RESEARCH NOTE

The Link between Misinformation and Radicalisation:
Current Knowledge and Areas for Future Inquiry

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Does misinformation lead to radicalisation? This Research Note explores the theoretical link between consumption of misinformation and radicalisation to violent extremism. Drawing from insights from communication studies, criminology, and psychology, it is argued that some unique characteristics of misinformation are likely to facilitate radicalisation among individuals with self-uncertainty, low cognitive flexibility, and grievances, who also experience social exclusion. This exploration concludes with a summary of findings and offers recommendations for both policy makers and practitioners.

Keywords: misinformation, propaganda, radicalisation, extremism, social media

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Introduction

In today's online environment, misinformation and propaganda supporting violent extremism are easy to find. Yet, we know little about the relationship between misinformation and support for violent extremism. This Research Note seeks to address this gap in our understanding. First, it outlines the different types of information that fall under the umbrella of misinformation. Second, it discusses radicalisation and the characteristics that may make an individual more susceptible to radicalisation based on exposure to extremist misinformation. Specifically, it argues that individuals who have self-uncertainty, low cognitive flexibility, perceived grievances, and low social integration may be more vulnerable to radicalisation via extremist misinformation. Third, the Research Note discusses how the online environment may support radicalisation as a result of misinformation. It concludes with a summary of our argument and suggests three areas for future research: (1) addressing selection effects, (2) testing the cognitive factors associated with vulnerability to misinformation and radicalisation, and (3) extending the research on media literacy to radicalisation mitigation.

Connecting the Dots between Misinformation and Extremism
What Is Misinformation?

Scholars, journalists, and policy makers often use the term misinformation to describe a broad category of information that relevant experts would consider incorrect based on the best evidence available at the time.[1] Several types of false or misleading information exist under the umbrella of "misinformation," including misinformation, disinformation, malinformation, conspiracy theories, and propaganda. These subcategories often overlap, but each possesses distinct characteristics. Misinformation describes false information that was not created with the intent to manipulate or harm, while disinformation describes false information that was created with the intent to manipulate or harm. Malinformation describes information that is partially true, but is used out of context with the intent to manipulate or harm.[2] Each of these constructs describes information that is false or misleading, in part or in whole, that is disseminated for various reasons. For the rest of this Research Note, we use the umbrella term "misinformation" to be inclusive of all forms of false or misleading information discussed here.

Much of the misinformation we encounter on a day-to-day basis is not extreme or radical. However, some misinformation is designed to elicit strong emotions and legitimise extreme beliefs, including propaganda and conspiracy theories. Propaganda is false or misleading information that has been specifically designed to manipulate its consumers' beliefs and preferences to achieve a political goal.[3] Propagandists often play on prejudices or emotions to strengthen the persuasiveness of their messages.[4] Conspiracy theories are information statements that incorrectly attribute political or social phenomena to specific people or institutions.[5] These forms of misinformation often form the "evidence" supporting violent extremist ideologies.

Misinformation may spread for several reasons. In most cases, people are likely to believe information when they first hear it. Unless individuals are alert and devote a high degree of attention

to evaluating statements as they reach them, it is likely that misinformation will be accepted as true until corrected. Information evaluation typically involves the following considerations: (1) whether the information aligns with what you already believe to be true; (2) whether the information is internally coherent (i.e. it does not contradict what you believe about how people are motivated and act); (3) whether the source of the information is credible, and (4) whether other people believe it.[6] Misinformation that employs divisive rhetoric and elicits strong emotional responses can impact this process of information evaluation. Affective information processing is often more immediate than cognitive processing, making people less likely to engage critically with what they are reading, hearing, or viewing and more likely to rely on existing biases.[7] The emotional aspect of misinformation also impacts its spread: studies have found that misinformation inspires strong feelings of surprise and disgust, and that these emotional reactions encourage greater engagement in the form of sharing, "likes", and comments.[8]

What Is Violent Extremism?

