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Belief in conspiracy theories. The role of paranormal belief, paranoid ideation and schizotypy

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ABSTRACT

Surveys indicate that belief in conspiracy theories is widespread. Previous studies have indicated that such beliefs are related to agreeableness, low levels of self esteem, certain negative attitudes towards authority, and paranoia. The current study investigated the relationship between conspiracy theory beliefs, paranormal belief, paranoid ideation, and schizotypy, in a study involving 60 females and 60 males aged 18–50. Sex differences were found in paranormal belief, with females scoring significantly higher than males in spiritualism, precognition, psi, and overall paranormal belief. Partial correlations controlling for sex showed that conspiracy beliefs were significantly and positively correlated with paranormal beliefs, paranoid ideation and schizotypy. Confirmatory analysis revealed a best fit model to explain conspiracy beliefs that included schizotypy and paranoid ideation, but not paranormal beliefs. These findings suggest that paranoid ideation and schizotypy are strongly associated with belief in conspiracy theories.

1. Introduction

A conspiracy involves multiple agents, working together in secret in order to realise hidden goals that are malevolent or unlawful (Zonis & Joseph, 1994). Belief in conspiracies have been defined as 'the attribution of deliberate agency to something that is more likely to be accidental or unintended, therefore it is the unnecessary assumption of conspiracy when other explanations are more probable' (Aaronovitch, 2009, p.29). Conspiracy theories have been put forward to explain major tragic events such as the death of Princess Diana, the assassination of J.F.K, the terrorist attacks of 9/11; and are strongly associated with debate surrounding the NASA moon landings, and alleged government cover-ups of alien visitations (Parker, 2001; Ramsay, 2006). These theories appear to be very robust, flourishing and spreading through populations via the Internet despite strong evidence against the 'facts' underlying them (Aaronovitch, 2009; Ramsay, 2006).

Initial research suggested that belief in conspiracies was associated with feelings of powerlessness in certain social groups, and they helped such groups derive coherent explanations for complex world events (Hofstadter, 1965). Goertzel (1994) reported that belief in conspiracies was associated with low levels of trust and high levels of anomie, and such beliefs enabled people to externalize their negative/angry feelings and provide them with 'enemies' on which to vent such feelings. Such findings have been confirmed by Abalakina-Paap, Stephan, Craig, and Gregory (1999) in undergraduate students, where belief in certain conspiracies was associated with high levels of anomie, powerlessness, authoritarianism, and low levels of self-esteem.

More recent research has attempted to identify specific personality factors which make an individual more likely to believe in conspiracy theories. Swami, Chamorro-Premuzic, and Furnham (2009) focused on whether personality variables such as the 'Big Five' were predictors of 9/11 conspiracy beliefs. Significant positive correlates of 9/11 beliefs were 'political cynicism' and 'defiance of authority'; while a negative association was found for 'agreeableness'.

An additional factor in conspiracy belief might be associated with belief in the paranormal – the acceptance of hypothesised processes that are currently thought to be scientifically impossible (e.g. extra-sensory perception, precognition, psychokinesis etc.). Despite increases in education level and scientific information, such beliefs are not in decline, and may even be increasing (Rice, 2003). Paranormal belief is a multidimensional construct that incorporates magical, superstitious, and religious ways of thinking (Lindeman & Aarnio, 2006), with gender differences in the extent of belief in certain elements being reported (Irwin, 1993; Tobacyk & Milford, 1983). Ramsay (2006) noted a link between interest in the paranormal, occult and strange phenomena and an interest in conspiracy theories. Although he acknowledges the connection, he was unclear on why a link exists, and proposed that it may be

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the case that if an individual is able to accept that the orthodoxy is wrong in one area such as the paranormal, then they are likely to believe that other orthodoxies are wrong, and this could simply be down to personality types. Therefore it would also seem logical to investigate whether the personality correlates of paranormal belief also contribute to belief in conspiracy theories.

One personality characteristic strongly associated with paranormal belief is schizotypy, a prodromal phase of schizophrenia involving cognitive, perceptual and affective symptoms (Meehl, 1990). Schizotypal traits include suspicion, magical thinking, social anxiety and paranoia, and the individual will also tend to hold odd and unusual beliefs (Barlow & Durand, 2009). Several studies have demonstrated strong links between certain aspects of schizotypy and paranormal belief (e.g. Genovese, 2005; Hergovich, Schott, & Arendasy, 2008), and it has been associated with New Age practices and certain religious beliefs (Day & Peters, 1999; Farias, Claridge, & Lalljee, 2005).

