Addicted to answers:

Need for cognitive closure and the endorsement of conspiracy beliefs

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Word count (exc. references/figures/tables): 5812

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Abstract

Conspiracy theories offer simple answers to complex problems by providing explanations for uncertain situations. Thus, they should be attractive to individuals who are intolerant of uncertainty and seek cognitive closure. We hypothesized that need for cognitive closure (NFCC) should foster conspiracy beliefs about events that lack clear official explanations, especially when conspiracy theories are temporarily salient. In Experiment 1 NFCC positively predicted the endorsement of a conspiracy theory behind the refugee crisis, especially when conspiratorial explanations were made salient. Experiment 2 showed that when conspiratorial explanations were made salient, NFCC positively predicted beliefs in conspiracies behind a mysterious plane crash. However, the link between NFCC and beliefs in conspiratorial explanations was reversed in the case of a plane crash with an official, non-conspiratorial, explanation for the accident. In conclusion, people high (vs. low) in NFCC seize on conspiratorial explanations for uncertain events when such explanations are situationally accessible.

Keywords: conspiracy beliefs, need for cognitive closure, uncertainty threat

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Perceiving the world as a place where there is no coincidence, and where everything is planned and controlled is usually connected with beliefs in God (Laurin, Kay, & Moscovitch, 2008). However, as the existence of good is always accompanied by the existence of evil, some individuals believe that threatening random events are in fact a consequence of secret actions performed by a group of malevolent people (Imhoff & Bruder, 2014; Kofta & Sędek, 2005). By explaining how secret organizations covertly influence or cause major world events, conspiracy theories give simple and structured answers for difficult questions. It is, therefore, not surprising that they are often activated in the context of threat to individual and collective needs (Kossowska & Bukowski, 2015). Research has demonstrated that adopting conspiracy beliefs has been previously linked to lack of personal control (Whitson & Galinsky, 2008), uncertainty (van Prooijen & Jostmann, 2013; Whitson, Galinsky, & Kay, 2015), powerlessness (Abalakina-Paap, Stephan, Craig, & Gregory, 1999; Jolley & Douglas, 2014), feelings of relative deprivation (Bilewicz, Winiewski, Kofta, & Wójcik, 2013), threatened in-group identification (Cichocka, Marchlewska, Golec de Zavala, & Olechowski, 2015) and threatened self-esteem (Cichocka, Marchlewska, & Golec de Zavala, 2015). Conspiracy thinking is a mindset connected with searching for explanations. Thus, it has been suggested that it should be associated with the epistemic motivation to reduce uncertainty and ambiguity by forming quick judgements (Kossowska & Bukowski, 2015) — often referred to as the need for cognitive closure (Kruglanski & Webster, 1996). Nevertheless, direct evidence for the positive link between need for cognitive closure and conspiracy beliefs has been lacking (e.g., Imhoff & Bruder, 2014; Leman & Cinnirella, 2013). In this research, we seek to examine if the nature of this relationship may depend whether conspiratorial explanations related to a particular event are temporarily salient (vs. not).

Feelings of uncertainty make it difficult to anticipate events or plan actions, and they seem especially aversive when an individual does not have resources to deal with this type of threat (Fiske & Taylor, 199; Hogg & Adelman, 2013). A need to immediately eliminate uncertainty and find clear beliefs about reality is especially important for people high in need for cognitive closure (Kruglanski & Webster, 1996), who are determined to form quick judgements on any given topic (Kruglanski, 1990). In line with this reasoning, Roets and Van Hiel (2008) found that when closure is not attainable, people high in need for cognitive closure report distress and show an increased arousal assessed via a galvanic skin response. To reduce this aversive state, they demonstrate a heightened susceptibility to the primacy effect in impression formation and *seize* on any easily accessible information that assures closure (Freund, Kruglanski, & Shpitzajzen, 1985; Kruglanski & Webster, 1996; Webster & Kruglanski, 1994). This often results in biased knowledge formation and making choices based on partial evidence. Moreover, such decisions may be hard to modify, as an inclination to keep the closure leads to the process of *freezing* on the acquired information (Kruglanski, Freund, & Bar-Tal, 1996; Roets, Kruglanski, Kossowska, Pierro, & Hong, 2015).

Research conducted in the context of intergroup relations shows that temporarily salient cognitive schemas have crucial impact on the decision-making process among individuals high in need for cognitive closure (Golec & Federico, 2004; Golec de Zavala, Federico, Cisłak, & Sigger, 2008). For example, need for cognitive closure is positively linked to making sharp distinctions between ingroups and outgroups which leads to preference for competitive behaviors over cooperation. Golec de Zavala and colleagues (2008) showed that this relationship may be even stronger when a competitive schema is temporarily salient, and on the other hand – significantly weaker when a cooperative schema is salient. Similarly, Kossowska and Van Hiel (2003) demonstrated that need for cognitive closure was positively related to the endorsement of political views that are chronically salient

in a given political context, irrespective of whether these views were left-wing or right-wing. As the need for cognitive closure is associated with heuristic information processing based on easily accessible schemas (Kossowska & Bukowski, 2015; Webster & Kruglanski, 1994), we suggest that it may be linked to adopting conspiratorial explanations for unexplained events but only when a conspiratorial schema is made salient.

