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Cognitive and Psychological Mediators of Anxiety: Evidence from a Study of Paranormal Belief and Perceived Childhood Control

Abstract: 127 adult volunteer participants completed questionnaire measures of paranormal belief and perceived childhood control. As predicted, paranormal belief correlated negatively with perceived childhood control, consistent with the theory that, for some, paranormal belief may arise as a psychological coping mechanism following early experiences of diminished control. These findings are discussed with reference to the broader literature on the cognitive and psychological factors that link childhood experience of diminished control and the development of adulthood anxiety and negative emotions.

Recent surveys suggest that approximately half the population hold some form of paranormal belief (e.g., Moore, 2005). Researchers have tended to take a broad definition of paranormal belief, with the most commonly-used questionnaire (Goulding & Parker, 2001), the Paranormal Belief Scale (Tobacyk & Milford, 1983), having subscales for traditional religious belief, psi, witchcraft, superstition, spiritualism, extraordinary life forms, and precognition.

A relatively large body of research has examined the functions and origins of such beliefs. One line of work has examined the notion that people tend to hold paranormal beliefs because they possess psychological attributes that make them more likely to misattribute paranormal causation to normal experiences (see review by Wiseman & Watt, in press). A second line of investigation, conducted largely independently of the first, takes a motivational perspective and suggests that people who perceive themselves as having little control over their lives may come to develop paranormal beliefs, in part, because such beliefs help provide an enhanced sense of control (Blackmore & Troscianko, 1985; Irwin, 2000; Marks & Kammann, 1980). In support of this idea, several studies have found a tendency for paranormal beliefs to be associated with an external locus of control (e.g. Allen & Lester, 1994; Groth-Marnat & Pegden, 1998; Scheidt, 1973).

Although researchers often refer to a global 'paranormal belief', this may be an oversimplification with reference to the sense of control that may be achieved by adopting such beliefs. Some paranormal beliefs (e.g. belief in psi and witchcraft) suggest belief in one's ability to exert an influence over the world, whereas other beliefs (e.g. superstitious and traditional religious beliefs) seem more fatalistic and associated with a higher controlling force. Therefore some researchers have argued that an understanding of the psychodynamic functions of paranormal beliefs may be more readily achieved by taking a multi-dimensional approach that discriminates between different types of paranormal beliefs and different spheres of control (e.g. Dag, 1999; Davies & Kirkby, 1985; Irwin, 2000; Tobacyk, Nagot & Miller, 1988; Wolfradt, 1997).

Considering possible developmental factors, studies have shown that reports of an abusive and traumatic childhood are positively correlated with paranormal beliefs (Irwin, 1992, 1994a; Lawrence, Edwards, Barraclough, Church, & Hetherington, 1995). However, Irwin (2005) has recently speculated that belief in the paranormal may arise to cope with the perceived *lack of control* created not only by relatively rare traumatic childhood events but also by certain other more common forms of childhood experience associated with a lack of control, such as being a younger sibling or having authoritarian parents. Traumatic childhood experiences would therefore form a subset of a wider set of childhood experiences associated with a lack of control.

This paper describes the first empirical test of Irwin's (2005) hypothesised relationship between paranormal belief and childhood control. An adult sample was asked to complete questionnaires designed to measure their belief in the paranormal, and perceived level of control during childhood. A negative relationship between the two measures was predicted. As 'only-children' and first-borns tend to have a more internal locus of control than later-born children (e.g., Hoffman & Teyber, 1979), it was also predicted that later-borns would be more likely to believe in the paranormal than only-children or first-borns. A multi-dimensional measure of adult locus of control was administered as an indicator of the construct validity of the Perceived Childhood Control Questionnaire (PCCQ), and in order to investigate links between birth order and adult locus of control. Finally, surveys have tended to find that women have higher levels of paranormal belief than men (Irwin, 2004). This study uses a recent refinement of the Paranormal Belief Scale in

which items susceptible to gender and age bias have been removed (Lange, Irwin & Houran, 2000), allowing us to report uncontaminated gender differences in paranormal belief.

Method

Participants

127 people participated in this study (80 females, 47 males; age range 17-60 years, mean age=27.5 years, $SD=12.24$). Participants were recruited from around the university campus and consisted of both students and non-students. The ratio of students to non-students was approximately three to one.

Materials

Questionnaire booklet. The three questionnaires were presented in booklet form, preceded by demographic questions including participants' gender, age, and birth order.