Associated with schizotypy is paranoid ideation. Many people harbour thoughts that external agents (or sometimes friends and family members) have a hostile intent towards them; this hostility may be in the form of physical threats and/or in the form of fears involving disloyalty, deception, exploitation etc. (Freeman et al., 2005). Holm (2009) suggested that conspiracy thinking is very similar to paranoia as it is a deeply suspicious state, where an individual is constantly fearful of the dangers posed by external factors and agents. Bentall (2000) has noted the links between paranormal belief and delusions, and has suggested that information processing and reasoning biases underpin both types of thinking. Grzesiak-Feldman and Ejsmont (2008) examined whether paranoia was related to conspiracy thinking about specific ethnic groups (Jews, Arabs, Germans and Russians) and found that conspiracy stereotypes for all four groups were highly positively correlated with each other; in addition conspiracy beliefs for all groups were positively associated with paranoid ideation.

There thus appears to be strong links between paranormal belief, schizotpy, and paranoid ideation, and suggested relationships between each of these factors and belief in conspiracies, though such links remain to be confirmed. The aim of this current study was therefore to examine possible associations between conspiracy belief, paranormal belief, schizotypy and paranoid ideation. It is hypothesized from existing research that paranoid ideation, schizotypy and paranormal belief will be positively correlated with conspiracy theory beliefs (Grzesiak-Feldman & Ejsmont, 2008; Hergovich et al., 2008; Genovese, 2005). If such relationships are established, it should then be possible using confirmatory factor analysis (CFA) to test a number of theoretical models of conspiracy theory belief.

2. Materials and Methods

2.1. Participants

Our sample comprised 120 volunteers (60 males and 60 females) recruited from the student population of a North-East University in the UK; all were aged 18–30. Participants were recruited via poster advertisements, emails and via 'word of mouth'. No exclusion criteria were applied, and data collection was ended when 60 male and 60 female volunteers had taken part. No participant subsequently requested to withdraw their data.

2.2. Materials

The *Conspiracy Theory Questionnaire* (CTQ) was used to assess the extent of one's belief in conspiracy theories. It consists of 38 items (e.g. "there are specialised government services who attempt to harass UFO witnesses into silence", which are responded to on a 10-point Likert-type scale (1 = extremely unlikely, 9 = certainly). A total score of 342 is possible (Bruder & Manstead, 2009). As this questionnaire is currently unpublished there are as yet no psychometric properties associated with it. However, in our sample we calculated the internal consistency of the questionnaire using Cronbach's alpha (score = .963), and we are thus satisfied that the questionnaire items are reliably measuring conspiracy belief.

The *Paranormal Belief Scale* (PBS) consists of 25 items and measures 7 factors of belief (traditional religious belief, psi beliefs, witchcraft, superstition, spiritualism, extraordinary life forms and precognition). Participants note the extent to which they agree with each statement on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Test–retest reliability of the scale over a 4 week period is given as .89; test retest reliability of the seven subscales ranges from .60 to .87. The subscale reliability coefficients are; traditional religious belief .75, psi .84, witchcraft .69, superstition .67, spiritualism .66, extraordinary life forms .82, and precognition .60 (Tobacyk & Milford, 1983).

The Paranoid Ideation Scale (PIS) consists of 20 statements, and participants responded with the extent to which they agreed with each statement on a 5-point scale (1 = not at all applicable to me, 5 = extremely applicable to me) giving a total possible score of 100. The internal consistency alpha combined from four samples is .84, and the test retest correlation is 0.70 (Fenigstein & Vanable, 1992).

The Schizotypal Personality Questionnaire (SPQ) consists of 22 items and measures three subscales, cognitive-perceptual deficits (8 items), interpersonal deficit (8 items) and disorganization (6 items) and also gives an overall score. The questionnaire measures the DSM-defined schizotypal personality disorder. The average internal reliability is 0.76 and test retest reliability has an average of 0.90 (Raine & Benishay, 1995).

After giving their informed consent, participants were given the four questionnaires to complete in a random order, the testing session taking around 20 min to complete. The study received approval from the School of Life Sciences Ethics Committee.

