

On Believing Conspiracy Theories We Remember: Analyses of Two Large-Scale Surveys of  
Conspiracism in the French General Public

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**Version 5, 10, August, 2021**

**This manuscript is an unpublished working paper and has been submitted for peer-review with a journal. Comments are welcome and can be sent to the first author.**

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**Abstract**

How do individuals come to hold conspiracy beliefs? Research has mainly focused on individual differences and motives, and we know little about the effects of (perceived) exposure to conspiracy theories on their believability. Because actual and perceived exposure to statements both increase their perceived truth, we hypothesized a positive association between perceived exposure to conspiracy theories and their believability. We analyzed data from two surveys conducted in representative samples of the French population in which participants indicated both their adherence to and recognition of conspiracy statements. Participants agreed more with conspiracy statements they recognized as already heard when asked to indicate whether they had already heard the statements after (Study 1) and before (Study 2) indicating whether they agreed or disagreed with those statements. This effect was stronger in participants with a higher conspiracy mentality. Results suggest that individuals anchor their belief in conspiracy statements in their memory.

*Keywords:* truth, repeated exposure, conspiracism, conspiracy theories, belief

## **On Believing Conspiracy Theories We Remember: Analyses of Two Large-Scale Surveys of Conspiracism in the French General Public**

The Internet makes access to information quick, cheap, and easy. Through social media (e.g., Facebook, Twitter), video-sharing websites (e.g., YouTube), and blogs, virtually anyone can produce information. Although this proliferation brings benefits (e.g., nearly instantaneous access to live news), it also has its downsides (Hills, 2019). One of them is inaccuracy (Marsh & Rajaram, 2019), as information can now be produced and shared without regard to the truth. The proliferation of misinformation in the form of conspiracy theories, fake news, myths, rumors, hoaxes, and so on, is a serious issue when considering its possible impact on, say, people's health practices (Oliver & Wood, 2014; Stein, 2007; Thorburn & Bogart, 2005; van Prooijen & Douglas, 2018).

Understanding how individuals come to believe misinformation is a critical theoretical problem with practical implications. The case of beliefs in conspiracy theories (i.e., conspiracism) is especially relevant, as it has become a major social concern, reflected by a growing psychological literature (Goreis & Voracek, 2019). *Conspiracism* is the belief in “a vast, insidious, preternaturally effective international conspiratorial network designed to perpetrate acts of the most fiendish character” (Hofstadter, 1966, p. 14). The purported existence of this network is chiefly used to explain social or political events (Douglas et al., 2019).

Focusing on conspiracism, the aim of the present paper is to help to identify factors that promote such beliefs. We argue that repeated exposure to conspiracy theories could be one of these factors. Repeated exposure would induce a so-called *truth effect*—a term that refers to the greater likelihood of judging statements to be true if they are repeated rather than new (e.g., Bacon, 1979; Hasher et al., 1977; for meta-analysis, see Dechêne et al., 2010). Below, we discuss how the truth effect could help explaining part of conspiracism. In support

of the notion of repetition-induced conspiracism, we then present and discuss our analyses of two large-scale surveys on conspiracism conducted among representative samples of the French population (Institut Français d'Opinion Publique, hereafter called IFOP, 2017, 2019). The results show that people agree more with conspiracy statements they recognize as already heard, suggesting that people anchor their belief in their memory.

Research on conspiracism is still in its infancy (Goreis & Voracek, 2019; van Prooijen & Douglas, 2018). Most studies have focused on how individual differences may explain conspiracism (e.g., intuitive vs. analytical thinking: Swami et al., 2014; belief in finalism: Wagner-Egger et al., 2015; paranoia: Brotherton & Eser, 2015; personality: Swami et al., 2011). However, given the pervasiveness of conspiracism, individual differences may not be the only factors worth studying. Research has also identified motives for conspiracism, including epistemic (i.e., desire for understanding, accuracy, and subjective certainty), existential (i.e., desire for control and security), and social (i.e., desire to maintain a positive image of the self or group) motives. Individuals may be attracted to conspiracy theories because they see them as a means of satisfying these social motives (Douglas et al., 2019; Douglas et al., 2017). Beyond individual differences and social motives, contextual factors have received far less attention, and little is known about the generic cognitive processes involved in the endorsement of conspiracy theories.

One such factor could be repeated exposure to conspiracy theories. Among others, repeated exposure has been shown to increase perceived truth (for meta-analysis, see Dechêne et al., 2010; see also Unkelbach & Rom, 2017; Unkelbach et al., 2019), an effect known as the *truth effect* (for related effects of repeated exposure, see e.g., Alter & Oppenheimer, 2009). A well-supported explanation for this effect is that repeated statements are more easily processed and understood than new ones, and this processing fluency is used as a cue for truth (Dechêne et al., 2010; Unkelbach & Rom, 2017; Unkelbach et al., 2019).

Repetition does not need to be actual (i.e., experienced) to increase perceived truth: research has found that statements *perceived to be repeated* are judged as more true than statements *perceived to be new* (Bacon, 1979). For instance, Bacon found that recognized statements were associated with higher ratings than statements that were not recognized, *regardless* of the actual exposure (i.e., statements were indeed old or new). These findings are consistent with the possibility that people anchor their judgments in memory – whether accurate or not.

In a typical truth effect study (e.g., Nadarevic & Aßfalg, 2016), participants first read a set of statements in a non-truth judgment task (e.g., judgment of interest, categorization, or reading). In a second task, participants judge the truth both of statements they saw in the first task and of new ones (i.e., not displayed in the first task). It should be noted that the statements in these tasks are usually selected for the ambiguity of their objective truth status (unknown truth status, e.g., “Emeralds feature a conchate disruption”; Unkelbach & Rom, 2017). The statements are usually factual, unemotional, and non-social, as they simply express a state of the world. The truth effect is the difference between truth ratings for previously heard statements, typically only once, and truth ratings for new statements. It has been conceptually replicated hundreds of times (Dechêne et al., 2010).

