buildings into modern apartments and even build a shopping center. News reports indicate however, that there were several problems. Some of the inhabitants protested against the forced sale of their homes, the case went to court and an appeal was made but the case failed, and the appeal was rejected. The inhabitants therefore had to accept an undisclosed sum of money for their houses and had to move out by the end of the month. Some inhabitants complained about not everyone receiving their compensation payments in time. It is said that some inhabitants refused to move out, and that the authorities had to intervene. Some residents accused the businessmen of having damaged their property. A statement by the group of businessmen that bought the buildings in the district says that everyone was paid fair prices and that all the residents were treated with the utmost respect. News agencies report of several scandals in connection with the purchase of the apartments. The city council is being accused of sleaze and corruption. In one instance a city councilor is alleged to have taken bribes to buy a new car. Another allegation mentions using taxpayer money to pay for a holiday in the Bahamas. Another councilor is accused of having spent large sums of undeclared donations on expensive designer clothes and jewelry for his wife. There are several other allegations of citizens and companies bribing the city council for permits and other favors. One of the leading members of the city council said in an interview that the allegations are a grossly exaggerated smear campaign designed to make them look bad. Reports state that the allegations are not limited to the city council. Several large companies in the city have been accused of corrupt acts, such as polluting groundwater and illegal hiring of undocumented workers, and that the authorities failed to stop them. People complain that the city is being sold to big corporations and outside money.