3. Results

3.1. Descriptive statistics and ANOVA

As studies have reported sex differences in certain elements of paranormal belief (Irwin, 1993; Tobacyk & Milford, 1983), and schizotypy (e.g. Farias et al., 2005) an initial one-way ANOVA was employed with sex as a factor, and scores on all questionnaires acting as dependent variables, see Table 1. Four measures from the PBS showed a significant sex difference, with females scoring significantly higher than males on spiritualism ($F_{1,118} = 8.119$, $p = 0.005$); precognition ($F_{1,118} = 35.046$, $p < 0.001$); psi ($F_{1,118} = 4.544$, $p = .035$); and on the overall score ($F_{1,118} = 6.900$, $p = .010$). There were no sex differences observed for scores on the CTQ, PIS and SPQ.

3.2. Correlations

In order to investigate possible associations between the relevant variables, partial correlations (one-tailed, Pearson Product-Moment) were conducted between conspiracy beliefs, paranoid ideation, schizotypy and paranormal belief, with sex acting as the control factor. Performance on the CTQ was significantly and positively correlated with every factor, see Table 2.

Table 1
Means and standard deviations (in brackets) for conspiracy theory beliefs, paranormal belief, paranoid ideation and schizotypy for males and females.

	Females (n = 60)	Males (n = 60)	Combined Total (N = 120)
Conspiracy score	165.03 (57.24)	180.55 (55.78)	172.79 (56.81)
Religious belief	11.22 (3.71)	10.07 (4.34)	10.64 (4.06)
PSI	9.87 (3.51)*	8.52 (3.42)*	9.19 (3.52)
Witchcraft	9.52 (3.76)	8.58 (3.90)	9.05 (3.84)
Spiritualism	9.83 (4.02)**	7.82 (3.73)**	8.83 (3.99)
Superstition	5.90 (2.83)	5.22 (2.69)	5.56 (2.77)
Extraordinary life	6.25 (3.28)	7.02 (3.61)	6.63 (3.45)
Precognition	8.95 (2.77)**	5.83 (3.00)**	7.39 (3.27)
Total Paranormal belief score	61.53 (16.97)*	53.05 (18.38)*	57.29 (18.12)
Paranoid Ideation	47.27 (15.86)	50.87 (13.94)	49.07 (14.98)
Cognitive-perceptual deficits	2.10 (1.85)	1.63 (1.70)	1.87 (1.78)
Interpersonal deficit	3.02 (2.33)	3.20 (2.46)	3.11 (2.38)
Disorganization	1.67 (1.61)	1.85 (1.88)	1.76 (1.74)
Total schizotypy score	6.78 (4.22)	6.68 (4.56)	6.73 (4.37)

* $p < 0.05$.
** $p < 0.001$.

Table 2
Intercorrelations between all scales.

	CON	RB	PSI	WC	SP	SU	ELF	PC	PBS	PI	CPD	ID	DISS	SCH
CON	–													
RB	.260*	–												
PSI	.526**	.461*	–											
WC	.395**	.349**	.654**	–										
SP	.434**	.564**	.658**	.663**	–									
SU	.216*	.306**	.317**	.353**	.417**	–								
ELF	.297*	.454**	.411**	.387**	.484**	.246*	–							
PC	.218**	.410**	.436**	.400**	.625**	.401**	.192*	–						
PBS	.470**	.721**	.788**	.765**	.882**	.569**	.639**	.666**	–					
PI	.467**	.283*	.382**	.278**	.384**	.299**	.250*	.273*	.424**	–				
CPD	.312**	.463**	.514**	.444**	.605**	.331**	.396**	.397**	.629**	.567**	–			
ID	.189*	.064	.227*	.309**	.220*	.256*	−.034	.159*	.233*	.446**	.328**	–		
DISS	.273*	.180*	.173*	.179*	.185*	.100	.069	.061	.193*	.452**	.352**	.286*	–	
SCH	.337**	.293*	.400**	.419**	.438**	.313**	.169*	.271**	.458**	.652**	.723**	.791**	.696**	–

CON = conspiracy theory beliefs, RB = Religious beliefs, WC = Witchcraft, SP = Spiritualism, SU = Superstition, ELF = Extraordinary life forms, PC = Precognition, PBS = overall total on Paranormal Belief Scale, PI = Paranoid ideation, CPD = Cognitive perceptual deficit, ID = Interpersonal deficit, DISS = Disorganization, SCH = Schizotypy total score.
* $p < 0.05$.
** $p < 0.001$.

