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RUNNING HEAD: SCHIZOTYPY, COGNITION, AND CONSPIRACIST BELIEFS

The Relationship Between Schizotypal Facets and Conspiracist Beliefs via Cognitive
Processes

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Abstract

This study sought to replicate previous work showing relationships between components of schizotypy and conspiracist beliefs, and extend it by examining the mediating role of cognitive processes. An international online sample of 411 women and men (mean age = 35.41 years) completed measures of the schizotypal facets of Odd Beliefs or Magical Thinking and Ideas of Reference, conspiracist beliefs, and cognitive processes related to need for cognition, analytic thinking, and cognitive insight. Path analysis confirmed the associations between both schizotypal facets and conspiracist beliefs in the present sample. Confirmatory evidence was found for the association between analytic thinking and conspiracist beliefs, and results also suggested an association between cognitive insight and conspiracist beliefs. Cognitive insight also mediated the link between Odd Beliefs or Magical Thinking and Ideas of Reference with conspiracist beliefs. However, analytic thinking provided a mediating link to conspiracy ideation for Odd Beliefs or Magical Thinking and not Ideas of Reference. Finally, there was an association between Odd Beliefs or Magical Thinking and need for cognition, but this path did not extend to conspiracist beliefs. These results suggest possible mediating roles for analytic thinking and self-certainty between schizotypy and conspiracist beliefs.

Keywords: Schizotypy; Cognitive Processes; Conspiracist Beliefs; Conspiracy theories; Analytic thinking

The Relationship Between Schizotypal Facets and Conspiracist Beliefs via Cognitive Processes

1. Introduction

Belief in conspiracy theories (i.e., a belief that the world or an event is manipulated by omnipresent and omnipotent agents in the pursuit of malevolent goals; Bale 2007; Swami and Furnham, 2014) is both a stable and widespread aspect of contemporary public opinion. For example, Oliver and Wood (2014) reported that almost 55% of respondents in a nationally representative survey of U.S. adults agreed with at least one of seven conspiracy theories they were presented with. Such findings are of concern because conspiracist beliefs are reliably associated with a range of negative civic, social, and health outcomes (for reviews, see Douglas et al., 2015; Swami and Coles, 2010). Not surprisingly, scholars have sought to understand the factors that make one more or less likely to adopt conspiracist beliefs, with research variously focusing on social psychological, differential, and psychopathological aspects (for reviews, see Bilewicz et al. 2015; van Prooijen and van Lange, 2014).

One particular factor that has received sustained attention from scholars is schizotypy, which is a latent personality organisation reflecting a putative liability for schizophrenia-spectrum disorders (Ettinger et al., 2015, 2017; Lenzenweger, 2015). Schizotypic traits include anomalies in cognition (e.g., hallucinations), socio-emotional function (e.g., constricted affect), and behaviour (e.g., odd behaviour and language), that do not meet the clinical threshold for psychotic disorders (Cohen et al., 2015; Lenzenweger, 2010). Although the latent dimensionality of schizotypy continues to be debated, the available literature consistently indicates that the phenotypic expression of schizotypy is multidimensional (e.g., Fonseca-Pedrero et al., 2017). This multidimensionality is important because several studies have reported significant and positive associations between conspiracist beliefs and schizotypal traits (Bruder et al., 2013; Darwin et al., 2011; Swami et al., 2014; van der

Tempel and Alcock, 2015). More specifically, it has been reported that schizotypal facets of Odd or Magical Thinking and, to a lesser extent, Ideas of References, are significant predictors of conspiracist beliefs (Barron et al., 2014). In explanation, it has been suggested that conspiracist beliefs require a rejection of official mechanisms of information generation and expert opinion, as well as a high degree of suspiciousness of mainstream sources of information, which may be motivated by high schizotypy (Barron et al., 2014; Dagnall et al., 2015; Holm, 2009; Swami et al., 2016).