Recent empirical research by Imhoff and Bruder (2014) or Leman and Cinnirella (Study 1; 2013) examined the correlation between need for cognitive closure and beliefs in conspiracy theories but found this correlation to be weak and non-significant. One reason for these weak relationships could be that none of these studies examined the link between need for cognitive closure and conspiracy beliefs in a context in which conspiracy theories would be particularly accessible to the individual. In one of their studies, Leman & Cinnirella (2013; Study 2) examined adopting salient conspiratorial explanations for a fictitious situation among participants with experimentally lowered need for cognitive closure versus those in a control research condition. They found no significant differences between conditions, but the study did not include a high need for cognitive closure condition. Nevertheless, the results showed that lowering the need for cognitive closure led to analyzing both pro- and anti-conspiracy evidence in a more detailed manner (Leman & Cinnirella, 2013). This is in line with studies linking the need for cognitive closure to lower levels of scrutiny in analyzing evidence (Ford & Kruglanski, 1995; Klein & Webster, 2000). As lower levels of scrutiny and lower analytic thinking have also been found to be related to stronger belief in conspiracy theories (Swami, Voracek, Steiger, Tran, & Furnham, 2014), one may expect that people high in the need for cognitive closure should adopt conspiratorial explanations when conspiratorial explanations are salient and cannot be easily replaced by a different scenario.

Overview of the current research

The aim of the current research was to provide a more complex understanding of the relationship between need for cognitive closure and the endorsement of conspiratorial explanations for major events. Need for cognitive closure is connected with desire for predictability, preference for structure and intolerance to ambiguity. It urges the individual to attain closure as soon as possible (Roets et al., 2015). Conspiracy beliefs meet those expectations by offering structured maps of meaning, and giving simple explanations for uncertain situations (Kossowska & Bukowski, 2015). In line with this reasoning, we assumed that need for cognitive closure should predict the endorsement of conspiratorial explanations for major events but only when conspiratorial explanations are easily accessible. In other words, we proposed that when faced with ambiguous events accompanied by conspiratorial explanations, individuals high in need for cognitive closure should "seize" and "freeze" on conspiracy beliefs.

We tested our assumptions in two experimental studies. In both experiments, we measured need for cognitive closure as the independent variable. Experiment 1 manipulated exposure to conspiracy explanations for the arrival of refugees to Poland. We hypothesized that participants high in the need for cognitive closure would be more likely to rely on the conspiratorial explanation when it was made salient (compared to the control condition). In Experiment 2 we tested whether exposure to conspiracy explanations (compared to the control condition) would affect the link between need for cognitive closure and conspiracy beliefs for a mysterious plane crash, compared to a plane crash with confirmed non-conspiratorial causes. We assumed that participants high in need for cognitive closure would rely on conspiratorial explanations for an uncertain (vs. certain) event only when such explanations are made salient (vs. not). However, when the non-conspiratorial causes for the plane crash are known and certain, participants high in need for cognitive closure should freeze on them and, thus, reject salient conspiratorial explanations. Taking into consideration that conspiracy

theories are often spread through the internet (see HIV denial conspiracy; Smith & Novella, 2007), we prepared our manipulations as imitations of online articles and conducted our experiments among internet users.

Experiment 1

In Experiment 1 we tested the hypothesis that need for cognitive closure would be related to relying on conspiratorial explanation for a major event when a conspiratorial explanation was made salient. We focused on Poland's agreement to offer asylum to refugees from Syria and Eritrea as a part of the European Union relocation and resettlement programme. This decision likely caused uncertainty among Polish residents. Ethnically, Poland is a very homogenous country which often results in negative attitudes toward foreigners who do not share Polish traditions. According to the results of a survey conducted by one of the leading Polish public opinion research institutions, 78% of Poles linked refugees arrival to reduced levels of safety, and only 5% declared that Poland should comply with EU directives and allow refugees to settle in Poland (CBOS, 2015). Also, political rhetoric on the refugee crisis strengthened the feelings of uncertainty among people living in Poland. For example, Jaroslaw Kaczynski, leader of Poland's ruling Law and Justice Party, claimed that refugees could bring dangerous disease and parasites to Poland (Goclowski, Barteczko, & Koper, 2015). Thus, we believed that in the face of such threats combined with a fear of the unknown "other," individuals high in cognitive closure should be especially prone to rely on conspiratorial explanation standing behind refugees' arrival. In the study, we manipulated conspiracy salience by suggesting (or not) that the European Union is secretly planning hostile actions against Poland to gain power and control over it.

Method

Participants.

Experiment 1 was conducted among 245 Polish internet users. The whole sample consisted of 132 women and 112 men (1 person did not specify his/her gender). The age of the participants ranged from 14 to 88 years (M_{age} = 36.93, *SD* = 14.21). Participation was voluntary and anonymous, with no remuneration offered to participants[1].

Procedure.