Violent extremism is characterised by the support for, or use of, violence to achieve political, ideological, social, religious, or economic goals. A more refined definition of extremism is "the belief that an in-group's success or survival can never be separated from the need for hostile action against an out-group. The hostile action must be part of the in-group's definition of success".[9] As such, violent extremism can run the gamut from verbal threats and discrimination all the way to genocide. More commonly, acts of violent extremism include terrorist attacks, hate crimes, and other violent incidents motivated by a specific goal.[10] Individuals come to support or perpetrate acts of violent extremism through a process of radicalisation, in which the use of violence to achieve a goal is increasingly seen as legitimate.[11] It must be noted, however, that radical attitudes and beliefs alone are poorly correlated with actual violent behaviour.[12] Nevertheless, radicalisation can occur via an increased exposure to messages that support extremist ideologies and the use of violence.[13] This process is often motivated by powerful emotions like insecurity, shame, and anger, which can be transformed into feelings of resentment and hatred of other groups.[14]

Conceptualising the Link between Misinformation and Radicalisation

Violent extremist group leaders are savvy Internet users who deploy a variety of tactics to expand consumption of their material and recruit new members. For example, extremists may use common hashtags when commenting on topical issues or embed news reports into their propaganda to lure users from mainstream to extremist content.[15] Extremist group members work to identify potential new recruits in online spaces and slowly introduce them to extremist ideologies.[16]

Extremist misinformation is unlikely to radicalise individuals who come across it inadvertently; rather, it is more likely to support radicalisation to extremist violence among those who seek it out.[17] For these individuals, misinformation can be a powerful tool of radicalisation due to its propensity to arouse strong emotions, particularly anxiety and anger. Threat messages that arouse anxiety can be highly persuasive—messages that point to a threat, particularly one

that is unknown, create a psychological drive for more information about that threat and generate support for responsive action.[18] Significantly, research shows that once anxiety has been aroused, individuals are more likely to process information in accordance with their pre-existing beliefs. This effect is compounded by the tendency of high-anxiety individuals to seek out threatening information.[19] Messages that elicit anger may also lead individuals to seek out attitude-confirming information. Feelings of anger are also associated with a higher likelihood of engaging in online debates.[20]

Drawing from communication studies, criminology, and psychology, we present the following theoretical argument regarding how misinformation may be linked to radicalisation. We argue that individuals with self-uncertainty, low cognitive flexibility (e.g. rigid, or black-and-white thinking), grievances—real or perceived—and those who experience social exclusion may be more susceptible to extremist beliefs and radicalisation via misinformation than others.[21]

The Role of Self-Uncertainty

People face uncertainty every day: lack of clarity about why the world works in a certain way, why unpleasant things happen in one's own life, and insecurity about one's own identity. This uncertainty can produce high levels of anxiety, particularly uncertainty about who one is and what one's role in society is. Individuals experiencing this type of uncertainty often feel a strong need to find a fitting individual purpose.

Violent extremist belief systems and groups may present attractive opportunities to fill this need. High levels of self-uncertainty may lead people to search for ideologies that are "distinctive, unambiguous, all-encompassing, explanatory, and behaviourally prescriptive".[22] Extremist content that presents a black-and-white explanation for the world and offers clear guidance on social hierarchies may provide comforting clarity.

Identifying oneself as a member of a particular group can also help reduce anxiety stemming from uncertainty. Identification with a group that has clear boundaries, one that unites its members around shared goals and a belief in a common fate may be particularly attractive to individuals experiencing high uncertainty: such groups strengthen perceptions of an "in-group" and an "out-group", and identifying oneself as a member of the "in-group" can help provide identity seekers with a clearer sense of self and one's purpose in life.[23]

Extremist group membership may also address one's need to find an individual purpose. The *quest for significance* theory of radicalisation argues that extremists fulfil their basic identity and psychological needs by conforming to the group identity, thereby allowing them to find purpose and meaning via the group.[24] This serves as a replacement for individual uncertainty at the identity or cognitive levels. For example, research on radicalisation pathways of violent extremists in the United States has found that many did indeed experience a loss of significance at some point in their lives.[25]

There is also some evidence that uncertainty about one's identity and purpose in life serves as a major problem that pushes an individual to join an extremist group or movement to meet

these basic needs. In this sense, uncertainty is reduced by adopting a group's identity as well as the attitudes and behaviours that go with it.[26] Those studying white supremacist pathways found something similar: adopting a collective identity gave many extremists a strong sense of individual purpose and direction; thereby improving their sense of agency.[27]