One limitation of this body of research, however, is the assumption that schizotypal facets are directly associated with conspiracist beliefs. While the extant findings have certainly provided preliminary support for this assumption, it is also possible that the links between schizotypal facets and conspiracist beliefs are mediated by additional factors that have hitherto gone unmeasured. For example, some studies have examined paranoid ideation as a mediating variable between schizotypy and conspiracist beliefs (Dagnall et al., 2015; Darwin et al., 2011); that is, it has been suggested that the continual fear of external agents and deficits of perception typified by paranoid ideation may mediate the relationship between schizotypy and conspiracist beliefs (see also Holm, 2009). Given such findings, investigating the mediating utility of additional variables could result in a fuller picture of the ways in which schizotypy may be related to conspiracist beliefs.

Beyond paranoid ideation, another set of potentially useful mediating variables can be broadly grouped under the category of “cognitive processes”. In this view, schizotypal facets may be associated with a number of cognitive processes, which in turn are related to belief in conspiracy theories. Such a focus is pertinent for two reasons. First, studies of the associations between schizotypy and conspiracist beliefs typically suggests that it is positive facets of schizotypy (i.e., those associated with cognitive-perceptual elements) that motivate greater conspiracist beliefs (Barron et al., 2014). Second, related research has applied a

similar conceptual perspective in seeking to understand associations between schizotypy and paranormal beliefs, which in turn have been associated with conspiracist beliefs (Darwin et al., 2013; Stieger et al., 2013; Swami et al., 2011); that is, studies have suggested that cognitive processes may mediate the link between schizotypy and paranormal beliefs (Bogart et al., 2010; Dagnall et al., 2015; Kata, 2010; Williams and Irwin, 1991).

A number of facets of cognitive processes may be of relevance when considering the associations between schizotypy and conspiracist beliefs. One such facet is an analytic (or rational) cognitive style, which is believed to be one of two distinct branches of reasoning processing (Epstein et al., 1996; Evans, 2010; Evans and Stanovich, 2013; Kahneman, 2011; Ross et al., 2016; Stanovich, 2011). The analytic branch, also referred to as Type 2 thinking style, represents a cognitive processing style that has a low capacity, is measured and slow, and is dependent on cognitive ability (Ross et al., 2016). A second branch, also referred to as Type 1, represents an intuitive processing style that has a high capacity, operates quickly, and is independent of cognitive ability (Ross et al., 2016). Although there is little research investigating cognitive style and schizotypy, greater intuitive cognitive style has previously been associated with negative factors of schizotypy, including interpersonal aspects (Wolfradt et al., 1999). Importantly, however, analytic thinking is a core component of rationality (e.g., Stanovich, 2011) and has important consequences for diverse domains of psychological functioning (Pennycook et al., 2015). In particular, Swami et al. (2014) reported significant negative associations between analytic thinking and conspiracist beliefs (see also van Prooijen, 2017); these authors also found that priming analytic thinking was successful at reducing belief in conspiracy theories. Thus, it might be suggested that analytic thinking may mediate the relationships between schizotypal facets and conspiracist beliefs

Analytic thinking style represents one of several cognitive processes that may have an influence over atypical beliefs (Gray and Mill, 1990). A need for cognition is another

potential antecedent of conspiracist beliefs (Swami et al., 2014). Need for cognition can be defined as dispositional thinking differences in the tendency to engage in, and enjoy, effortful cognitive actions (Cacioppo and Petty, 1982; Cacioppo et al., 1996). Individuals high in need for cognition intrinsically devote cognitive resources to thinking, are more likely to actively approach cognitively challenging situations (Fleischbauer et al., 2010), are more likely to attend to, elaborate, evaluate, and recall information (e.g., Peltier and Schibrowsky, 1994). In addition, individuals who are high in need for cognition may also be less likely to believe in conspiracy theories (Swami et al., 2014). While there has been no previous evaluation of the association between need for cognition and schizotypy, these constructs share similar negative associations with other personality dimensions. For example, high schizotypy has been shown to be negatively associated with Conscientiousness and Openness to Experience (Gurrera et al., 2005), with these factors having similar associations with a need for cognition (Sadowski and Cogburn, 1997). Thus, examining the mediating utility of need for cognition between schizotypal facets and belief in conspiracy theories may be useful.