At the beginning of the study participants were asked to fill out the measure of the need for cognitive closure. Then, all of the participants read a short text concerning the EU plans for rescue of Syrian and Eritrean refugees by financing their stay in Poland. The main text was prepared as an imitation of an online article. Participants were randomly assigned to one of two experimental conditions, which differed by the type of material presented below the main text.

Participants in the conspiracy-salience condition (*n* = 118) were exposed to an alleged internet conversation blaming the EU for conducting secret actions against Poland. According to the comments, refugees' arrivals in Poland and supporting their stay by the EU were arranged to evoke chaos and gain power over Poland (e.g., "The EU will do everything to bring refugees specifically to Poland. This will evoke chaos and allow the EU to do whatever they want with Poland ." or "The EU funds? One day we will have to pay them back for all these donations."). In the control condition (*n* = 127) participants were exposed to internet comments which were unrelated to conspiratorial thinking and approved the EU's rescuing

[1] In both experiments we sought to recruit at least 55 participants "per cell," which is in line with the Simonsohn, Nelson, & Simmons' (2013) rule of thumb of *n* > 50 "per cell."

action (e.g., "It is beneficial for Poles that the EU funds this action instead of asking Polish citizens to do it.")[2].

Afterwards, participants answered the questions about their belief in the EU's conspiracy standing behind the arrival of refugees in Poland.

Measures.

Need for cognitive closure was measured using a short, 15-item, version of the Polish Need for Cognitive Closure scale (Kossowska, Hanusz & Trejtowicz, 2012). Participants were asked to rate each statement on a scale from 1 = *completely disagree* to 6 = *completely agree*, α = .67, M = 3.74, SD = 0.52. A higher mean score indicated a higher need for cognitive closure.

Conspiracy beliefs were measured with six items: 1)"The EU hides the real reasons for binging refugees into Poland. ", 2)"The EU offers help to the refugees selflessly." (reverse coded), 3)"The EU spreads the world about refugees' situation to divert the world's attention from the EU's real plans.", 4)"The EU brings refugees to Poland to destroy Polish culture.", 5) "The EU secretly plans to take power over the Polish economy", 6) "The EU's plan to help refugees, that they present to Poland, is authentic." (reverse coded). Participants were asked to rate each statement on a scale from 1 = *completely disagree* to 6 = *completely agree*, α = .89, M = 2.99, SD = 1.42. A higher mean score indicated higher conspiracy beliefs.

Results and Discussion

[2] In Experiment 1 we also measured collective narcissism (Golec de Zavala, Cichocka, Eidelson, & Jayawickreme, 2009) for the purpose of different research.

First, we computed the correlation between the need for cognitive closure and conspiracy beliefs across conditions. We found a significant positive relationship between these variables, r (243) = .22, p = .001. We then performed a hierarchical multiple regression analysis to investigate whether this relationship was moderated by the experimental conditions. Need for cognitive closure was mean-centered prior to the analyses. Experimental conditions were coded -1 = control condition and 1 = conspiracy-salience condition.

In the first step we investigated the effects of the need for cognitive closure and the experimental condition on conspiracy beliefs; F (2, 242) = 6.55, p = .002, R^2 = .05. We found a positive significant effect of need for cognitive closure, B = 0.60, SE = 0.17, p = .001, but no significant independent effect of experimental condition, B = 0.09, SE = 0.09, p = .31.

In the second step we introduced a two-way interaction of the need for cognitive closure and the experimental condition. We found a significant positive effect of need for cognitive closure, B = 0.64, SE = 0.17, p < .001, but no significant effect of experimental condition, B = 0.09, SE = 0.09, p = .30. The interaction of need for cognitive closure and experimental condition was significant, B = 0.34, SE = 0.17, p = .046; for the whole model, F(3, 241) = 5.77, p = .001; R^2 = .07, ΔR^2= .02. Simple slope analysis indicated that need for cognitive closure significantly and positively predicted conspiracy beliefs in the conspiracy-salience condition, B = 0.97, SE = 0.25, p < .001, and positively, albeit non-significantly, in the control condition, B = 0.29, SE = 0.23, p = .20 (Figure 1).