The Role of Cognitive Flexibility

Cognitive flexibility describes an individual's ability to switch between modes of thinking and adapt to changing rules or information collection. Individuals who look for clear answers to questions and avoid ambiguity or, in other words, have a high need for closure, are likely to have low cognitive flexibility.[28] People with low cognitive flexibility are less likely to understand the limits of their own understanding of an issue, which often means they are less likely to accept new information that challenges their pre-existing viewpoints.[29] Rather, they are likely to use directionally motivated reasoning to dismiss or counterargue that information in support of their prior beliefs. This tendency to prioritise attitude-congruent information may lead to greater acceptance of misinformation that reinforces pre-existing beliefs.[30] In contrast, people with high cognitive flexibility may be better able to use analytical thinking to identify misinformation as such, even if the information favours their pre-existing beliefs.[31]

Cognitive flexibility is also related to propensity towards extremist attitudes. A recent study found that cognitive inflexibility was positively linked with in-group identity fusion and a willingness to endorse violence against out-group members. Individuals with low cognitive flexibility also showed higher levels of attachment to their ideological beliefs and a willingness to sacrifice themselves to protect their in-group.[32] These theoretical connections are buttressed by the social-psychological literature which shows that more close-mindedness (e.g. expressed in black-and-white thinking) is correlated with how we view and engage with other social groups.[33]

Misinformation that simplifies and explains why bad things occur, such as conspiracy theories or propaganda, may be especially potent. Put simply, cognitive rigidity, black-and-white thinking, and an inability to entertain multiple viewpoints or perspectives are already related to radicalisation processes, irrespective of whether misinformation was a proximate cause. This is one of the assumptions undergirding many existing preventing/countering violent extremism (P/CVE) programs. For example, a promising prison-based program within the United Kingdom—the Healthy Identity Intervention (HII)—targets cognitive rigidity while promoting a healthier identity.[34] Other programs operating within the community engagement space such as Being Muslim Being British and Being Muslim Being Scottish target this same construct with a fair amount of success.[35]

The Role of Grievances

Extremist groups often craft narratives to exploit a sense of injustice or perceived grievances. To do so, they often rely on conspiracy theories to identify a scapegoat for why this injustice exists and blame specific out-group members for it.[36] For example, the literature on white supremacist radicalisation pathways shows that groups prey on vulnerable individuals who need

a cause to act upon their grievances.[37]

Perceptions of personal or group injustices can lead to an array of negative emotions associated with the adoption of extreme beliefs. Perceptions of personal injustice often involve the sense that one's life circumstances are not right, or fair, while group injustice often involves comparison between the circumstances of one's own social group and the circumstances of others. These perceptions can lead to support for violent extremist ideologies through a process of attribution, in which another group is held responsible for these injustices.[38]

Individuals may be more predisposed to believe misinformation about groups if they already distrust them. In these cases, the alignment of accusatory and hateful fake news with their pre-existing beliefs bolstered their confidence in these messages.[39]

The Role of Social Exclusion

Isolation can greatly facilitate the radicalisation process. One study of lone-actor extremists found that a majority experienced social isolation.[40] Social exclusion may manifest itself differently for different groups. For example, a study on the correlation between military service and radicalisation found that veterans were more likely to face social exclusion.[41] How this manifests itself in, or translates to, online behaviour is, however, unclear.

Misinformation from hate and extremist groups that highlights in-group membership may be attractive for people who lack strong social bonds and a sense of community. For these individuals, language offering community and acceptance within the extremist group may present longed-for opportunities for belonging. The activation of in-group identity may also make extremist misinformation seem more credible: when in-group identity is strong, individuals are likely to discount information that challenges in-group/out-group divisions.[42]

Social exclusion may also contribute to radicalisation by reducing the availability of protective factors associated with pro-social connections.[43] Such processes may be particularly acute for youth populations. For example, one study found that people become less likely to hold extremist attitudes conducive to violence as they age, due in large part to growing maturity, improved coping skills, improved self-control, and—significantly—connections to pro-social peers.[44] Younger people who lack these personal and social protective factors are therefore at a higher risk.