Perceived Childhood Control Questionnaire (PCCQ)

The 30-item PCCQ was newly-devised for this study and aimed to provide a measure of perceived childhood control within both personal and interpersonal domains. The PCCQ was primarily based on items adapted from the Nowicki-Strickland Locus of Control Scale for children (Nowicki &

Strickland, 1973) and the Parental Bonding Instrument (Parker, Tupling, & Brown, 1979). The items focused on areas of personal and interpersonal experience that might affect a child's sense of control (e.g., 'My parents tried to control everything I did'; 'I had a lot of choice in deciding who my friends were'; 'I was encouraged to make my own decisions'). Fourteen items were reverse-scored. The questionnaire was piloted on ten male and female volunteers to ensure unambiguity of item phrasing. The PCCQ is an exploratory instrument and has not undergone thorough psychometric development, though we report on initial psychometric evaluation in the results section. The items making up the PCCQ are presented in the Appendix.

Participants were informed that the questionnaire was "designed to find out your impressions of what growing up was like for you as a child (i.e. 16 years or younger)". They were asked to indicate the degree to which they agreed with each item on a five-point scale (anchored with "strongly agree" and "strongly disagree"). Scores could range from 30 to a maximum of 150. Higher scores indicated higher perceived childhood control.

Spheres of Control Scale (SOC)

The 30-item SOC scale (Paulhus, 1983) measures three different dimensions of control: personal efficacy (perception of personal achievements), interpersonal control and sociopolitical control (perceived control over sociopolitical events). Participants respond to each item on a 7-point scale (anchored with "strongly agree" and "strongly disagree"), such that higher scores indicate greater internal locus of control. The scale has been

shown to have a clear three-factor structure (Spittal, Siegert, McClure & Walkey, 2002), and satisfactory reliability, though reliability is lower for the personal sub-scale than for the interpersonal and sociopolitical scales (Paulhus & van Selst, 1990).

Revised Paranormal Belief Scale (RPBS)

The Revised Paranormal Belief Scale (Tobacyk, 1988), consists of 26 items that form 7 sub-scales (listed in the introduction) derived from factor analysis. There has been a great deal of debate over the factor structure of the RPBS and Lange, Irwin, and Houran (2000) have recently argued that the RPBS contains some items that suffer from differential item functioning for age and gender. Omitting these items, the 'purified' scale contains two factors, namely New Age Philosophy (NAP; 11 items measuring belief in psychic ability and spiritualism) and Traditional Paranormal Beliefs (TPB; 5 items measuring traditional religious beliefs and belief in witchcraft). Respondents indicate their belief using a seven-point scale (anchored with "strongly disagree" and "strongly agree"), with higher scores indicating stronger belief. In the present study, the full RPBS was administered, but results are reported only for the NAP and TPB sub-scales, and global belief refers to the sum of these two.

Procedure

Participants were approached by an experimenter and asked to complete a booklet of questionnaires on the spot if possible, and then seal

them in a blank envelope provided and return them to the experimenter. This procedure encouraged a low drop-out rate. The experimenter stressed the anonymity of responses in order to minimise possible response bias effects. Participants were not informed of the study's hypotheses. The questionnaire booklet was headed 'Study of Childhood and Adult Beliefs'. The study was approved by the University of Edinburgh Psychology Ethics Committee.

Results

150 questionnaire booklets were distributed; 23 were returned incomplete and were not included in the data, and 127 were completed, giving an 85% return rate.

Perceived Childhood Control Questionnaire

Scores on this questionnaire ranged from 68 to 133 (mean=105.3, $SD=12.1$; median=106, mode=106). The PCCQ had satisfactory reliability (Cronbach's $\alpha=0.825$). Factor analysis was not possible due to insufficient numbers of participants. A multiple regression analysis showed that the 30 PCCQ items accounted for 25% of the variance in paranormal belief ($r=.498$, $r^2=.248$), which was not a significant relationship ($F[30,126]=1.06$, $p>.05$). Two out of the thirty items made a significant ($p<.05$) contribution to the equation: 'I believed that wishing for good things could make them happen', and 'Trying to get my own way at home was pointless'.

Participants' scores on the PCCQ correlated positively with their overall SOC scores ($r_s=.218$, $p[2tailed]=.014$), and with SOC Interpersonal ($r_s=.165$,

$p[2\text{tailed}] = .065$) and Personal ($r_s = .195$, $p[2\text{tailed}] = .028$) subscales. There was a nonsignificant correlation between PCCQ and the Sociopolitical subscale ($r_s = .071$, $p[2\text{tailed}] = .426$).