The truth effect has been shown to resist various experimental variations. However, a commonly accepted idea is that statements need to be ambiguous regarding their truth to observe a truth effect; individuals would otherwise use their prior knowledge (more diagnostic information) to form their judgments (see, e.g., Dechêne et al., 2010). Unkelbach and Stahl (2009) formally implemented this assumption in a multinomial processing tree model of the truth effect, and the model fitted the data well. However, recent studies have begun to challenge this view, showing that people are affected by repetition even when they have relevant knowledge. Fazio et al. (2015) observed a truth effect for statements the

participants knew to be false (see also Fazio, 2020). These authors therefore developed a model of the truth effect where prior knowledge is not a constraint on the truth effect, and it fitted the data well (better than a version of Unkelbach and Stahl 2009's model). Pennycook et al. (2018) replicated the truth effect with implausible and fabricated statements (i.e., fake news). Nonetheless, blatantly implausible statements such as "The earth is a perfect square" were rated equally false, whether they were novel or repeated. One possibility is that highly implausible statements are initially so disbelieved that they are still rated as false even if repetition increases belief. Fazio et al. (2019) suggested that repetition increases belief in all statements equally, regardless of their plausibility, and Lacassagne et al. (2021) recently found that repeated exposure can – to a certain extent, increase the perceived truth of highly implausible statements.

Whether the truth effect generalizes to conspiracy theories is an open empirical question. By their very nature, conspiracy theories are implausible, as they imply vast networks of actors with little or no information leak. However, they do not fall into the category of entirely implausible statements – that is, statements for which individuals hold extremely certain prior beliefs – because they are usually impossible to prove either one way or the other. Also, one may have had some prior (pre-experimental) exposure to these statements. Indeed, people crave easy answers to complex problems, and several important conspiracy theories already circulate in public space. Moreover, conspiracy theories are emotional and social (van Prooijen & Douglas, 2018), two properties lacking in the statements that are commonly used in the study of the truth effect (for exceptions, see Arkes et al., 1989 who used social-political statements; DiFonzo et al., 2016 who used rumors; Pennycook et al., 2018 who used fake news). We reasoned that whether the truth effect exists with conspiracy statements is an important test of its generality. Some research on conspiracy has yielded results consistent with the possibility of an increase in belief due to repetition,

thereby indicating that exposure to conspiracy theories increases their endorsement (Douglas & Sutton, 2008; Jolley & Douglas, 2014a; van der Linden, 2015). For example, Jolley and Douglas (2014b) showed that exposure to conspiracy theories decreases the intention to engage in politics and to reduce one's carbon footprint. This type of result is consistent with the idea that belief increases with mere exposure. However, belief (or agreement) was not measured directly in this study, and participants were not exposed to multiple statements. Interestingly, Muirhead and Rosenblum (2019) proposed the concept of "new conspiracism," where repetition, not evidence, validates conspiracy theories. Although this phenomenon tackled in the political science domain clearly assigns repetition a major role, this role has yet to be empirically documented.

In an initial test of the idea that individuals' belief in the truth of conspiracy statements may increase with repeated exposure (whether actual or perceived), we analyzed data from two surveys on conspiracism among representative samples of the French population (IFOP, 2017, 2019). In both surveys, more than 1,000 participants had to indicate whether they had already heard 10 frequent conspiracy statements corresponding to popular conspiracy theories (e.g., "NASA faked the Moon landing"). Participants also had to indicate whether they agreed with the statements, thus enabling us to analyze adherence conditional on statements' recognition. We reasoned that if repetition does indeed increase perceived truth even of highly implausible, emotional, and social statements, then individuals should believe more in conspiracy statements they recognize (whether correctly or incorrectly) than in conspiracy statements they perceive to be new. In Study 2, we additionally looked at whether these judgments vary according to the individual tendency to conspiracism, as estimated by the Conspiracy Mentality Questionnaire (Bruder et al., 2013), a validated scale further described in Study 2.

We would like to address a possible concern regarding the studies. The analyses we report were correlational, as statements' prior exposure was not manipulated in the IFOP surveys. As we describe below, participants indicated during the surveys whether they had heard the statements before. One can see these responses as a (possibly noisy) proxy for real-life (repeated) exposure. As explained above, truth effect studies showed that truth ratings are usually larger for repeated than for new statements, whether this repetition is, in fact, actual or perceived. Finding higher beliefs when existing conspiracy statements (selected in the surveys to be widespread and common) are perceived as already heard compared to those perceived as new supports the view that recognition memory (whether veridical or false) is associated with higher conspiracism, even if we are not in the position to demonstrate that perceived exposure is indeed a reflection of real exposure.

## **Study 1**

### **Sample**

We analyzed data from the 2017 IFOP survey on conspiracism. A total of 1252 adult participants self-administered the survey online in December 2017. A quota sampling by sex, age, and occupation was used to create a representative sample of the French population. To compute our main measures, we excluded some data (data exclusion criteria described below). The final sample contained 775 participants (54.19% women;  $M_{\text{age}} = 45.12$  years,  $SD_{\text{age}} = 18.42$ ), whose sociodemographic characteristics were generally similar to those of the full, original sample. Table A1 in Appendix A shows that the final sample characteristics closely mirror those of the original sample.

### **Measures**

#### **Recognition task**

Among the multiple items used in the survey (e.g., feeling of self-worth in one's professional life; main means of information on the news, see IFOP, 2017), we focused on

three tasks. First, participants had to indicate whether they had already heard 10 conspiracy statements (see Appendix B for the statements) and one creationist statement (“God created man and the Earth less than 10,000 years ago”), answering either *Already heard* or *Never heard*. Concentrating on these 10 conspiracy statements, we computed both the participant-based (i.e., the proportion of statements a participant perceived as already heard or never heard) and statement-based (i.e., the proportion of participants perceiving a specific statement as already heard or never heard) recognition proportions.