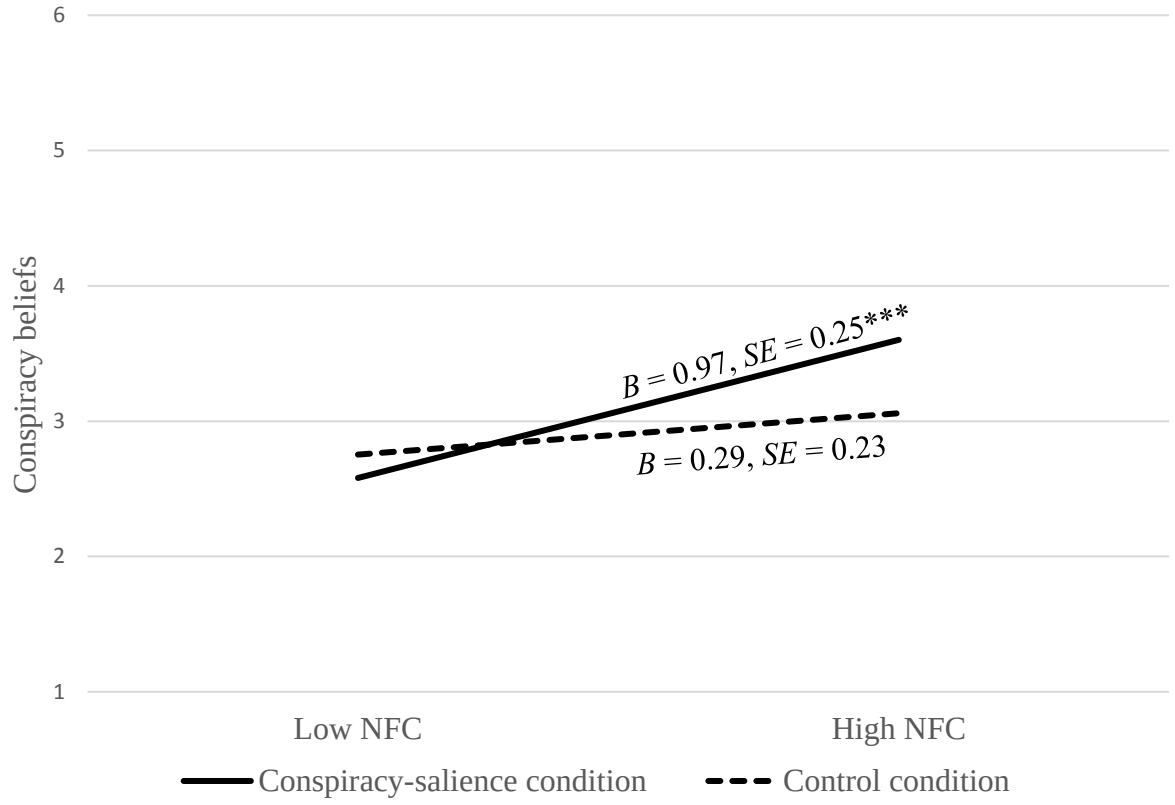

Figure 1. Interaction effect of need for cognitive closure and conspiracy-salience (vs. control) condition on conspiracy beliefs.

Note. *** $p < .001$.

Experiment 1 confirmed that need for cognitive closure was linked to the endorsement of conspiratorial explanations behind refugees arrival in Poland. However, this effect was stronger when the conspiratorial explanation was made salient. People high in need for cognitive closure who were exposed to the conspiracy blaming European Union for secret actions against Poland, were more likely to believe that the tragic situation of Syrian and Eritrean refugees was just a mystification. Apparently, they were ready to accept a coherent, and certain story according to which the European Union sends refugees to Poland in order to gain power over its economy or destroy Polish culture. These results provided initial confirmation of our hypothesis in the context of reactions to the influx of foreigners to one's own country.

Experiment 2

In Experiment 2 we aimed to replicate the pattern of results obtained in Experiment 1. We further examined whether the endorsement of salient conspiracy theories by those high in need for cognitive closure will depend on whether the event did or did not have a clear official explanation. Individuals high in need for cognitive closure demonstrate a heightened susceptibility to the primacy effect in impression formation and *seize* on easily accessible information assuring closure (Freund, et el., 1985; Kruglanski & Webster, 1996; Webster & Kruglanski, 1994). Thus, we expected the strongest link between need for cognitive closure and the endorsement of conspiracy theories when these theories are made salient, but at the same time a more plausible official explanation is lacking (i.e., participants experience uncertainty about the cause of the event). However, when official, non-conspiratorial, causes of the event assure certainty, people high in need for cognitive closure should focus on these official explanations and as a result reject salient conspiratorial beliefs which are inconsistent with previously collected information. We examined our hypothesis in a different context that is frequently associated with the spreading of conspiracy theories—major plane catastrophes. Specifically, we predicted that in the context of uncertainty about the explanation for a plane crash, we would observe a stronger link between the need for cognitive closure and conspiracy beliefs than in the context of certain, official explanations. However, basing on the results of Study 1 we expect this effect to be observed only when the conspiracy theories about the plane crash are made salient (vs. not).[3]

In the uncertainty condition we used the story of Malaysia Airlines Boeing 777 which disappeared with 239 passengers on board on 8th March 2014 during a flight from Kuala Lumpur to Beijing. In spite of massive international action, for 16 months no trace of the

[3] We obtained initial evidence for this hypothesis in a pilot study. See the Supplement for details.

plane had been found. In July 2015 fragments of the plane were discovered on the island of Reunion. Still, there is no knowledge about what exactly happened to the plane after it disappeared from the radar and what caused its crash. In the certainty condition we used the story of the Germanwings Airbus A320 plane crash which took place on 24th March 2015 when the airplane was flying from Barcelona to Düsseldorf, suddenly lost height and began an unexplained descent into North Alps. All 150 passengers were killed. On 27th of March 2015 was the day when media reported that it was the pilot – Andreas Lubitz – suffering from mental health illness who deliberately destroyed the plane (Knolle, 2015) and that there was therefore no conspiracy. We collected data in September-November of 2015, after non-conspiratorial explanation for this tragic event was officially confirmed and announced by international media.