In addition to analytic thinking and need for cognition, metacognitive factors (i.e., the ability to think about thinking) may be another cognitive processing aspect that mediates the relationship between schizotypy and conspiracist beliefs. One particular facet of metacognition that may be important *vis-à-vis* schizotypy and conspiracist beliefs is cognitive insight, which can be conceptualised as the mental processes involved in self re-evaluation of anomalous experiences and misunderstandings (Beck et al., 2004; Sumiyoshi et al., 2016). One prominent measure of cognitive insight is the Beck Cognitive Insight Scale (BCIS; Beck et al., 2004), which has two subscales: Self-Reflectiveness and Self-Certainty. Those with psychotic disorders have been shown to be less self-reflective (e.g., unwilling to acknowledge the possibility that they are wrong) and more assertive in their own judgments in comparison to psychiatric patients who did not have psychosis (Beck et al., 2004). However, researchers

have postulated that Self-Reflectiveness reflects a state characteristic, while Self-Certainty reflects a trait characteristic (Bora et al., 2007; Sacks et al., 2012), suggesting that Self-Certainty may be more relevant to schizotypal research than Self-Reflectiveness. In accordance with this view, previous studies have suggested that higher self-certainty may be associated with positive factors of schizotypy (Sacks et al., 2012; Stirling et al., 2007), although associations with belief in conspiracy theories has not been previously examined. Thus, self-certainty was included in the present study as a third potential mediating factor between schizotypal facets and belief in conspiracy theories.

To summarise, the aim of the present study was to examine the mediating potential of three cognitive processes – analytic thinking, need for cognition, and self-certainty – in the relationship between schizotypal facets and conspiracist beliefs. Doing so is important as it provides a more nuanced conceptual view of the link between schizotypy and conspiracist beliefs, and would also help to further explicate previous findings (e.g., whether the relationship between schizotypal facets and conspiracist beliefs is mediated by other variables). More specifically, a hypothesised model of relationships was developed in which lower-order schizotypy facets from previously investigated associations (i.e., Odd Beliefs or Magical Thinking and Ideas of Reference; Barron et al., 2014) were included as distal factors in a path analysis framework. Both schizotypal components were predicted to be directly associated with belief in conspiracy theories, as well as indirectly via the variables of analytic thinking, need for cognition, and self-certainty. A hypothesised model of these relationships is presented in Figure 1.

2. Method

2.1. Participants

The participants of this study were an online, international sample of 252 women and 159 men, who ranged in age from 18 to 69 ($M = 35.41$, $SD = 13.06$). Most participants were

from the United States (65.1%), India (18.7%), and the United Kingdom (10.7%), with the remainder of the sample consisting of various nations (5.5%).

2.2. Measures

2.2.1. Schizotypy. The Schizotypal Personality Questionnaire (SPQ; Raine, 1991) was used to assess schizotypal traits. This scale was designed to have one subscale for each of the nine symptoms of SPD (i.e., no close friends, constricted affect, ideas of reference, odd beliefs and magical thinking, unusual perceptual experiences, odd or eccentric behaviour, odd speech, suspiciousness, and excessive social anxiety). As Barron et al. (2014) indicated support for associations between the lower-order domains of Odd Beliefs or Magical Thinking (sample item: *Have you had experiences with the supernatural?*) and Ideas of Reference (sample item: *Do you sometimes feel that other people are watching you?*) and conspiracist beliefs, only these subscales were included from this measure. Previous work has provided support for the factorial validity of these subscales across different populations (e.g., Fonseca-Pedrero et al., 2017) and the psychometric properties of the SPQ more broadly are widely-established (e.g., Raine, 1991). Items were rated for agreement on a dichotomous scale (*Yes/No*), with a subscale score computed as the total of all items. Internal consistency, assessed using Cronbach's alpha, for Odd Beliefs or Magical Thinking was 0.78, and 0.83 for Ideas of Reference, which is in line with data reported earlier in previous research (e.g., Cicero, 2016).