Paranormal Belief, Perceived Childhood Control, and Birth Order

As predicted, there was a significant negative correlation between scores on the PCCQ and RPBS ($r_s = -.180$, $p[2\text{tailed}] = .043$; see Table 1). This correlation derived primarily from the items forming the TPB sub-scale ($r_s = -.214$, $p[2\text{tailed}] = .016$), although a negative but non-significant correlation was also found for the NAP sub-scale ($r_s = -.139$, $p[2\text{tailed}] = .120$).

Participants were allocated to one of two groups on the basis of their birth order responses. As predicted, individuals who were either only-children or first-born ($N = 60$) reported significantly higher perceived childhood control (mean PCC = 107.5, $SD = 13.0$) than those who were later-borns ($N = 67$, mean PCC = 103.4, $SD = 11.1$) (Mann-Whitney $Z = 2.119$, $p[2\text{tailed}] = .034$). There was no significant difference between the two groups on overall SOC (Mann-Whitney $Z = -.041$, $p[2\text{tailed}] = .967$) and on the personal ($Z = -.527$, $p[2\text{tailed}] = .598$), interpersonal ($Z = -.048$, $p[2\text{tailed}] = .961$), and sociopolitical sub-scales ($Z = -.043$, $p[2\text{tailed}] = .965$). Also, contrary to expectation, there was no significant difference between the two groups on overall paranormal belief ($Z = -.510$, $p[2\text{tailed}] = .610$) or on the TPB ($Z = -.305$, $p[2\text{tailed}] = .761$) and NAP ($Z = -.730$, $p[2\text{tailed}] = .466$) sub-scales.

Insert Table 1 about here

Paranormal Belief and Adult Locus of Control

As Table 1 shows, there was a positive but non-significant correlation between overall paranormal belief and overall SOC ($r_s=.132$, $p[2tailed]=.139$). This correlation mostly reflects the fact that higher scores on the NAP sub-scale tend to be associated with more internal locus of control overall ($r_s=.180$, $p[2tailed]=.043$). NAP beliefs showed little correlation with Personal control ($r_s=-.014$, $p[2tailed]=.877$), a nonsignificant positive correlation with Interpersonal control ($r_s=.103$, $p[2tailed]=.250$), and a marginally significant positive correlation with Sociopolitical control ($r_s=.171$, $p[2tailed]=.055$). There was little relationship between the TPB sub-scale and locus of control (see Table 1).

Gender Differences in Paranormal Belief

In line with previous surveys, females had significantly higher levels of paranormal belief than males ($t[125]=2.784$, $p[2tailed]=.006$; see Table 2). This difference was also significant for the NAP sub-scale ($t[125]=3.073$, $p[2tailed]=.003$) but not for the TPB sub-scale ($t[125]=1.763$, $p[2tailed]=.08$).

Insert Table 2 about here

Discussion

This study tested Irwin's (2005) hypothesis that paranormal belief is associated with a lack of childhood control. A questionnaire on perceived childhood control was developed for this purpose. The predicted relationship was found for overall paranormal belief and, most strongly, for the Traditional Paranormal Beliefs sub-scale which consists of items reflecting traditional religious beliefs and beliefs about witchcraft. Though the relationship was found to be statistically significant, the effect size is small, so that only a small portion of the common variance is accounted for in this sample. This may in part be due to limitations of the RPBS. Although we used the 'purified' version of this scale, which is an improvement in psychometric terms upon the original RPBS, the two factors in the purified scale each contain items that might be associated with a heightened sense of control. As we noted in the introduction, some beliefs (e.g. belief in witchcraft, precognition and psi) convey a sense of personal control over the world. In the purified RPBS witchcraft and precognition items are placed in the TPB sub-scale, which includes traditional religious beliefs that might be associated with a *low* sense of control due to their reference to a higher controlling power. Items likely to be associated with personal control, such as belief in psi, are also represented in the NAP sub-scale. Furthermore, the purified RPBS still contains items that may be 'suspect'. For instance, with reference to

practitioners of Wicca, to agree with the RPBS item 'There are actual cases of witchcraft' would not necessarily reflect a paranormal belief.

The relatively weak association between childhood control and paranormal belief also suggests that researchers need to take into account other possible contributory factors in the development of paranormal belief. These could include allegedly paranormal personal experiences, hearing reports of such experiences from influential others, being exposed to influential media depictions of the paranormal, and having broader spiritual and philosophical world-views that would encompass paranormal beliefs (e.g., Clarke, 1995). As we have argued elsewhere (Wiseman & Watt, in press), a new measure of paranormal belief is needed in order to allow a detailed understanding of the diversity and rich complexity of these beliefs.