### **Adherence task**

After the recognition task, participants saw the same ten conspiracy statements (plus the creationist one) again and indicated whether they agreed or disagreed with each of them on a 4-point Likert scale ranging from 1 (*Totally Agree*) to 4 (*Do not agree at all*). Because we were more interested in adherence than in the degree of adherence, we recoded adherence responses into two categories: agree (*Totally agree* or *Somewhat agree*) and disagree (*Somewhat disagree* or *Do not agree at all*). Concentrating on the 10 conspiracy statements, we computed both the participant-based (i.e., proportions of statements a participant agreed and disagreed with) and statement-based (i.e., proportion of participants agreeing with a specific statement) adherence proportions.

### **Adherence-by-recognition scores computation**

For each participant, we computed adherence proportions conditional on recognition. The difference between the two proportions (adherence to statements recognized as already heard vs. adherence to statements perceived as never heard) is referred to as the *adherence-by-recognition score* (higher scores indicate more adherence for statements recognized as already heard vs. as never heard). We see these scores as estimates of the truth effect because judgment (here, adherence) is conditional on exposure (here, perceived exposure), which closely mirrors how the truth effect is typically computed (perceived truth conditional on

exposure). By using this score, we do not mean, however, to imply that we estimated the causal role of real exposure to conspiracy theories.

### **Data exclusion criteria**

The truth effect is usually (1) studied with multiple statements and (2) computed as the difference between truth judgments (here, adherence score) on repeated versus new statements. To align with these practices (see below), we excluded data from participants who recognized fewer than two statements as already heard and as new. We further excluded data from participants who never agreed or disagreed with the statements.

To compute adherence-by-recognition scores, we needed to focus on participants who recognized at least two statements as already heard and two as never heard. Using participants' responses where no statement was recognized as already heard would prevent the very computation of adherence-by-recognition scores. In addition, computing an adherence-by-recognition score where only one statement was recognized as already heard and one as new would conflate the effect of a given statement and the effect of the recognition category (old, new). We wanted to minimize the statements' effects by computing adherence-by-recognition scores as soon as two statements were recognized as already heard and two as never heard. Also, we needed to focus on participants who agreed with at least one statement and disagree with at least one statement. For participants who never agreed or disagreed, computing an adherence-by-recognition score simply would not have made sense (it would be de facto 0).

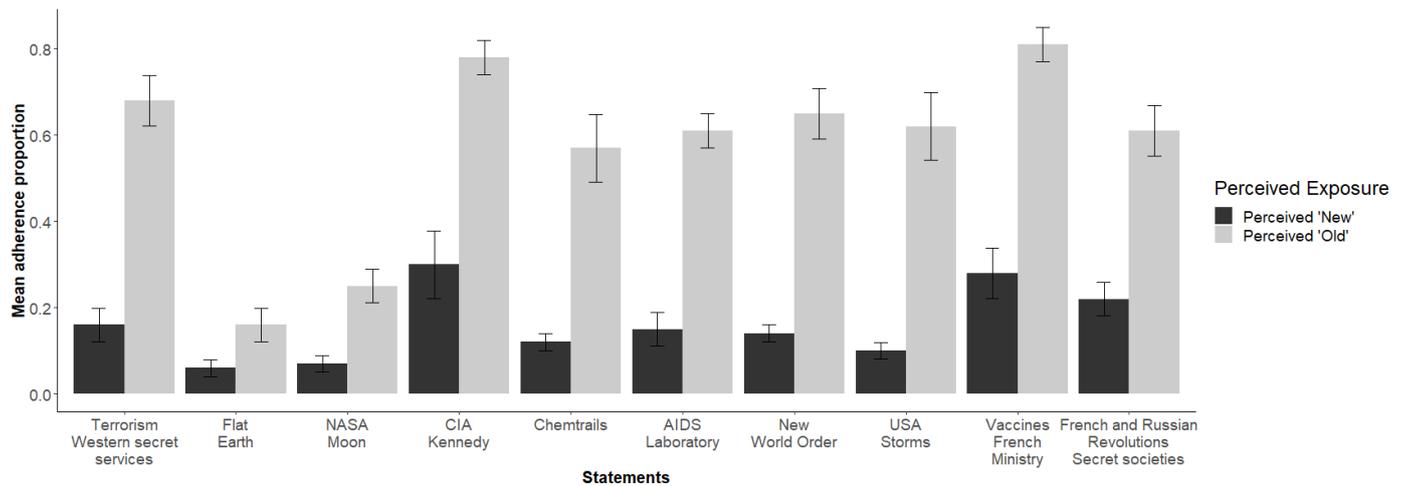
It is noteworthy that the final sample was not biased towards increased conspiracism using the two exclusion criteria we needed to compute adherence-by-recognition scores.

Participants who seemed impervious to conspiracy theories (they agreed with zero statements) had to be excluded from our final sample. However, participants relatively resistant to conspiracy, or moderate conspiracists, were not. In the 2017 IFOP survey, people

who agree with zero (21%), one (18%) or two statements (14%) are described as those who are quite resistant to conspiracy (53% in total). Those who adhere to three (13%) or four (9%) theories, showing more assertive signs of adherence to conspiracy, form the group of moderate conspiracists (22% in total). Finally, people who agree with five (6%), six (6%), seven theories, and more (13%) are described as the hardcore of convinced conspiracists (25% in total).