2.2.2. Conspiracist beliefs. The Belief in Conspiracy Theories Inventory (BCTI; Swami et al., 2010, 2011) was used to measure conspiracist beliefs. The BCTI is a 15-item measure that describes a range of internationally-recognisable conspiracy theories (sample item: *US agencies intentionally created the AIDS epidemic and administered it to Black and gay men in the 1970s*). In the present study, all items were rated on a 9-point scale, ranging from 1 (*Completely false*) to 9 (*Completely true*). Scores on this measure have been shown to

be one-dimensional, with adequate internal consistency and good construct and convergent validity (Swami et al., 2011, 2017). An overall score was computed as the mean of all items, with higher scores on this scale reflecting greater conspiracist beliefs. Reliability analysis indicated that Cronbach's alpha for this scale was 0.95.

2.2.3. Need for cognition. Need for cognition was measured using the 18-item Need for Cognition Scale (Cacioppo et al., 1996). This scale measures dispositional differences in the motivation to endorse and enjoy cognitive behaviours (sample item: *I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought*). Items were rated for agreement on a 5-point scale (1 = *Extremely uncharacteristic*, 5 = *Extremely characteristic*) and an overall score was computed as the mean of all items. Higher scores on this scale reflect greater need for cognition. Previous research has indicated that this scale measures one underlying dimension (Sadowski, 1993), with good internal consistency and adequate psychometric properties (West et al., 2008). Here, Cronbach's alpha for this scale was 0.92.

2.2.4. Analytic cognitive style. Participants completed the 12 items of the Analytical-Rational Thinking subscale of the Rational/Experiential Multimodal Inventory (Norris and Epstein, 2011), a revision of the Rational Experiential Inventory (Epstein et al., 1996). These items measure an analytic thinking style (i.e., the ability and enjoyment of problem solving through logical processes of the evaluation of evidence; sample item: *I enjoy intellectual challenges*). All items are rated on a 5-point scale (1 = *Strongly disagree*, 5 = *Strongly agree*) and the subscale score was computed as the mean of the items. Norris and Epstein (2011) reported that the Analytic Thinking subscale has good discriminant validity and internal consistency coefficients. The Cronbach's alpha coefficient for this scale was 0.89.

2.2.5. Beck Cognitive Insight Scale. Participants completed the 6 items of the Self-Certainty subscale from the Beck Cognitive Insight Scale (BCIS; Beck et al., 2004). All items

were rated on a 4-point scale (0 = *Do not agree at all*, 3 = *Agree completely*), with the total score reflecting the degree of self-certainty. Higher scores on this subscale indicate more self-certainty, and in turn, poorer cognitive insight (sample item: *When people disagree with me, they are generally wrong*). Previous work has indicated that this subscale has good psychometric properties (Beck et al., 2004). The Cronbach's alpha coefficient for the Self-Certainty subscale in the present study was 0.77.

2.2.6. Demographics. Participants were asked to provide their demographic details, consisting of sex, age, and country of origin.

2.3 Procedures

Ethics approval for this study was obtained from the University of Westminster. All data collection was conducted online via Amazon's Mechanical Turk (MTurk) website (www.mturk.com), a crowdsourcing Internet marketplace. In general, samples generated through MTurk are more demographically diverse than alternative online samples, with data considered to be of a high quality (Buhrmester et al., 2011). An advert on the site was placed, and data collection completed, in September 2015. All participants had previously achieved at least a 98% approval rate and completed at least 1000 Human Intelligence Tasks (HITs). After providing informed consent, participants were directed to the measures, which were presented in an anonymous form in Qualtrics and in randomised order. In exchange for completing the survey, participants were awarded \$0.30. All participants received written debrief information at the end of the study.

3. Results

3.1. Bivariate Correlates

Descriptive statistics and inter-scale correlations for all variables are reported in Table 1. An independent-samples *t*-test showed that there was no significant difference in conspiracist beliefs between women ($M = 3.73$, $SD = 2.01$) and men ($M = 4.12$, $SD = 1.97$),

$t(399) = 1.90, p = .058, d = 0.02$, so the sample was combined for all further analyses. As can be seen, greater conspiracist ideation was significantly associated with higher scores on both schizotypal traits (Odd Beliefs or Magical Thinking and Ideas of Reference) and Self-Certainty, and lower scores on Need for Cognition and Analytic Thinking. In addition, Odd Beliefs or Magical Thinking and Ideas of Reference were significantly and positively associated with Self-Certainty and negatively associated with Analytic Thinking. However, although there was a significant, negative association between Odd Beliefs or Magical Thinking and Need for Cognition, there was no significant association between need for cognition and Ideas of Reference; therefore, the latter pathway was deleted from the hypothesised model.