People, particularly youth, who experience anxiety and social exclusion are more likely to turn to the Internet for guidance. In many cases, the Internet can provide positive benefits. However, people who experience social exclusion and loneliness may be more likely to engage in a problematic way with social media, prioritising online connections over in-person relationships.[45]

Social Networks Can Serve as Proximate Cause or Reinforcement

The literature on extremist pathways shows that social networks—both pro- and anti-social—are influential protective and risk factors respectively, for radicalisation processes in general.[46]

There is no strong reason to doubt that these connections may influence *online* behaviour. In fact, the evidence to date strongly suggests that the dichotomy between online and offline behaviour is a false one.[47] Offline social network homogeneity (i.e. a lack of diversity with regard to individual backgrounds and viewpoints) is very important for fostering online "echo chambers" for a variety of reasons: how algorithms prioritise the diffusion of information online, how individuals are provided content that is also consumed or shared by other users in their local area, and how individuals self-select into various domains.[48] A major analysis of online social networks found that social homogeneity in online echo chambers was the primary driver of the spread of misinformation.[49]

Socially homogeneous connections serve as reinforcement mechanisms. Michaela Del Vicario and her colleagues have described how "Users tend to aggregate in communities of interest, which causes reinforcement and fosters confirmation bias, segregation, and polarisation. This comes at the expense of the quality of the information and leads to proliferation of biased narratives fomented by unsubstantiated rumours, mistrust, and paranoia."[50] Whether radicalisation originates online or offline, social networks play an important role in steering individuals into, and out of, extremism pathways. However, the strength of impact of various relationships on radicalisation is tenuous and varied. Some argue that family members intentionally socialise each other into extremist movements, whereas others contend that individuals pursue extremist movement membership to avoid cognitive dissonance and foster groupthink. Peer pressure can also be an important factor in one's decision to stay in, or leave, an extremist movement.[51] In one study on ISIS members, connections with friends was the number one recruitment source.[52] Similarly, a study on far-right actor disengagement found that having radical family members was an important factor influencing the impact of other push and pull factors.[53] A recent examination of Islamic extremist pathways found that having radical friends was an important pull condition into violent extremism, whereas being married was an important pro-social condition mitigating violent extremism.[54] While more work is needed to discern how offline social networks influence online radicalisation, it is likely the case that online social connections function similarly to offline connections, given the seemingly false—or at any rate diminishing—dichotomy between offline and online radicalisation mechanisms.

The Role of the Online Environment

For those seeking it out, misinformation and propaganda in support of violent extremist causes is easy to find. Internet searches allow individuals to access websites and social media posts and find groups dedicated to sharing violent extremist ideologies. Studies have shown that exposure to this content is common, even for those who are not actively searching for it.[55] One study of Belgian youth found that nearly 25percent of participants had encountered Salafi-jihadist content by accident while online.[56]

Social media platforms offer significant opportunities for individuals to seek out information about extremist ideologies and create connections with violent extremist groups. Some studies have found evidence that the algorithms that determine which content social media users are exposed to may direct users towards increasingly extreme content.[57] This, in turn, can lead to more information silos and subsequently stronger homogenous social echo chambers, in line

with the foregoing research.

Online behaviours such as doxing (i.e. publishing private information about an individual online with malicious intent), trolling (i.e. using inflammatory or offensive language online to provoke others), and cyber-bullying are associated with support for violent extremist beliefs. Individuals who are part of online communities that promote these types of behaviours are likely to be especially vulnerable to radicalisation.[58]

Conclusions and Recommendations

Despite the apparent lack of empirical research on the connection between misinformation and radicalisation, there are strong theoretical reasons to believe that the former may facilitate the latter. In this Research Note, we offered a framework to help explain why some people may be more vulnerable to radicalisation via misinformation than others. This framework is intended to be a starting point for future research. Many important questions remain; addressing them will be critical to advancing our understanding of this phenomenon. Three important areas for future research include: (1) addressing selection effects, (2) testing the cognitive factors associated with vulnerability to misinformation and radicalisation, and (3) extending the research on media literacy to radicalisation mitigation.

Addressing Selection Effects

One area that needs to be examined further is the "chicken and egg" scenario of media selectivity. Put another way, do people who are either *already* radicalised or more *susceptible* to radicalisation select media or content forums and platforms with extremist content, or do these forums and platforms radicalise people? If the former is true, are people with specific risk profiles more likely to engage with specific content or forums that increase their radicalisation risk? The extant literature suggests that individuals who hold specific cognitive inclinations are more likely to engage with content that affirms or relates to those inclinations (e.g. an aggressive person seeking out violent material). However, this question remains largely unanswered regarding radicalisation in general, and the exposure to, and spread of, misinformation specifically.[59] Scholars should examine this question by way of using case-control and longitudinal designs to understand how people interact with misinformation after understanding their risk profiles, support for, or adherence to, radical ideologies, and support for violence more broadly. Understanding this link is crucial for developing appropriate policies or programs to respond to this issue.