## **Results**

We computed recognition proportions, adherence proportions, and adherence-by-recognition scores. We performed a one-sample *t*-test with 0 as the test value to test whether the adherence-by-recognition scores were significantly different from 0. To do so, we (1) ran a Welch's independent-samples *t*-test, (2) computed a Cohen's *d* and its 95% confidence intervals to estimate the effect size, and (3) computed a default Bayes factor (BFs) (default prior,  $r$  scale =  $\sqrt{2}/2$ ) as it is more informative than frequentist statistics when it comes to quantifying evidence for the alternative to the null hypothesis (or vice versa) (Aczel et al., 2018; Wagenmakers et al., 2016).



**Figure 1.** Adherence proportion in Study 1 as a function of perceived exposure to each conspiracy statement (error bars are the 95% confidence intervals). For the complete conspiracy statements, see Appendix B.

Overall, participants recognized 44% of the statements as already heard ( $M = .44$ ,  $SD = .17$ , 95% CI = [.424, .448]). Participants agreed with 34% of the statements ( $M = .34$ ,  $SD = .22$ , 95% CI = [.328, .343]). The adherence-by-recognition mean was .46 ( $SD = .32$ , 95% CI = [.441, .487]). As clearly indicated by the 95% confidence intervals excluding zero, the adherence-by-recognition mean was significantly greater than 0,  $t(774) = 40.07$ ,  $p < .001$ ,  $d = 1.439$ , 95%  $CI_d = [1.339, 1.539]$ ,  $BF_{10} = 7.91e+186$ , showing a belief advantage for statements recognized as already heard vs. never heard. Figure 1 shows mean adherence proportions as a function of perceived exposure for each statement. Participants clearly recognized a substantial number of the conspiracy statements, agreed with some of them, and showed greater adherence to statements they believed they had heard before the survey than to those they believed were new.

## Discussion

The analyses clearly yielded evidence suggesting that, for conspiracy statements, people could anchor their belief in their memory: Participants agreed with more statements when they thought they had already heard them than when they thought they were new.

Two shortcomings limit the scope of this conclusion. First, participants performed the recognition task before the adherence task. It could be that participants remember and use the prior ratings for recognized statements again, with inflated adherence estimates. In a typical investigation of the truth effect where recognition memory is estimated, statements would first be judged for truth, and only then would they be used in a recognition task (e.g., Garcia-Marques et al., 2017). Second, because the study design is correlational, adherence and recognition can be two independent products of an unidentified factor, resulting in a spurious estimate of the truth effect. Namely, individual tendency to conspiracism could explain the results because it is possible that conspiracy-minded individuals tend both to be exposed to conspiracy theories and to believe them.

To address these issues, we conducted very similar analyses of another dataset from the second IFOP survey on conspiracism (IFOP, 2019). This survey had a great deal in common with the one used in Study 1 but allowed us to circumvent the limitations highlighted above.

## Study 2

### Sample

We analyzed data from the 2019 IFOP survey on conspiracism. A total of 1760 adult participants self-administered the survey online in December 2018. A quota sampling method by sex, age, and occupation was used to create a representative sample of the French population. In order to compute our main measures, we excluded some data (data exclusion criteria described below). The final sample contained 743 participants (51.82% women;  $M_{\text{age}} = 48.84$  years,  $SD_{\text{age}} = 19.05$ ) with sociodemographic characteristics close to those of the full, original sample, despite some differences. Table A1 in Appendix A shows that the final sample was older, less conspiracy-minded, and had a larger monthly wage than the original sample.

### **Measures**

As in the previous survey (see Study 1), multiple items were used in the 2019 IFOP survey. Our target items and measures were the same as those used in Study 1, with four exceptions. First, out of the ten conspiracies we used, seven were different from those used in Study 1 (see Appendix C for the statements). Second, participants could choose not to answer in the adherence task. Therefore, the number of statements available for each participant varied. Third, the adherence task was administered before the recognition task, contrary to Study 1. Fourth, the Conspiracy Mentality Questionnaire (CMQ; Bruder et al., 2013) was used to evaluate the individual tendency to conspiracism. The CMQ is a 5-item questionnaire where participants indicate on a 4-point Likert scale whether they agree or disagree with generic conspiracy beliefs (e.g., “Many very important things happen in the world that the public is never informed about”). Participants could choose not to answer. The CMQ has been validated (Bruder et al., 2013) and used in French (Lantian, Muller, Nurra, & Douglas, 2016). We averaged the responses available for each participant ( $N = 740^1$ ) to obtain the CMQ scores. In the present study, the CMQ ( $M = 2.87$ ,  $SD = .67$ ) was reliable, as estimated with the McDonald’s Omega in the final sample ( $\omega = .842$ ).

### **Exclusion criteria**

The exclusion criteria were the same as in Study 1. Participants had to (1) recognize at least two statements as already heard, and two as never heard, and (2) agree and disagree with at least one statement (see the Exclusion criteria subsection in Study 1).