3.2. Path Analysis

After deletion of the aforementioned pathway (i.e., the pathway of Ideas of Reference → Need for Cognition), path Analysis was conducted using the Analysis of Moments Structure Programme (AMOS v.23; Arbuckle, 2014) to test the hypothesised model (see Figure 1). Standard goodness-of-fit indices were selected *a priori* to assess the measurement models (Hu and Bentler, 1999). The normed model chi-square (χ^2_{normed}) is reported with lower values of the overall model χ^2 indicating goodness-of-fit. A χ^2_{normed} value of < 3.00 indicates good fit (Hu and Bentler, 1999). The Steiger-Lind root mean square error of approximation (RMSEA) and its 90% confidence interval provide a correction for model complexity (Hu and Bentler, 1999). RMSEA values close to 0.06 indicate a good fit, with values up to 0.10 representing a mediocre fit (MacCallum et al., 1996). The standardised root mean square residual (SRMR) assesses the mean absolute correlation residual and is a badness-of-fit index: the smaller the SRMR, the better the model fit (Hu and Bentler, 1999). A cut-off value for SRMR is recommended to be close to or < 0.09 . The comparative fit index (CFI) measures the proportionate improvement in fit by comparing a target model with

a more restricted, nested baseline model (Hu and Bentler, 1999). The CFI reflects a goodness-of-fit index and is recommended to close to or > 0.95 for adequate fit.

Results showed that the hypothesised model did not fit these data well, $\chi^2(5, N = 401) = 641.122$, $\chi^2_{\text{normed}} = 128.224$, CFI = 0.292, RMSEA = 0.564 with 90% CI = 0.528-0.601, SRMR = 0.232. Accordingly, modification indices were assessed to suggest covarying terms that would improve the overall fit of the hypothesised model after non-significant paths were removed. Inspection of maximum likelihood scalar estimates indicated that there were non-significant paths. This included the pathway leading to Analytical Thinking from Ideas of Reference (estimate = -0.012, SE = .012, CR = -0.996, $p = .319$) and the pathway leading to Conspiracist Beliefs from Need for Cognition (estimate = 0.236, SE = 0.200, CR = 1.177, $p = .239$). Following a specification search, by examining whether the addition of fixed parameters throughout the model would significantly reduce the model's χ^2 value, this led to the following covariances of error terms through the model: Odd Beliefs or Magical Thinking \leftrightarrow Ideas of Reference, and Need for Cognition \leftrightarrow Analytical Thinking. Modification index values for these covariances were large (MI > 100) and there was high correlation between the variables (see Table 1). The respecified model is displayed in Figure 2 and provided good fit to these data, $\chi^2(5, N = 401) = 15.665$, $\chi^2_{\text{normed}} = 3.133$, CFI = 0.988, RMSEA = 0.073 with 90% CI = 0.006-0.066, SRMR = 0.042.

Bootstrapping procedures were used to obtain the direct, indirect, and total effects for Odd Beliefs or Magical Thinking and Ideas of Reference to conspiracist beliefs, via the significant paths in the fitted model, drawing on 5,000 bootstrap samples from the dataset (see Table 2). The results showed that there were significant direct and indirect effects from all pathways within the fitted model (Odd Beliefs or Magical Thinking \rightarrow Analytic Thinking \rightarrow Conspiracist Beliefs; Odd Beliefs or Magical Thinking \rightarrow Self-Certainty \rightarrow Conspiracist Beliefs; Ideas of Reference \rightarrow Self-Certainty \rightarrow Conspiracist Beliefs). For the Odd Beliefs or