3.3. Confirmatory factor analysis (CFA)

Confirmatory factor analysis (CFA) was used to test the assumptions of the hypothesized model, examining the relationship between conspiracy theories, paranormal belief, paranoid ideation and schizotypy. The analysis was conducted using Analyses of Moment Structures and the three main goodness of fit indices recommended by Garson (2009), chi squared ($\chi 2$) where a non significant value indicates a good fit, the comparative fit index (CFI), and the root mean square error of approximation (RMSEA) were reported. A CFI value of .90 or above indicates a good fit. An RMSEA value of less than .05 indicates a good fit, less than .08 indicates a reasonable fit, and greater than .10 shows poor fit.

An initial model incorporating all of the various factors (conspiracy beliefs, paranormal belief, paranoid ideation and schizotypy) was considered, however as sex differences had been found for the PBS the model was initially tested separately for males and females. For both sexes the model was a poor fit with the data (females: χ^2 50df = 70.5, p = .029, RMSEA = .083, CFI = .919; males: χ^2 50df = 73.662, p = .016, RMSEA = .090, CFI = .917). A further model was then tested that combined males and females, once more it was not a good fit with the data (χ^2 50df = 101.367, p > . 001, RMSEA = .081, CFI = .903).

The next model contained conspiracy beliefs, paranoid ideation and paranormal belief and again the model was a poor fit with the data model (χ^2 26df = 57.901, p > .001, RMSEA = .088, CFI = .918).

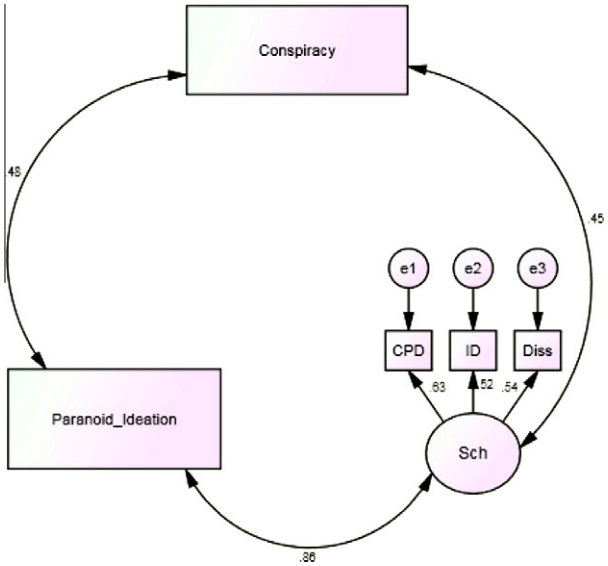

Fig. 1. Final 'best-fit' model showing the relationships between conspiracy theory belief, schizotypy and paranoid ideation.

A further model incorporated conspiracy belief, schizotypy and paranormal belief, and this was also a poor fit to the data

(χ^2 42df = 87.670, $p > .001$, RMSEA = .083, CFI = .900). A final model was then tested, this omitted paranormal belief and just contained schizotypy, conspiracy beliefs and paranoid ideation, and this was a good fit (χ^2 4df = .747, $p = .945$, RMSEA = .000, CFI = 1.00), see Fig. 1.

5. Discussion

An initial analysis revealed sex differences in paranormal belief as females scored significantly higher than males on belief in spiritualism, precognition, psi, and on the overall PBS. These findings provide some support for Tobacyk and Milford (1983) who reported that females scored significantly higher than males on precognition; they also noted that females scored higher in psi, spiritualism, and on the overall PBS, but these differences were non-significant. In addition they reported that males scored significantly higher in belief in extraordinary life forms, while we did not find this, the means were in the same direction (i.e. males scoring higher). Other researchers have reported that females score significantly higher on certain elements of schizotypy (e.g. Farias et al., 2005), in our study females did score higher on the cognitive-perceptual deficits subscale, and on the total schizotypy score, but these remained non-significant. As the female *n* was comparable between our study and that of Farias et al. (2005), i.e. 60 vs. 53, the use of differing scales to assess schizotypy may explain this discrepancy. We did not find a sex difference in paranoid ideation, and this is in accord with other studies using the PIS (e.g. Gilbert, Boxall, Cheung, & Irons, 2005).

