

Paranormal Beliefs and Experiences: Indicators of Mental Health or Mental Disorder? Research report

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Background

According to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000), paranormal beliefs and experiences constitute diagnostic criteria for mental disorders such as schizotypal personality disorder and schizophrenia. These disorders are genetically related (Ingraham, 1995) and have the same factor structure. Both schizotypal personality disorder (Vollema & Hoijtink, 2000) and schizophrenia (Liddle & Barnes, 1990) can be organised into a positive, a disorganised, and a negative symptoms factor. The word positive signifies an excess or distortion of normal functions, whereas the word negative implies diminution or loss of normal functions (American Psychiatric Association, 2000).

Positive symptoms of schizotypal personality disorder include paranormal beliefs and experiences: "odd beliefs or magical thinking that influences behavior and is inconsistent with subcultural norms (e.g., superstitiousness, belief in clairvoyance, telepathy, or 'sixth sense'" (American Psychiatric Association, 2000, p. 701). These symptoms are the milder equivalents of the more severe schizophrenia symptoms hallucinations and delusions. Disorganised symptoms are for example attention difficulties and thought blocking in schizotypal personality disorder, and the more severe disorganised speech and behaviour in schizophrenia. The negative schizotypal symptoms social withdrawal and inability to experience pleasure are the milder equivalents of the negative schizophrenia symptoms seen as restrictions regarding emotional expression, productivity in thought and speech, and in the initiation of goal-directed behaviour (American Psychiatric Association, 2000).

A person can show signs of schizotypal personality without having a mental disorder but according to a medical model of schizotypal personality disorder and schizophrenia, signs of schizotypy mean that a person is vulnerable to the disorders (Meehl, 1990). If a person has a genetic vulnerability for schizotypal personality disorder and schizophrenia, or has a brain damage, he or she shows signs of schizotypal personality traits. Depending on environmental factors, this person might be protected from developing schizotypal personality disorder or schizophrenia. Alternatively, if protective environmental factors are lacking, the person will develop a disorder. In the medical model, signs of schizotypy are negative for a person's mental health. This means that paranormal beliefs and experiences are viewed as potential health threats. One of few longitudinal studies showed that individuals with high levels of positive schizotypy, indeed, ten years later, exceeded control subjects regarding having developed a psychosis (Chapman, Chapman, Kwapil, Eckblad & Zinser, 1994). Although only 10 of the 182 individuals had developed a psychosis at follow-up, this frequency might increase with time since few subjects had passed the "critical age" for the development of psychotic disorders.

However, there is evidence that schizotypy is a dimensional rather than a categorical construct. The medical model for schizotypy is a categorical model; a person either has or does not have a genetic vulnerability or brain damage. Claridge (1997) labels the medical model quasi-dimensional since there is an inbuilt illness continuum in the model. Although

schizotypy is a categorical construct, it also has dimensionality in that signs of schizotypy are less severe than schizotypal personality disorder, which in turn is less severe compared to schizophrenia. An alternative, fully dimensional model (Claridge, 1997) instead states that all people have schizotypal personality traits but vary regarding degree of the traits. In the fully dimensional model, schizotypy is likened to other constructs that are distributed in varying degrees in the population. An example is anxiety, which is a healthy personality trait in most people but can be related to ill health when present in extremely high degrees (Claridge, 1997). In the fully dimensional model, schizotypal traits are fundamentally neutral regarding mental health. In some people, it can be related to mental ill health, in some people it can be related to mental health. Within this model, paranormal beliefs and experiences might therefore be unrelated, positively related, or negatively related to mental health.

Studies exploring the relation between paranormal beliefs and experiences and mental health support the fully dimensional model over the medical, quasi-dimensional model. A series of studies on people reporting out-of-the-body experiences showed that they appeared to be healthy although having higher levels of positive schizotypy compared to controls (McCreery & Claridge, 1995, 1996, 2002). Some people even reported being healthy due to their paranormal experiences rather than despite of them (McCreery & Claridge, 1995). These results are similar to those showing that people who experience paranormal phenomena might report an increased sense of well-being and meaning in life (Kennedy & Kanthamani, 1995; Kennedy, Kanthamani & Palmer, 1994). Paranormal experiences might also be a help to solve life crises and therefore be considered to be positive concerning mental health rather than negative (Jackson, 1997).