Magical Thinking → Analytic Thinking → Conspiracist Beliefs pathway, the significant unstandardised direct effect of Odd Beliefs or Magical Thinking to belief in conspiracy theories was 0.525 ($p < .001$); however, the significant indirect effect (mediated) effect of Odd Beliefs or Magical Thinking on conspiracist beliefs was 0.019 ($p = .016$). That is, due to the indirect (mediated) effect, through the Analytic Thinking pathway, of Odd Beliefs or Magical Thinking on conspiracist beliefs, there was a reduction in effect to that of the direct effect; this is in addition to any direct (unmediated) effect. The significant total (direct and indirect) effect of Odd Beliefs or Magical Thinking on conspiracist beliefs was 0.544 ($p < .001$). This represents the total effect due to both direct (unmediated) and indirect (mediated) effects on conspiracist beliefs. There was a similar effect in the Odd Beliefs or Magical Thinking → Self-Certainty → Conspiracist Beliefs pathway, whereby the significant direct effect (0.477, $p < .001$) was reduced through the significant indirect effect (0.067, $p < .001$); and the Ideas of Reference → Self-Certainty → Conspiracist Beliefs pathway, whereby the significant direct effect (0.345, $p < .001$) was reduced through the significant indirect effect (0.047, $p < .001$).

4. Discussion

The aim of this study was to build on previous studies reporting associations between facets of schizotypy and conspiracist beliefs by exploring the potential utility of a number of cognitive mediators of the former relationship. Our results are important in two ways. First, the results confirmed through path analysis the direct and positive relationships between two lower-order facets of schizotypy (Odd Beliefs and Magical Thinking and Ideas of Reference) and belief in conspiracy theories. This is important as it suggests that the findings reported in previous studies (Barron et al., 2014; Bruder et al., 2013; Darwin et al., 2011; Swami et al., 2014; van der Tempel and Alcock, 2015) are relatively robust and remain stable across different samples. In other words, there appears to be a significant and positive association between lower-order facets of schizotypy and belief in conspiracy theories, which cannot be attributed to artefactual explanations. Second, the results of the present study extend these findings by also showing that cognitive processes mediated the relationships between schizotypal facets and conspiracist beliefs.

The results of the present study showed that analytic thinking mediated the relationship between Odd Beliefs or Magical Thinking (but not Ideas of Reference) and conspiracist beliefs. In broad outline, this finding is consistent with previous work indicating that analytic thinking is negatively associated with conspiracist beliefs (Swami et al., 2014; van Prooijen, 2017). Taking the present finding at face value, it might be suggested that the cognitive disorganisation and possible delusional ideation that is typified by high scores on Odd Beliefs and Magical Thinking (Dagnall et al., 2015) is associated with lower tendencies to process information analytically, which in turn leads to greater assimilation of conspiracy theories. Swami and colleagues (2011) proposed that the latter association may reflect the fact that both conspiracist beliefs require a rejection of official mechanisms of information generation and expert opinion. That is, and consistent with the present results, it would seem

that differential traits that lead an individual to hold unusual beliefs may also lead them to assimilate conspiracy theories.

What is to some extent unclear, however, is whether Odd Beliefs or Magical Thinking and paranormal beliefs are different concepts. Hergovich et al. (2008) showed that some aspects of paranormal beliefs (e.g., belief in precognition, psi, witchcraft, and spiritualism) were strongly predicted by schizotypy, but other factors such as superstition were not (see also Dagnall et al., 2016). This would seem consistent with the finding that conspiracist beliefs is associated with paranormal beliefs (i.e., a belief in phenomena outside the explanatory power of mainstream science, but not superstitious beliefs (i.e., a specific belief that luck or future events can be influenced by forces, rituals, or actions not directly related to those events; Swami et al., 2011). It is possible that individuals who score highly on Odd Beliefs or Magical Thinking and/or paranormal beliefs subscribe to larger delusional systems (Darwin, 2015), which make it more likely that they will adopt conspiracy theories. Conversely, and as argued by Swami et al. (2011), it is possible that conspiracy theories fill a need for control that individuals who score highly on paranormal beliefs or Odd Beliefs or Magical Thinking might seek.