As in Experiment 1, we hypothesized that people high in need for cognitive closure would endorse conspiratorial explanations standing behind the uncertain event (i.e., Malaysia Airlines Boeing 777 crash) when the conspiracy theories were made salient. Moreover, we assumed that people high in need for cognitive closure would reject conspiratorial explanations standing behind a certain event (i.e., Germanwings Airbus A320) even when the conspiracy theories were made salient. Because the study was conducted in Poland, the conspiracy salience manipulation was based on the Smolensk conspiracy theory which is popular among Poles and refers to the alleged conspiratorial causes of the plane crash that killed the Polish president, the first lady and almost one hundred government officials in 2010. After this event, many Poles believed that Russians tend to assassinate their political enemies by secret air attacks (Grzesiak-Feldman & Haska, 2012). Thus, in the conspiracy salience condition we suggested Russian involvement in the plane crash.

Method

Participants.

Experiment 2 was conducted among 455 Polish internet users. The sample consisted of 314 women and 137 men. The age of the participants ranged from 15 to 93 years (M_{age} = 30.16, *SD* = 12.84). Participation was voluntary and anonymous, with no remuneration offered to participants.

Procedure.

First, participants were asked to fill out the measure of need for cognitive closure. Next, they were randomly assigned to one of the experimental conditions. The study design employed a 2 (event certainty vs. event uncertainty) x 2 (conspiracy-salience vs. control) manipulation.

We manipulated certainty (vs. uncertainty) of the explanation by having participants read stories concerning a plane crash which was caused by officially known (vs. unknown) factors. Participants in the event uncertainty condition (*n* = 230) read a short text about the story of the unexplained disappearance of the Malaysia Airlines Boeing 777 plane and were explicitly reminded that the causes of the event still remained unknown. Participants in the certainty condition (*n* = 225) read a short text concerning the story of the Germanwings Airbus A320 plane crash and were explicitly reminded about the known causes of the crash. In both conditions the main text was prepared as an imitation of an online article.

The second experimental manipulation was similar to that used in Experiment 1. Participants in the conspiracy-salience condition (*n* = 224) were exposed to internet comments blaming Russians for conducting secret actions to destroy the plane (e.g., "Russians have always had tendency to plan and commit such crimes…" or "Indeed, it cannot be ruled out that Russians are behind this."). In the control condition (*n* = 231) participants

were exposed to internet comments which were unrelated to conspiratorial thinking (e.g., "Sad…" or "I cannot believe it.").

Afterwards, participants answered the questions about conspiracy beliefs for a plane crash that they read about.

Measures.

Need for cognitive closure was measured using a short, 15-item, version of the Polish Need for Cognitive Closure scale (Kossowska et al, 2012), as in Experiment 1, α = .74, M = 3.62, SD = 0.57. A higher mean score indicated a higher need for cognitive closure.

Conspiracy beliefs were measured with four items:1)"The real cause of the crash lays in the secret activities of a certain group of people.", 2) "The truth about the cause of the crash was covered up by a certain groups of people." , 3) "The destruction on the plane was carefully planned by a certain group of people.", 4) "Those who will try to establish the truth about the cause of the crash, will not be allowed to speak.", α = .93, M = 2.48, SD = 1.31. A higher mean score indicated higher conspiracy beliefs.

Results and Discussion

First, we computed the correlation between need for closure and conspiracy beliefs across conditions. Unlike Study 1, this correlation was non-significant, r (453) = .02, p = .71. Second, the independent t-test revealed that participants in the uncertainty condition showed higher conspiracy belief (M = 2.80, SD =1.34) than participants in the certainty condition (M = 2.15, SD = 1.19), t (453) = -5.47, p < .001, which is in line with previous research linking uncertainty to adopting conspiracy beliefs (van Prooijen & Jostmann, 2013; Whitson et al., 2015).

Finally, we performed a hierarchical multiple regression analysis to investigate the effects of need for cognitive closure on conspiracy beliefs in interaction with variables coding both experimental manipulations. Need for cognitive closure was mean-centered prior to the analyses. Event certainty manipulation was coded as -1 = uncertainty and 1 = certainty condition. Conspiracy-salience manipulation was coded -1 = control and 1 = conspiracy-salience condition.

In the first step we investigated the effects of the need for cognitive closure and the experimental conditions on conspiracy beliefs; F (3, 449) = 11.54, $p < .001$, $R^2 = .07$. We found a negative significant effect of certainty condition, $B = -0.34$, $SE = 0.06$, $p < .001$, indicating that participants were more likely to endorse conspiracy beliefs about the uncertain (Malaysia Airlines) than the certain (Germanwings) flight. We also found a non-significant effect of conspiracy-salience condition, $B = 0.03$, $SE = 0.10$, $p = .75$, indicating that, as in Study 1, exposure to conspiracy theories was not enough to increase their endorsement among our participants. Finally, we found a non-significant effect of need for cognitive closure, $B = 0.03$, $SE = 0.10$, $p = .48$, on conspiracy beliefs.