Testing the Cognitive Factors Associated with Vulnerability to Misinformation and Radicalisation

In this Research Note, we have presented some cognitive factors that are theoretically linked to radicalisation via misinformation, including self-uncertainty, self-esteem, and analytical thinking. In recent years there has been a steep growth in the study of the factors associated with radicalisation.[60] While many of these factors have yet to be adequately tested empirically

on susceptibility to misinformation, we have highlighted some of the theoretical connections between several of these factors and radicalisation more broadly in an effort to connect the dots between underlying risk factors, susceptibility to misinformation, and radicalisation.

Recent work in this domain supports the linking of the cognitive factors laid out in this Research Note and susceptibility to misinformation. A recent review showed that many cognitive, social, and affective factors are related to susceptibility to misinformation and serve as barriers to revision once information has been corrected.[61] For example, corrections to misinformation that attacks a person's worldview, which is grounded in their identity, may result in further cognitive dissonance or discreditation of the source. A related study examined the relationship between cognitive factors and the question of whether media is consumed critically.[62] They founded that *need for cognition* (i.e. reliance on analytical thinking when processing information) was positively related to critical consumption, as was the level of engagement on social network sites, with the interaction thereof being particularly predictive of consumption patterns. Put simply, people with low analytical thinking skills and less online social media engagement are much more likely to uncritically engage with content—something arguably connected to the potential for misinformation to spread. Continuing this research to identify the factors associated with vulnerability to misinformation and radicalisation will allow scholars to identify promising interventions that may bolster resiliency among this population.

Can Interventions Mitigate Radicalisation from Misinformation?

Many types of interventions have been employed to mitigate the spread of misinformation, such as information or media literacy efforts, pre-bunking initiatives (e.g. adding a disclaimer debunking information before it is consumed), and argument-based forms of inoculation to specific messaging.

Media literacy initiatives are a growing and often useful method for preventing the spread of misinformation among the general population. These initiatives are based on the premise that people desire accuracy and that providing information consumers with skills to improve misinformation identification will reduce their likelihood of believing it. There is some evidence to support this: studies have found that people look for cues about the accuracy of what they are reading, and that even simple interventions can improve their ability to detect misinformation.[63] However, these initiatives range widely regarding how media literacy is forged. While some initiatives merely provide a forewarning or scripted explanation to prime the reader to be aware of what misinformation looks like, others consist of multicomponent educational initiatives designed to improve resilience to misinformation. It has, for example, been found that exposure to a news media literacy intervention via a scripted forewarning (on immigration and crime) has benefits for improving perceived accuracy of information, although it did not improve issue agreement amongst participants.[64] Related work has found that information literacy—or someone's ability to navigate and find viable information—was more predictive of spotting fake news than mere media literacy, albeit these types of literacies are influenced by one another.[65]

Another line of research has examined the use of inoculation messaging, which involves exposing

information consumers to the types of appeals that misinformation is likely to make, so that they are less likely to believe misinformation when they encounter it. A recent experimental study used a randomised control trial to study whether misinformation from either Islamophobic or radical-Islamist videos were more likely to be shared after exposure to inoculation messaging. Those who were exposed to the neutral (i.e. not topic-specific) inoculation video—which was based on an analysis of rhetorical devices used by those pushing disinformation online (e.g. hasty generalisation; appeal to emotions)—had less agreement with the contents of the subsequent video containing misinformation, viewed the source as less reliable, and were ultimately less likely to share it than those who did not receive the inoculation video. Put simply, neutral interventions to pre-empt the acceptance and spread of misinformation may be useful in combatting radicalisation processes as well. Yet, more work is needed in this area.

Thus far, studies of media literacy and misinformation have focused on the general population. It is unclear if these interventions—or the other types of initiatives described—would have similar effects on individuals who are radicalised or are at risk of radicalisation. Given the previously discussed work on cognitive inflexibility and radicalisation susceptibility,[66] future work should focus on the lack of critical thinking (examined in the aforementioned study using a focus on personality and critical thinking) when examining the relationship between vulnerability to misinformation and radicalisation.

Greater research into these areas is needed to craft effective initiatives for these populations, especially when selection effects are considered. Furthermore, it is not clear whether anti-misinformation initiatives have sustained or long-term benefits since most studies do not compare the relative benefits of one type of intervention compared to other types.

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About

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