In addition, the present results indicated that greater schizotypal tendencies on both Odd Beliefs or Magical Thinking and Ideas of References were associated with greater self-certainty. This aspect of the study was consistent with previous work (e.g., Sacks et al., 2012); however, it extends previous work by showing that self-certainty mediated the relationships between these schizotypal traits and belief in conspiracy theories. That is, greater schizotypy scores on the two facets included here were associated with greater unwillingness to acknowledge the possibility that one may be wrong about an issue and greater assertiveness in one's own judgments. In turn, such greater self-certainty appears to have been associated with greater conspiracist beliefs. Previous research has indicated that

delusion-prone individuals are associated with an increased ‘jumping-to-conclusions’ style of reasoning; this is, they required less evidence before reaching a decision and expressed higher levels of certainty, in comparison to healthy control groups (Broome et al., 2007; Linney et al., 1998). In turn, jumping-to-conclusions has been associated with an increased self-certainty (Schlier et al., 2016), with the latter being suggested to have a link with conspiracist beliefs (van Prooijen, 2016). Therefore, the present results are important in confirming previous associations but also because they have highlighted self-certainty as a mediating factor to conspiracy ideation.

Finally, although this study found that Odd Beliefs or Magical Thinking was significantly and negatively associated with need for cognition, the latter was not directly associated with belief in conspiracy theories, nor did it mediate the link between schizotypal facets and belief in conspiracy theories. Although need for cognition has been suggested as an antecedent of belief in conspiracy theories, previous studies have likewise reported null effects once the variance accounted for by other cognitive processing factors have been accounted for (Swami et al., 2014). One broad conclusion that might be drawn on the basis of these results is that, once other cognitive factors (e.g., analytic thinking) have been accounted for, need for cognition no longer exerts any significant effect on belief in conspiracy theories.

There are a number of ways in which this study could be improved. First, the online recruitment strategy ensured a sufficient sample for the analyses, but participants were unlikely to be representative of any one nation or community. Second, it is important to highlight that the data in this study were cross-sectional and, while these results were interpreted in line with contemporary theorising of conspiracy ideation (e.g., Swami and Furnham, 2014), some caution should be exercised when interpreting causal effects. Nevertheless, the results of this study support previous studies in suggesting that Odd Beliefs or Magical Thinking and Ideas of Reference are directly associated with conspiracist beliefs.

However, they also extend those findings by suggesting that cognitive processes – namely, analytic thinking and self-certainty – mediate the link between schizotypy and conspiracist beliefs. This helps to provide a more nuanced perspective of previously reported results (e.g., Darwin et al., 2015; Swami et al., 2011). That is, although a direct link between these variables may be tenable, it is also important to consider the possible ways in which schizotypy shapes cognitive processes, which in turn influence conspiracist beliefs. This is important from a practical point-of-view as it may highlight possible intervention routes for reducing conspiracist beliefs, either by targeting schizotypal traits indirectly or cognitive factors directly. While inferences from these data can only be made through the sub-clinical schizotypal view, patients with psychotic disorders and those with an at-risk mental state, have also been shown to have reasoning biases or abnormalities (e.g., Broome et al., 2007). Therefore, future research should consider not only reasoning biases, but an outcome of conspiracy beliefs through both clinical and sub-clinical expression of schizotypy.

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Table 1. *Inter-scale Correlations between Conspiracist Beliefs, Schizotypal Facets, and Cognitive Factors.*

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Conspiracist beliefs		0.53**	0.54**	-0.14*	-0.19**	0.36**
(2) OBoMT			0.53**	-0.11*	-0.17**	0.29**
(3) IoR				-0.09	-0.13*	0.30**
(4) Need for cognition					0.84**	-0.19**
(5) Analytic thinking						-0.14*
(6) Self-certainty						
<i>M</i>	3.89	1.67	2.98	3.38	3.65	15.03
<i>SD</i>	2.00	1.94	2.74	0.72	0.68	3.41

Note. OBoMT = Odd Beliefs or Magical Thinking, IoR = Ideas of Reference. * $p < .05$, ** $p \leq .001$

Table 2. *Decomposition of Unstandardised and Standardised Direct, Indirect, and Total Effects from Schizotypal Traits Within the Model, with Bootstrap Standard Errors in Parentheses.*