In the second step we introduced three two-way interactions between all the predictors; F (6, 446) = 6.38, $p < .001$, $R^2 = .08$, $\Delta R^2 = .01$, $p = .31$. We found a negative significant effect of certainty condition, $B = -0.34$, $SE = 0.06$, $p < .001$, no significant effects of conspiracy-salience experimental condition, $B = 0.04$, $SE = 0.06$, $p = .54$, or need for cognitive closure, $B = 0.02$, $SE = 0.10$, $p = .83$, on conspiracy beliefs. The two-way interactions between: (1) need for cognitive closure and conspiracy-salience research condition, $B = -0.07$, $SE = 0.10$, $p = .50$, and (2) conspiracy-salience and certainty research conditions, $B = 0.02$, $SE = 0.06$, $p = .72$, were non-significant. We only found a marginally significant two-way interaction between (3) need for cognitive closure and certainty condition, $B = -0.18$, $SE = 0.10$, $p = .09$.

In the third step we introduced a three-way interaction between all the predictors. We found a negative significant effect of certainty condition, B = -0.35, SE = 0.06, p < .001, no significant effects of conspiracy-salience experimental condition, B = 0.03, SE = 0.06, p = .61, or need for cognitive closure, B = 0.04, SE = 0.10, p = .40, on conspiracy beliefs. The two-way interactions between: (1) need for cognitive closure and conspiracy-salience research condition, B = -0.07, SE = 0.10, p = .50, and (2) conspiracy-salience and certainty research conditions, B = 0.02, SE = 0.06, p = .73, were non-significant. We also found a marginally significant two-way interaction between (3) need for cognitive closure and certainty condition, B = -0.19, SE = 0.10, p = .06. However, this interaction was qualified by a significant three-way interaction between need for cognitive closure, conspiracy-salience research condition and certainty research condition, B = -0.22, SE = 0.10, p = .03; for the whole model F (7, 445) = 6.16, p < .001, R^2 = .09, ΔR^2= .01, p = .03[4].

Further analyses revealed that the interaction effect of need for cognitive closure and certainty research condition was significant for conspiracy-salience condition, B = -0.42, SE = 0.15, p = .01 (Figure 2), and non-significant for the control condition, B = 0.03, SE = 0.14, p =

[4] The present analysis was performed with the exclusion of two observations detected as outliers with residuals larger than 3 standard deviations away from the mean (Barnett & Lewis, 1994; Chatterjee & Hadi, 2006; Hadi & Velleman, 1997). The pattern of results remains similar when data for these participants is retained – we obtain a significant effect of certainty condition, B = -0.33, SE = 0.06, p < .001, a significant two-way interaction between NFCC and certainty condition, B = -0.21, SE = 0.11, p = .04, and marginally significant three-way interaction between NFCC, conspiracy-salience research condition and certainty research condition, B = -0.20, SE = 0.11, p = .056; for the whole model F (7, 447) = 5.36, p < .001, R^2 = .08 (see Supplement for details). Note that no residual outliers were detected in Study 1.

.84 (Figure 3). Simple slope analysis indicated that in the conspiracy-salience research condition, the effect of need for cognitive closure on conspiracy beliefs was positive and marginally significant in the uncertainty condition, $B = 0.39$, $SE = 0.22$, $p = .08$, and negative and significant in the certainty condition, $B = -0.44$, $SE = 0.21$, $p = .04$.

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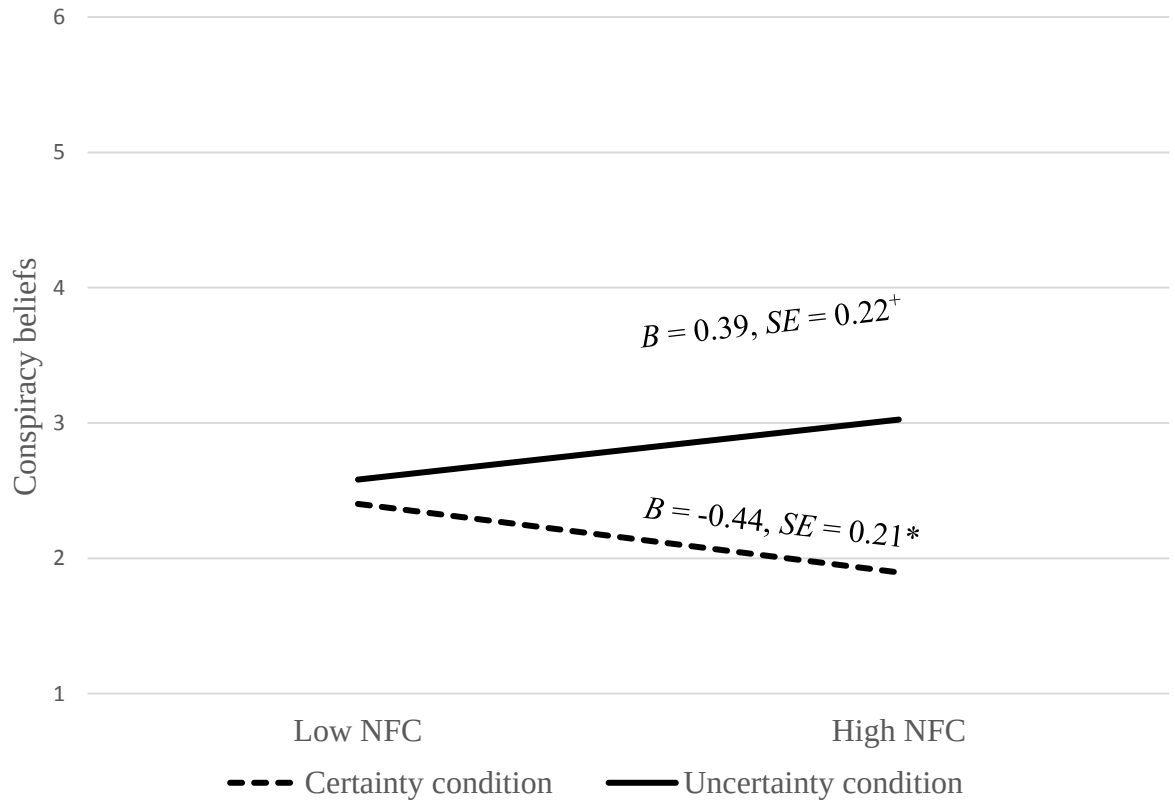