Converging evidence on the potential role of childhood control in the origins of paranormal beliefs was investigated in birth order data. Although as expected later-borns reported less childhood control than first-born or only-children, birth order did not relate to paranormal belief, suggesting that perceived childhood control is a better predictor of paranormal belief than birth order. Contrary to the general finding in previous studies that paranormal believers tend to have a more external locus of control, the present study found little relationship between Spheres of Control questionnaire scores and paranormal belief.

It would be useful for future studies to investigate the relationship between childhood trauma, childhood control, and paranormal belief. This research might measure and partial out extreme childhood trauma (such as physical abuse, which has been linked with paranormal belief by French &

Kerman, 1996, Irwin, 1992, and Lawrence, et al., 1995) from perhaps more commonly experienced but less extreme factors such as having authoritarian parents or having several older siblings. It is possible that childhood trauma represents the extreme end of a continuum of childhood experiences that produce strong anxiety and leads to the development of fantasy proneness (Lynn & Rhue, 1988), paranormal beliefs, and dissociative tendencies (Irwin, 1994b) as coping mechanisms. Less extreme experiences of diminished control in childhood could nevertheless have lasting effects upon the individual, for example through influencing locus of control and attributional style.

In their review of literature on the development of anxiety, Chorpita and Barlow (1998) argue that although childhood experiences of diminished control are known to lead to anxiety and a predisposition to experience negative emotions and psychopathology as an adult, little is known of the mediating cognitive and psychological processes. In fact, we argue that one line of evidence may come from the present study as well as the previous literature on the aetiology of paranormal belief, which indicates that some individuals who experience anxiety through childhood trauma and childhood experiences of diminished control may develop fantasy proneness and paranormal beliefs as a form of coping. However, the large number of seemingly well-adjusted individuals holding paranormal beliefs suggests that for many people, the aetiology of their beliefs remains, as yet, a mystery.

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Appendix: Perceived Childhood Control Questionnaire

This questionnaire is designed to find out your impressions of what growing up was like for you **as a child** (ie 16 years or younger). Please answer these questions with the impressions that first come to mind without too much deliberation. Please indicate your response to the statements by ticking the boxes that range from 1 (strongly agree) to 5 (strongly disagree). Please note that when the word “parents” is used we refer to whoever was the primary caregiver.

(response options labelled: Strongly Agree; Agree; Neutral; Disagree; Strongly Disagree)

1. I was often blamed for things that were not my fault.*
2. I was allowed to do the things that I liked doing.
3. My parents tried to control everything I did.*
4. I thought that I could get my own way if I just kept trying.
5. I could dress in any way I pleased.
6. It was pretty impossible to change my parents' mind about anything.*
7. I had a lot of choice in deciding who my friends were.
8. I was treated like a baby.*
9. I believed that wishing for good things could make them happen.
10. Whether or not people liked me depended on how I acted.
11. My parents tried to make me dependent on them.*
12. I felt that I could look after myself if my parents weren't around.

13. I had little privacy.*
14. Trying to get my own way at home was pointless.*
15. I was allowed to go out as often as I wanted.
16. When good things happened, they happened through my efforts.
17. My parents usually helped me if I asked them to.
18. My parents did not want me to grow up.*
19. I was encouraged to make my own decisions.
20. I had little say about what I ate at home.*
21. When I did something wrong, there was little that I could do to make it right.*
22. I felt overprotected.*
23. I was allowed to decide things for myself.
24. It was easy to get my friends to do what I wanted them to do.
25. I felt that most of the time, my parents listened to what I had to say.
26. I was given as much freedom as I wanted.
27. Nobody seemed to understand what I needed or wanted.*
28. I had little say in family decisions.*
29. Overall my parents had an authoritarian style of parenting.*
30. Overall my parents had a democratic style of parenting.

*Items marked with an asterisk are reverse-scored.

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Table 1. Questionnaire measures of control correlated with paranormal belief (significant two-tailed *p*-values are shown in parentheses; N=127).

	Overall Paranormal Belief	New Age Philosophy	Traditional Paranormal Beliefs
Perceived Childhood Control	-.180 (.043)	-.139	-.214 (.016)
Total Spheres of Control	.132	.180 (.043)	.024
Personal Control	-.037	-.014	-.070
Interpersonal Control	.108	.103	.067
Sociopolitical Control	.095	.171 (.055)	-.021

Table 2. Descriptive statistics for gender and paranormal belief (mean scores, SD in parentheses).

	Overall Paranormal Belief	New Age Philosophy	Traditional Paranormal Beliefs
Female (N=80)	57.5 (16.6)	38.7 (11.2)	18.8 (6.9)
Male (N=47)	48.2 (20.4)	31.9 (13.5)	16.4 (8.3)