Pathway	Direct Effect		Indirect Effect		Total Effect	
	Unstd.	Std.	Unstd.	Std.	Unstd.	Std.
OBoMT → Analytic thinking	-0.059 (0.016)	-0.170 (0.048)	-	-	-	-
Analytic thinking → Conspiracist beliefs	-0.311 (0.142)*	-0.106 (0.047)*	-	-	-	-
OBoMT → Analytic thinking → Conspiracist beliefs	0.525 (0.044)	0.510 (.039)	0.019 (0.010)*	0.018 (0.009)*	0.544 (0.044)	0.528 (0.039)
OBoMT → Self-Certainty	0.505 (0.090)	0.288 (0.049)	-	-	-	-
Self-Certainty → Conspiracist beliefs	0.132 (0.027)	0.225 (0.046)	-	-	-	-
OBoMT → Self-Certainty → Conspiracist beliefs	0.477 (0.044)	0.463 (0.040)	0.067 (0.018)	0.065 (0.017)	0.544 (0.044)	0.528 (0.039)
IoR → Self-Certainty	0.367 (0.066)	.0295 (0.051)	-	-	-	-

Self-Certainty → Conspiracist beliefs	0.129 (0.028)	0.219 (0.046)	-	-	-	-
IoR → Self-Certainty → Conspiracist beliefs	0.345 (0.029)	0.472 (0.040)	0.047 (0.013)	0.065 (0.017)	0.392 (0.029)	0.537 (0.039)

Note. OBoMT = Odd Beliefs or Magical Thinking, IoR = Ideas of Reference, Unstd. = Unstandardised, Std. = Standardised. * $p < .05$, all other $ps \leq .001$.

Figure 1. *The Hypothesised Path Model from Schizotypal Traits to Conspiracist Beliefs via Cognitive Mediators*

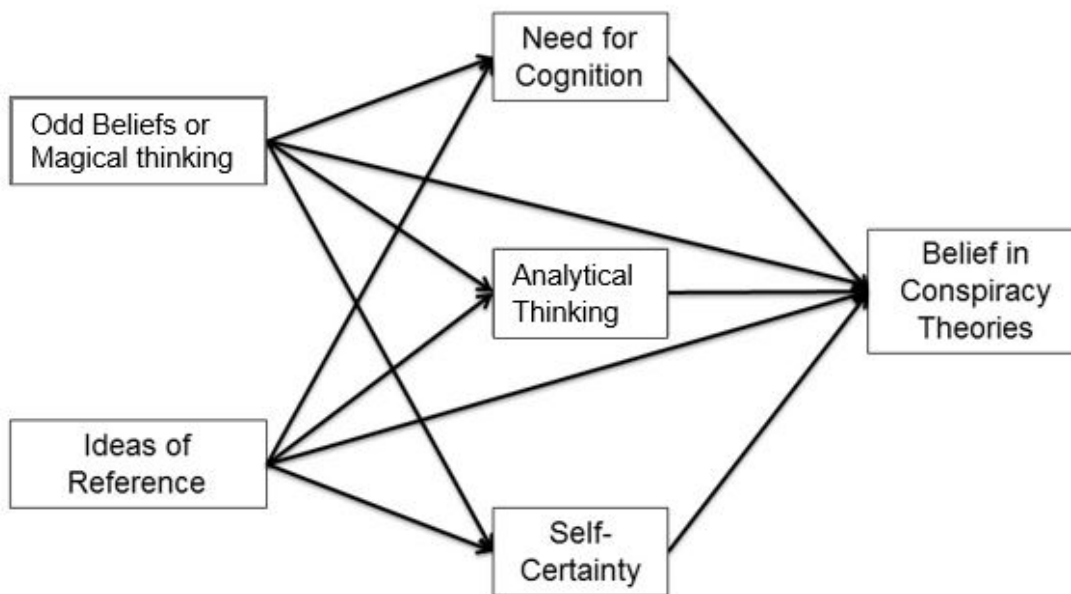


Figure 2. *Path Diagram Model with Estimated Standardised Coefficients*