Only the fully dimensional model takes into account that schizotypal personality traits might be both related to mental health and ill health. However, an important question is: if schizotypal personality traits can be related to both mental health and ill-health, when do they become a health risk? It might be a matter of degree so that when a person has an extremely high degree of schizotypal traits then this person is at a higher risk of developing a disorder. Alternatively, it might be a matter of degree in combination with which kind or kinds of schizotypal traits this person has a high degree of. For example, it might be more problematic to have extremely high degrees of negative or disorganised schizotypy than to have extremely high degrees of positive schizotypy.

Recent research on schizophrenia supports the idea that different symptom factors differ regarding severity. The disorganised symptoms factor is more persistent, more difficult to treat, and leads to worse functional impairment compared to the positive symptoms factor (Gray & Roth, 2007). Moreover, in a recent review, positive symptoms (first-rank symptoms of Schneider) were not associated with prediction of poor outcome (Jansson & Parnas, 2007), whereas negative symptoms, on the other hand, are considered to be related to particularly poor functioning (Kirkpatrick, Fenton, Carpenter & Marder, 2006).

In order to explore the relation between schizotypal personality traits and mental health, a series of studies were conducted (Goulding, 2004, 2005; Goulding & Ödén, 2008) in different populations, using somewhat different measures, and statistical methods. The studies also aimed to investigate which of the quasi-dimensional model and the fully dimensional model for schizotypy best describes the construct schizotypy.

In all studies, a cluster analytic approach was used to identify similar schizotypy groups. People with similar schizotypy profiles were grouped together. The groups were labelled

according to the schizotypy profiles. These groups were then compared regarding paranormal beliefs and experiences, and mental health using analyses of variance, the Kruskal-Wallis test, and the Mann-Whitney test. For further descriptions of the statistical methods used and for more detailed results, see Goulding (2004, 2005), and Goulding and Ödéhn (2008).

In the first study, three schizotypy groups were identified in a student population (see Table 1): one group with above mean scores on cognitive disorganisation and negative schizotypy, labelled Cognitive Disorganisation and Introvertive Anhedonia (CD/IA); one group with above mean scores on positive schizotypy, labelled Unusual Experiences (UE); and one group with low schizotypy scores labelled Low Schizotypy (LS). The Unusual Experiences group had a significantly higher level of paranormal beliefs and experiences compared with the Low Schizotypy group ($p=.003$) but the two groups did not differ significantly on the health-related measure.

In the second study, again, there were three schizotypy groups (Table 1), but in this study, all participants had high levels of paranormal beliefs and experiences, due to the sampling from this particular group. This meant that all participants had high levels of positive schizotypy and therefore there was no Unusual Experiences group in this study. The identified schizotypy groups were: a Cognitive Disorganisation (CD) group, an Introvertive Anhedonia (IA) group, and a Low Schizotypy (LS) group. The Low Schizotypy group had an extremely high level of health-related sense of coherence despite the fact that this group also had a high level of positive schizotypy. The Low Schizotypy group had significantly higher sense of coherence compared to the other two groups ($p<.0005$ in both cases).

In the last study, (using a random sample from the normal population) there was an Unusual Experiences (UE) group, a Cognitive Disorganisation (CD) group, an Introvertive Anhedonia (IA) group, and a Low Schizotypy (LS) group (Table 1). The Cognitive Disorganisation group had significantly lower mental health compared to the Low Schizotypy group ($p=.001$). There were no other significant group differences.

A recent study by Holt, Simmonds-Moore, and Moore (2008) confirmed the existence of a schizotypy cluster with a high level of positive schizotypy and low levels of the other schizotypy factors. They also identified a cluster with high levels of schizotypy overall. These two clusters did not differ significantly regarding paranormal beliefs. However, the positive schizotypy cluster had significantly better mental health.