The main aim of our study was to ascertain possible associations between paranormal belief, schizotypy, paranoid ideation and belief in conspiracies. The results of a partial correlation revealed that all tests and their subscales were significantly related to conspiracy beliefs, with the exception of belief in extraordinary life forms. This initial analysis thus finds support for Ramsay's (2006) assertion of possible links between interest in the paranormal, occult and strange phenomena and an interest in conspiracy theories. As schizotypal and paranoid individuals are known to hold unusual beliefs and to display traits of suspicion, magical thinking, fear of external agencies and persecutions (Barlow & Durand, 2009; Freeman et al., 2005; Gilbert et al., 2005; Holm 2009) it is not surprising that schizotypy and paranoid ideation were also correlated with conspiracy beliefs.

However, the key aim of this study was to use CFA to determine a 'best-fit' model of conspiracy beliefs. Models that included paranormal belief (with males and females considered separately and then together) were not found to be a good fit, with poor CFI and RMSEA values, and significant chi squared values. Our findings do not support a previous model described by Hergovich et al. (2008) who reported an acceptable fit model that included schizotypy, paranormal belief and superstition. However these authors observed that the main goodness of fit measure, (χ^2) was highly significant, and here they may have misinterpreted their data because the χ^2 statistic demonstrates a good fit when it is not significant (Garson, 2009).

We found that the best fit model incorporated schizotypy, paranoid ideation and conspiracy beliefs, but did not include any factors of paranormal belief. This finding lends support to authors who have suggested links between paranoia and conspiracy beliefs (e.g. Holm, 2009; Ramsay, 2006). Meller (2002) gives a possible explanation for why paranoia is linked to belief in conspiracy theories and proposes that paranoid people 'cannot dispense with the notion that *intentions* are the supreme cause of events in the world, that coincidences are never simply accidents' (p.72). It has been suggested that paranoid anxiety is an adaptive feature of human behaviour as the individual faces many possible social threats (e.g. persecution from out-group members; ostracism from in-group members; deception, threats from dominant others etc.). Paranoid anxiety is thus characterised by low trust, feelings of vulnerability to potential harm from others, and belief in the harmful intent of others (Freeman et al., 2005; Gilbert et al., 2005). It is easy to see that a low level of paranoid ideation could have helped an individual's survival chances as they would more easily detect potential social threats.

We have shown that paranoid ideation is linked to belief in conspiracies and such a link could reflect a general adaptive benefit for an individual being wary of the potential negative intentions of others. While such behaviours remain sub-clinical, then they could simply present as a keen interest in conspiracy theories and suspicions raised as to the malevolent activities of various government/religious agencies. If such behaviours become clinical however then the individual could experience serious persecutory delusions that could have a detrimental impact upon their mental health and social relationships (Freeman, 2007).

In the same way, some explanations for schizophrenia have emphasised the adaptive nature of some of the milder symptoms such as paranoia, obsessive interests and compulsions, magical thinking, difficulty in forming social relationships, and proneness to delusions (e.g. Horrobin, 2001; Nichols, 2009; O'Reilly, Dunbar & Bentall, 2001). If such symptoms reach a 'clinical' level then clearly they are maladaptive, but in a milder sub-clinical form they may actually promote survival – being slightly suspicious of the motivations of others may lead to the avoidance of personal harm, should such suspicions prove to be correct. O'Reilly et al., 2001 noted a link between schizotypal traits and openness to unusual experiences, this might mean that schizotypal individuals might be more open to arguments in support of conspiracy theories, and more likely to express such beliefs themselves.

However, we recognise that our sample, drawn from a single University population (comprising mainly students) may not be truly representative of the population. Our finding that conspiracy belief is strongly associated with paranoid ideation and schizotypy would benefit by larger-scale studies investigating such relationships in a much broader sample of the population, in terms of age, social, educational, religious and ethnic backgrounds.

In conclusion this research has identified two related factors associated with conspiracy beliefs – paranoid ideation and schizotypy. As some features of paranoia and schizotypy may serve adaptive functions, then it is perhaps not surprising that belief in conspiracies is very common. However further research would be beneficial to investigate the traits underlying paranoid ideation and schizotypy, in order to gain a better insight into what specific personality attributes make an individual more likely to believe in conspiracy theories. While some degree of conspiracy thinking may be of benefit to individuals living in a complex social world, clearly for some people such thought patterns could become maladaptive, and may lead to antisocial behaviours.

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