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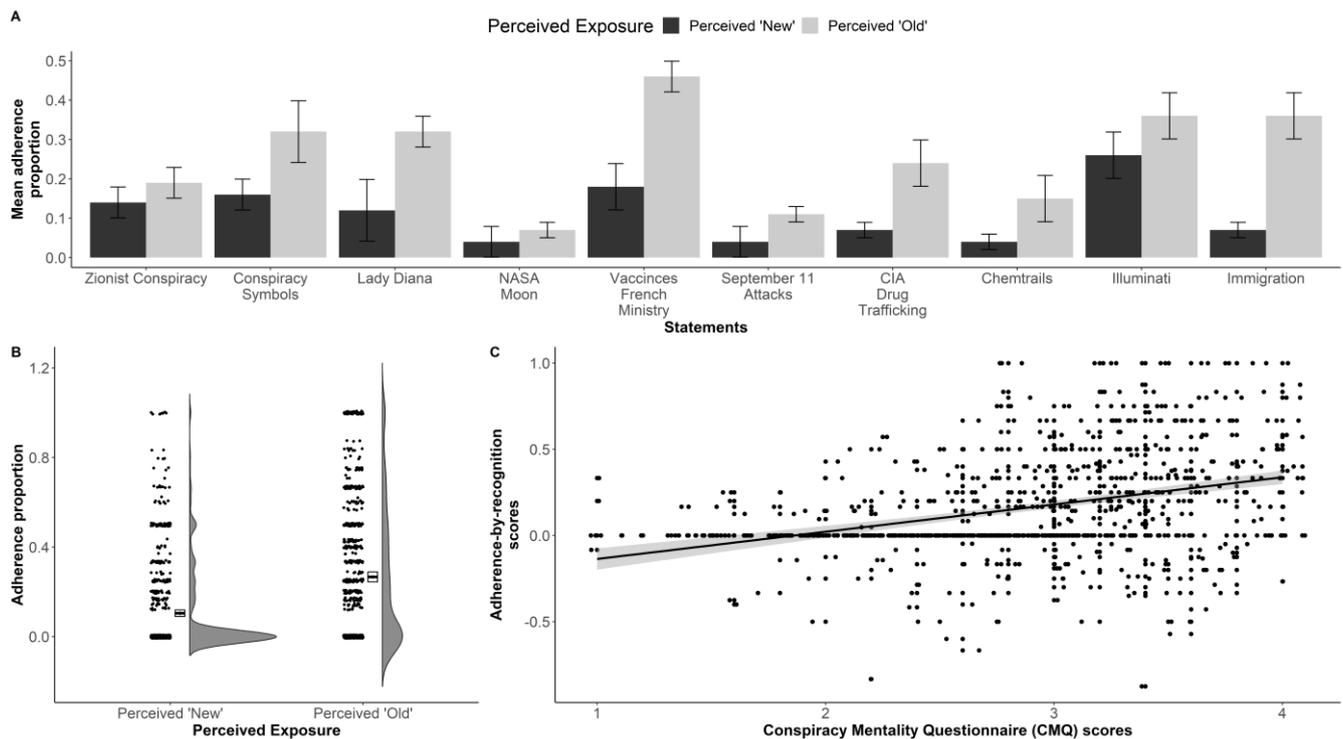
<sup>1</sup> Three of the 743 participants did not provide responses on the CMQ, and were thus excluded from analyses with CMQ scores.

## Analyses

First, we computed recognition proportions, adherence proportions, and adherence-by-recognition scores. We performed a one-sample  $t$  test with 0 as the test value to test whether adherence-by-recognition score significantly differed from 0. We also conducted an analysis of covariance (ANCOVA) to test whether adherence-by-recognition scores significantly differed from 0 when we controlled for CMQ scores. This analysis also allowed for a test of the interaction effect between perceived exposure and CMQ scores on adherence. Second, we tested whether recognition proportions, adherence proportions, and adherence-by-recognition scores varied according to participants' tendency to conspiracism. To do so, we calculated Pearson correlation coefficients between CMQ scores and recognition proportions, adherence proportions, and adherence-by-recognition scores.

## Results

Overall, participants recognized and agreed approximately with 50 percent of the statements (recognition:  $M = .52$ ,  $SD = .17$ , 95% CI = [.509, .535]; adherence:  $M = .48$ ,  $SD = .22$ , 95% CI = [.47, .50]). The adherence-by-recognition mean was .16 ( $SD = .30$ , 95% CI = [.14, .18]). Figures 2A and 2B show adherence-by-recognition scores for each statement and overall. As indicated by the 95% confidence intervals excluding zero, adherence-by-recognition scores were significantly above 0,  $t(742) = 14.67$ ,  $p < .001$ ,  $d = .538$ , 95% CI $_d$  = [.461, .615],  $BF_{10} = 3.16e+39$ , showing a belief advantage for statements recognized as already heard vs. new. To estimate whether this result holds after controlling for CMQ scores, we performed a repeated-measures ANCOVA with conspiracy mentality as a covariate, perceived exposure (already heard vs. never heard) as a factor, and adherence as the dependent variable. When we controlled for CMQ scores, adherence-by-recognition scores were again significantly above 0,  $F(1, 738) = 40.08$ ,  $p < .001$ ,  $\eta^2_G = .019$ . The



**Figure 2.** Adherence proportion in Study 2 as a function of **(A)** perceived exposure to each conspiracy statement (bars are the means, error bars are the 95% confidence intervals), and **(B)** perceived exposure aggregated across all statements (dots are the individual observations, and distributions are the probability density functions). **(C)** Displays the relationship between adherence-by-recognition scores (difference between adherence scores on statements perceived as old vs. new) and Conspiracy Mentality Questionnaire (CMQ) scores (dots are the individual observations, the black line is the linear regression line, and the gray area represents the 95% confidence intervals). For the complete conspiracy statements, see Appendix C.

interaction between perceived exposure and CMQ scores was also significant,  $F(1, 738) = 101.49, p < .001, \eta^2_G = .047$ .

As displayed in Figure 2C, There was a significant correlation between CMQ scores and adherence-by-recognition scores,  $r(738) = .348, p < .001$ . We also found a significant positive correlation between CMQ scores and adherence proportions,  $r(738) = .418, p < .001$ , and a negative significant correlation between CMQ scores and recognition,  $r(738) = -.082, p = .025$ .

## **Discussion**

In line with Study 1, analyses clearly yielded evidence in favor of higher conspiracy beliefs for recognized statements, but the effect size is markedly smaller than in Study 1. The individual tendency to conspiracism (as estimated with CMQ scores) and the truth effect (as estimated with adherence-by-recognition scores) were positively correlated, and CMQ scores were positively associated with adherence proportion and negatively associated with recognition proportion. In the General Discussion, we consider these results further and put them into the context of both the conspiracism and truth effect literature.