Figure 2. Interaction effect of need for cognitive closure and certainty (vs. uncertainty) condition on conspiracy beliefs among those in the conspiracy-salience condition.

Note. * $p < .05$. $^{+}p < .10$.

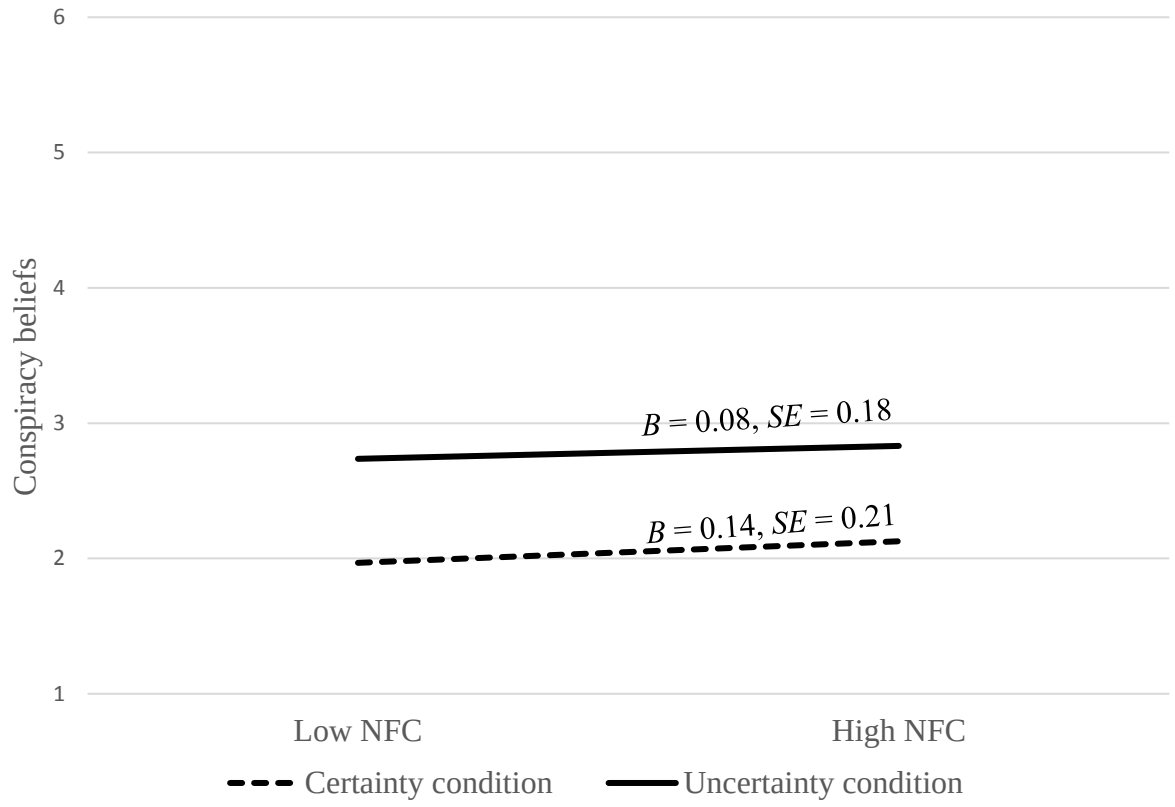

Figure 3. Interaction effect of need for cognitive closure and certainty (vs. uncertainty) condition on conspiracy beliefs among those in the control condition.

Experiment 2 revealed that the relationship between need for cognitive closure and conspiracy beliefs was moderated both by the salience of conspiratorial explanations as well as the certainty about the causes of the event. Among those participants who read story about an event with well-known causes (high certainty) accompanied by a conspiratorial explanation, need for cognitive closure was negatively related to conspiracy beliefs. However, among those participants who read a story about an event with unknown causes (high uncertainty), need for cognitive closure was positively related to conspiracy beliefs when the conspiratorial explanations were made salient (although the latter effect was marginally significant and should be treated with caution). It seems that people high in need for cognitive closure rely on conspiratorial explanations when such explanations refer to uncertain,

mysterious, events but at the same time are easily accessible. However, salient conspiratorial beliefs that refer to certain event, with well-known non-conspiratorial causes, are simply inconsistent with previously gained information. In this case, people high in need for cognitive closure reject them – probably focusing on the official, non-conspiratorial explanations.