### **General Discussion**

Studying if repetition increases perceived truth (i.e., the truth effect) with conspiracy theories has the potential to contribute further to the current understanding of conspiracism, thus suggesting that the truth effect might generalize to statements that are emotional, social, and implausible rather than unemotional, non-social, and uncertain. As a step in this direction, we analyzed two existing surveys on conspiracism among representative samples of the French population (IFOP, 2017, 2019), where we estimated both conspiracy statements' recognition and adherence. We felt that, although the surveys had not been designed to demonstrate that prior exposure to conspiracy statements could result in increased truth judgments, these two large-scale studies could afford important insights on this matter. Consistent with the possibility that repetition has an impact on truth judgments even for conspiracy statements, individuals believed in more conspiracy statements when they thought they had already heard them than when they perceived them as new. This effect occurred in both surveys but was greater in the first one, where recognition was measured before belief. It is noteworthy that the adherence-by-recognition scores differed widely between the two studies: .46 (95% CI = [.441, .487]) in Study 1 versus .16 (95% CI = [.14, .18]) in Study 2. In Study 2, we found a positive association between the individual tendency to conspiracism as

estimated with the conspiracy mentality questionnaire and the truth effect. Critically, the truth effect was not nullified when controlling for the individual tendency to conspiracism.

We speculate that the different adherence-by-recognition scores observed resulted from procedural differences in the two surveys, including the reversed task order. In Study 1, participants performed the recognition task first and then the adherence task, whereas the tasks were performed in the reverse order in Study 2. Also, the results may be surprising according to previous investigations of the truth effect (e.g., Garcia-Marques et al., 2017; Mitchell et al., 2006); after all, it would be hard to say that the instruction to think about the past source of the statements prevented feelings of familiarity to be misattributed to truth. For instance, Garcia-Marques et al. made two groups of participants perform truth and recognition judgments. In one group, all statements were judged for truth and only then they were judged for familiarity, while truth and familiarity were assessed simultaneously in the other group. In this way, the authors tested whether the instruction to think about the past source of the statements prevents feelings of familiarity to be misattributed to truth. Asking participants to simultaneously report their feelings of truth and familiarity with a statement disrupted the typical truth effect. The truth effect was only found when individuals were asked to decide about the truth status of statements and only afterward inquired about the repetition status of those same statements. In the present studies, evidence suggestive of a truth effect was found even when participants were instructed to think about the past source of the conspiracy statements and only afterward asked to decide whether they adhere to those statements (Study 1). The observed pattern of results suggests that participants anchored their judgment of conspiracy statements in their memory. In this context, it is important to mention that people may judge repeated statements to have a higher probability of being if they have learned a correlation between repetition and truth (e.g., Unkelbach, 2006, 2007; Unkelbach & Greifeneder, 2013). Believing that repeated statements have a higher probability to be

factually true may have an interesting implication: it leaves the possibility open to repetition to be used as a cue to infer truth even when repetition is not factually experienced. This possibility, made salient by Mattavelli et al. (2021), is consistent with our results showing that individuals agreed more with conspiracy statements they recognized as already heard, a point to which we return below.

In Study 2, we tried to estimate whether adherence-by-recognition varied according to individual tendency to conspiracism. To do so, we used the Conspiracy Mentality Questionnaire (Bruder et al., 2013). The positive association between conspiracy mentality and truth effect is informative, as it suggests that individual differences (here, conspiracism) could moderate the truth effect – the subject of a recent line of research in truth effect (e.g., De keersmaecker et al., 2020; DiFonzo et al., 2016; Nadarevic et al., 2012; Schnuerch et al., 2021). As conspiracism is commonly studied through the lens of individual differences (Goreis & Voracek, 2019), and as it is beginning to attract attention in the truth effect literature, an interesting way of helping to advance this issue would be to investigate the extent to which individual differences, including conspiracism, moderate the truth effect with conspiracy statements.

Finding evidence suggestive of the truth effect with conspiracy statements complements previous empirical studies suggesting the possibility of an increase in belief due to repetition (Douglas & Sutton, 2008; Jolley & Douglas, 2014a; van der Linden, 2015). Belief (or agreement) was not measured directly in these studies, and participants were not experimentally exposed to multiple conspiracy statements. Also, finding evidence suggestive of the truth effect with conspiracy statements contributes challenging the commonly accepted assumption that statements need to be ambiguous regarding their truth to observe a truth effect (e.g., Dechêne et al., 2010). As stated in the introduction, recent studies have begun to challenge this assumption, showing a truth effect for statements the participants knew to be

false (Fazio et al., 2015; see also Fazio, 2020) and for implausible and fabricated statements like fake news (Pennycook et al., 2018). Using statements designed to cover the full range of plausibility (highly implausible to highly plausible statements), Fazio et al. (2019) proposed a model where repetition increases belief in all statements equally, regardless of their plausibility. Lacassagne et al. (2021) recently gave credence to this model using five repetitions and a 100-point judgement scale. They showed that repeated exposure could increase perceived truth even for blatantly implausible statements such as “The earth is a perfect square”. As for now, no empirical study has reported an increase in belief due to repetition for implausible statements like conspiracy statements.

Finally, although a link between the truth effect and conspiracism was not proposed by Muirhead and Rosenblum (2019) who coined the term “new conspiracism”, the authors assign repetition a role consistent with the notion of “repetition-induced conspiracism”. Muirhead and Rosenblum (2019) argued for the existence of a “new conspiracism”— which is conspiracy without theory. Ignoring any need to substantiate the conspiracist claims being made, the “new conspiracism” imposes its own reality through repetition (as is apparent in the catchphrase “a lot of people are saying”), a phenomenon amplified with social media. With the Internet, repeating, sharing, liking, and forwarding a conspiracist claim takes little effort. Bare assertions are easily echoed and affirmed. We feel that further investigations of the truth effect with conspiracy statements are needed in light of the “new conspiracism”, as Muirhead and Rosenblum (2019) conceive it. Further investigations are needed because one may ask whether repetition factually needs to be realized by prior exposure or if merely thinking that information is repeated influences subjective truth. Consistent with Bacon’s (1979) experiments suggesting that the individuals’ perception of a statement’s repetition matters more than its actual repetition status when judging truth, a recent investigation of the truth effect with ambiguous statements demonstrates that simply encoding a statement as

“repeated” might suffice to increase its truth (Mattavelli et al., 2021). In two experiments, one condition only instructed participants about repetition without factual prior exposure. This symbolic repetition (or known repetition) impacted truth judgements, although a larger truth effect was found for factual repetition. Assuming that people may believe that repeated statements have a higher probability to be factually true (Unkelbach, 2007), Mattavelli et al. (2021) explained that symbolic repetition was used as a cue to infer truth even when repetition was not experienced. It would be important to further explore the idea that merely knowing about the frequency of occurrence of statement might suffice to affect the subjective truth, considering the consequences this may have with implausible statements like conspiracy statements and fake news. For instance, using conspiracy statements, one could compare the effect of factual repetition (e.g., experiencing the repetition of a statement posted by ten people when scrolling down the wall of a social network) and the effect symbolic repetition (e.g. seeing the same statement appearing just once and realizing from the repost button that ten people have posted it).

We should again emphasize that our estimation (adherence-by-recognition scores) was an approximation of the truth effect. Repeated exposure was not experimentally varied, and adherence (not truth) was the main dependent variable in the surveys. As a consequence, our estimation of the truth effect deviated from estimations provided in typical studies of the truth effect. Some might argue that self-reported recognition introduces a bias in truth effect estimates. For example, individuals holding conspiracist views may not disclose them because of social desirability. Some might also argue that measuring beliefs is not the same as measuring perceived truth. We agree with both criticisms, but the extent to which these deviations affect truth estimates is unknown. First, the effect of repetition on truth judgments has been demonstrated when perceived exposure was considered, above and beyond actual exposure (Bacon, 1979). Because the effect of repetition on truth judgment has more to do

with the subjective repetition judgment than with its objective prior exposure (Bacon, 1979), some might argue that our results are consistent with the hypothesis of a non-experiential component of the truth effect (see Mattavelli et al., 2021). Second, participants are often asked about accuracy, not truth, in truth effect studies (e.g., Pennycook et al., 2018). Studies systematically measuring perceived versus real exposure and assessing how asking about truth versus belief moderates the truth effect would be beneficial. As it is, we suggest that there is no sufficient reason to think that these deviations prevent any conclusions from being drawn from our analyses, but instead that they invite a broader consideration of what could be repetition-induced conspiracism.

### **Conclusion**

Using data from France's first representative surveys on conspiracism in the general public, we provided initial data suggesting that the mere perceived repeated exposure to conspiracy theories can increase their believability. Participants believed in conspiracy statements they thought they had already heard more often than in those they judged to be new – a result that directly parallels common findings that actual and perceived exposure increase statements' perceived truth. The extent to which actual repeated exposure is causally responsible for the results we reported here could be of importance. Whether a repetition-induced conspiracism exists (and if so, when) needs to be further addressed in controlled experiments and has the potential to further our understanding of both conspiracism and the effect of repetition on perceived truth.

### **Acknowledgments**

We thank Rudy Reichstadt for providing access to the datasets of the 2017 and 2019's surveys of conspiracism in the French general public surveys and for his valuable comments during preparation of the manuscript. We also thank Elizabeth Portier for proofreading an earlier version of the manuscript.

*Conflict of interest statement:* The authors declare no conflict of interest.

*Funding:* This work was supported by a doctoral contract (No. 2016-22) awarded by the French Ministry of Higher Education to the first author.

*Data availability:* In order to obtain access to the IFOP (2017, 2019) survey datasets, the first author signed a confidentiality agreement with Rudy Reichstadt from *Conspiracy Watch*. For this reason, we cannot provide access to data and analyses.

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## Appendix A

Table C1

Main demographic information for the original and final samples, and *p* values to test differences between the two in each study

	Study 1			Study 2		
	Original	Final	<i>p</i> value	Original	Final	<i>p</i> value
<b>N</b>	1252	775		1760	743	
<b>Sex</b>						
- % Male	46.49	45.81	.801	44.77	48.18	.128
- % Female	53.51	54.19		55.23	51.82	
<b>Age</b>						
- Mean	46.55	46.12	.500	46.12	48.84	.0008
- Standard deviation	18.54	18.42		18.39	19.05	
<b>Occupation</b>						
- % In employment	55.91	54.71	.629	56.48	53.43	.175
- % Retirement/pre-retirement	22.60	24.00	.503	25.28	31.49	.002
- % Unemployed person who has already worked	05.75	05.68	1	05.85	04.58	.236
- % Student (higher or further education)	07.91	07.23	.635	06.93	06.73	.923
- % Homemaker	03.59	03.35	.872	02.27	01.75	.498
- % First job search	01.28	01.55	.756	0.08	0.03	.217
- % Other situation	02.96	03.48	.600	02.39	01.75	.399
<b>Highest degree</b>						
- % No degree	02.40	02.32	1	02.44	01.21	.069
- % Primary school certificate	01.60	02.19	.422	01.59	01.08	.422
- % National diploma	03.43	03.61	.930	05.17	05.52	.800
- % Vocational diploma	17.09	18.06	.617	16.25	12.52	.020
- % High school diploma	19.57	21.16	.417	22.67	20.05	.164
- % Higher education > 5 years	20.85	20.39	.848	19.03	21.80	.126
- % Higher education > 3 years	21.81	18.71	.106	20.57	25.98	.003
- % Still studying	13.26	13.55	.905	12.27	11.84	.816
<b>Monthly wage</b>						
- % Less than € 1000	-	-	-	08.92	05.92	.015
- % € 1000 to 1499	-	-	-	13.30	08.34	.0006
- % € 1500 to 1999	-	-	-	14.26	13.73	.774
- % € 2000 to 2999	-	-	-	21.76	25.71	.036
- % € 3000 to 3999	-	-	-	17.27	21.00	.032
- % € 4000 and more	-	-	-	11.36	15.61	.004
- % Does not wish to answer	-	-	-	13.13	09.69	.019
<b>Conspiracy Mentality Questionnaire scores (CMQ)</b>						
- Mean	-	-	-	3.03a	2.89b	1.009e-6
- Standard deviation	-	-	-	.67a	.66b	