General Discussion

In two experiments we examined the relationship between the epistemic need for cognitive closure and the endorsement of conspiratorial explanations for major events. In both studies need for cognitive closure was a robust predictor of adopting conspiratorial explanations for uncertain events, but only when such explanations were made salient. In Experiment 1, participants high in need for closure were more likely to endorse a conspiracy theory behind the influx of refugees but this effect was especially pronounced when a conspiracy theory was suggested to participants. In Experiment 2, participants high in need for cognitive closure were more likely to endorse a conspiracy theory behind a plane crash when this conspiracy was salient. This was only the case when non-conspiratorial official explanations for the crash were lacking. When other causes for the plane crash were easily available to participants instead, those high in cognitive closure were more likely to reject conspiracy theories.

In Experiment 1 the correlation between need for cognitive closure and conspiracy beliefs was significantly positive. On the other hand, in Experiment 2 we found this relationship to be significant only in the case of uncertain situations accompanied by conspiratorial explanations. The current findings shed light on why previous research might have failed to find a link between need for cognitive closure and conspiracy beliefs (Imhoff & Bruder, 2014; Leman & Cinnirella, 2013). It seems that this relationship is more complex and

dependent on what sort of explanations are temporarily available to the individual. When the official causes of a particular event are well-known and assure closure, those high in need for cognitive closure might not have a reason for entertaining conspiracy theories. In fact, when alternative explanations are available, individuals high in need for cognitive closure are likely to *freeze* on them and become immune to any contradictory information that cannot be easily assimilated into existing schema (Kruglanski et al., 1996; Roets et al., 2015). Under these circumstances, those with high need for cognitive closure can reject any salient conspiracy theories.

Nevertheless, when the situation is complex and uncertain, conspiracy beliefs may serve as a map of meaning for those individuals who are determined to get any answer. Under these circumstances, individuals high in need for cognitive closure are likely to *seize* on salient conspiratorial explanations. In other words, when facing uncertainty combined with conspiracy-salience environment, those high in need for cognitive closure rely on the easily accessible schema of a conspiracy theory. We suggest that, in this case, conspiracy theories which represent closed, certain and structured mode of thinking would serve to provide closure and certainty (Kossowska & Bukowski, 2015). Our results were consistent with this theorizing and demonstrated that those high in need for cognitive closure use the available cues in forming their judgements about major world events. These findings are in line with past research showing that need for cognitive closure is associated with the endorsement of social and political attitudes that are temporarily or chronically available (e.g., Golec & Federico, 2004; Golec de Zavala et al., 2008; Kossowska & Van Hiel, 2003).

The current findings also corroborate and extend previous work on the role of uncertainty in interpreting evidence for conspiracy theories. In a series of studies Van Prooijen and Jostmann (2013) demonstrated that under conditions of uncertainty (vs. certainty), participants were more likely to use information about the immorality of authorities

to form conspiracy theories about their actions. Our studies indicate that this may be the case especially among individuals high in need for cognitive closure, who are more likely to attend to salient cues that help them interpret reality (Kruglanski, 1990; Kruglanski & Webster, 1996). Future research, however, would do well to better establish causality of described relationship by manipulating need for cognitive closure directly. Potentially fertile ground for future research would be also to investigate if conspiratorial beliefs fully compensate feelings of uncertainty and discourage those high in need for cognitive closure from searching for alternative explanations. Due to the fact that we manipulated conspiracy-salience using an alleged internet conversation, our results should be interpreted in terms of susceptibility to endorsing available conspiracy theories rather than in terms of actively generating conspiracy theories. More research is needed to explore whether individuals high, or rather low, in need for cognitive closure would also be prone to engage in generating conspiratorial explanations for major world events.

Furthermore, when exploring the relationship between need for cognitive closure and seizing on salient conspiratorial explanations different mediators should be taken into consideration. For example, the relationships we observed may be at least partially accounted for by right-wing authoritarianism or out-group prejudice that are often positively related to need for cognitive closure (Chirumbolo, 2002; Kossowska & Van Hiel, 2003) and belief in conspiracy theories (Golec de Zavala & Cichocka, 2012; Imhoff & Bruder, 2014). Last but not least, it is important to note that the effects we observed were small. Future research should seek to replicate these findings and investigate their potential moderators and boundary conditions.

Overall, the current results help us understand the psychological predispositions that make people prone to endorse conspiracy theories after being briefly exposed to them. We hope that they can inform not only the social psychological study of the conspiracy beliefs,

but also prove useful for those who seek to decrease the prevalence of potentially harmful conspiracy theories (see Douglas, Sutton, Jolley, & Wood, 2015; Jolley & Douglas, 2014).

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