Note. Age and CMQ differences tests were run with independent-samples *t*-tests. Chi-square-based proportion tests were conducted on the other variables.

-: No data.

a: Computed based on 1700 participants (60 did not respond to the CMQ).

b: Computed based on 740 participants (3 did not respond to the CMQ).

**Appendix B****Statements used in Study 1 (IFOP, 2017) and their English translation**

Italicized: English translation of the statements

- La CIA est impliquée dans l'assassinat du président John F Kennedy à Dallas.

*The CIA was involved in the assassination of President John F. Kennedy in Dallas.*

- Le ministère de la santé est de mèche avec l'industrie pharmaceutique pour cacher au grand public la réalité sur la nocivité des vaccins.

*The Ministry of Health is colluding with the pharmaceutical industry to hide the harmfulness of vaccines from the general public.*

- Les Américains ne sont jamais allés sur la lune et la NASA a fabriqué des fausses preuves et de fausses images de l'atterrissage de la mission Apollo sur la lune.

*The Americans have never been to the Moon and NASA faked evidence and images of the Apollo mission's landing on the Moon.*

- Le virus du sida a été créé en laboratoire et testé sur la population africaine avant de se répandre à travers le monde.

*The AIDS virus was created in a laboratory and tested on the African population before spreading across the world.*

- Les groupes terroristes djihadistes comme Al-Qaïda ou Daech sont en réalité manipulés par les services secrets occidentaux.

*Jihadist terrorist groups such as Al Qaeda or Daech are actually being manipulated by Western secret services.*

- Il est possible que la Terre soit plate et non pas ronde comme on nous le dit depuis l'école.

*It is possible that the Earth is flat and not round as we have been told since school.*

- La révolution française de 1789 et la révolution russe de 1917 n'auraient jamais eu lieu sans l'action décisive de sociétés secrètes tirant les ficelles dans l'ombre.

*The French Revolution of 1789 and the Russian Revolution of 1917 would never have taken place without the decisive action of secret societies pulling the strings from the shadows.*

- Il existe un projet secret appelé le « Nouvel Ordre Mondial » et consistant à mettre en place une dictature oligarchique planétaire.

*There is a secret project called the "New World Order" to establish a global oligarchic dictatorship.*

- Certaines traînées blanches créées par le passage des avions dans le ciel sont composées de produits chimiques délibérément répandus pour des raisons tenues secrètes.

*Some white trails created by aircraft flying through the sky are composed of chemicals that are deliberately spread for reasons kept secret.*

- Les Etats-Unis ont développé une puissante arme secrète capable de provoquer des tempêtes, des cyclones, des séismes et des tsunamis en n'importe quel endroit du monde.

*The United States has developed a powerful secret weapon capable of causing storms, hurricanes, earthquakes and tsunamis anywhere in the world.*

### Appendix C

#### Statements used in Study 2 (IFOP, 2019) and their English translation

Italicized: English translation of the statements

The three statements with an asterisk were the same in Study 1 and Study 2.

- Le ministère de la santé est de mèche avec l'industrie pharmaceutique pour cacher au grand public la réalité sur la nocivité des vaccins. \*

*The Ministry of Health is colluding with the pharmaceutical industry to hide the harmfulness of vaccines from the general public. \**

- L'accident de voiture au cours duquel Lady Diana a perdu la vie est en fait un assassinat maquillé.

*The car accident in which Lady Diana lost her life was actually a covered up murder.*

- Les Illuminati sont une organisation secrète qui cherche à manipuler la population.

*The Illuminati are a secret organization that seeks to manipulate the population.*

- L'immigration est organisée délibérément par nos élites politiques, intellectuelles et médiatiques pour aboutir à terme au remplacement de la population européenne par une population immigrée.

*Immigration is being deliberately organized by our political, intellectual and media elites to eventually replace the European population with an immigrant population.*

- Seule une poignée d'initiés est capable de décrypter les signes de complot qui ont été inscrits sur les billets de banque, les logos de marques célèbres ou dans des clips musicaux.

*Only a handful of insiders are able to decipher the conspiracy signs that have been included on banknotes, famous brand logos or in music videos.*

- Il existe un complot sioniste à l'échelle mondiale.

*There is a worldwide Zionist plot.*

- Le trafic de drogue international est en réalité contrôlé par la CIA.

*International drug trafficking is actually controlled by the CIA.*

- Le gouvernement américain a été impliqué dans la mise en œuvre des attentats du 11 septembre 2001.

*The US government was involved in the execution of the September 11 attacks.*

- Certaines traînées blanches créées par le passage des avions dans le ciel sont composées de produits chimiques délibérément répandus pour des raisons tenues secrètes. \*

*Some white trails created by aircraft flying through the sky are composed of chemicals that are deliberately spread for reasons kept secret. \**

- Les Américains ne sont jamais allés sur la lune et la NASA a fabriqué des fausses preuves et de fausses images de l'atterrissage de la mission Apollo sur la lune. \*

*The Americans have never been to the Moon and NASA faked evidence and images of the Apollo mission's landing on the Moon. \**