The results show that it is possible to have high levels of paranormal beliefs and experiences or in other words high levels of positive schizotypy and still have no worse mental health or maybe even better mental health compared to people with low levels of schizotypy. Specifically positive schizotypy on its own may not be related to worse mental health whereas positive schizotypy, or paranormal beliefs and experiences, together with high degrees of the other schizotypy factors might. These results support the fully dimensional model for schizotypy over the quasi-dimensional model.

Table 1

Means and Standard Deviations Regarding Paranormal Beliefs and Experiences, Sense of Coherence, and Mental Health for the Different Schizotypy Groups

	Paranormal Beliefs and Experiences		Sense of Coherence		Mental Health	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Schizotypy groups in study I (<i>n</i>)						
CD/IA	16	14.6 7.3	110.0	20.7		
UE	23	19.9 9.1	140.9	9.5		
LS	49	12.9 7.9	143.7	14.8		
Schizotypy groups in study II (<i>n</i>)						
CD	33	29.0 4.8	136.3	16.5		
IA	35	28.3 5.7	131.6	17.0		
LS	60	27.6 4.7	157.6	17.8		
Schizotypy groups in study III (<i>n</i>)						
UE	14				45.5	11.2
CD	9				34.9	12.8
IA	22				47.1	10.8
LS	46				51.1	8.5

However, sense of coherence was used in the first two studies by Goulding (2004, 2005) and in the study by Holt et al. (2008) as a health-related measure, but it is not a direct health measure although it is positively related to health and well-being (Antonovsky, 1993). The mental health measure used in the study by Goulding and Ödén (2008) is, on the other hand, a direct measure and the result from this study still followed a similar pattern in that the positive schizotypy group (UE) had a similar mental health score compared to the low schizotypy group (LS).

Since a major limitation of previous studies on schizotypal personality is the use of subjective measures there is a need for studies using more objective measures, such as psychological tests rather than self-reports. Previous studies have shown that it is important to group paranormal believers and experiences according to schizotypy profiles in order to separate out those who are mentally healthy from those who are not. The objective of the present research project was therefore to investigate if previous results regarding schizotypy profiles and mental health could be replicated when using more objective measures known to be related to mental disorders.

Paranormal belief has also been related to worse cognitive functioning, for example worse critical thinking ability (Irwin, 2004). Persons who have schizophrenia have worse cognitive functioning in many different sub-areas, such as attention deficits, compared to others (Saykin et al., 1994). These kinds of problems have also been seen in people from the normal population who have high degrees of schizotypy (Lencz, Raine, Benishay, Mills & Bird, 1995). Worse cognitive functioning was thought to be related to schizotypy in general, not just to positive schizotypy. Cognitive dysfunction regarding different aspects of attention is seen as an important risk factor for psychosis spectrum disorders (Zuckerman, 1999). However, the relation between cognitive functioning and schizotypy clusters is unknown. It might be the case that only people with high levels of positive schizotypy together with high levels of disorganised or negative schizotypy have worse cognitive ability. If this is the case

then it can explain why different studies on the relation between cognitive ability and paranormal beliefs and experiences have shown different results.

The results from this research project have implications for theory development in the area of schizotypy and paranormal beliefs and experiences. If there is a cluster profile classified as having a high degree of positive schizotypy only and being healthy, then the fully dimensional model needs to be developed since it does not take cluster profiles' different relations to health into consideration. It simply states that having extreme degrees of schizotypy is related to worse mental health. If different schizotypy profiles have different relations to cognitive abilities then this has to be taken into consideration when interpreting results and conducting new studies in this area.

Moreover, the diagnostic manuals of mental disorders need to be revised if paranormal beliefs and experiences are not always to be considered as symptoms of mental disorders. The project therefore also has implications for professionals meeting people who report paranormal beliefs and experiences, as well as for the paranormal believers and experiencers themselves. It is important that professionals know that what is labelled as symptoms of mental disorders might be distributed dimensionally in the normal population rather than as discrete categories as depicted in the diagnostic manuals. The work with the DSM V is underway and there is an ongoing discussion about the status of symptoms of schizotypal personality disorder as being categorical or dimensional (Allardyce, Gaebel, Zielasek & van Os, 2007), so the subject is highly relevant.

Furthermore, it is important to know that what is labelled symptoms might be unrelated, positively, or negatively related to mental health. If professionals do not have this knowledge, they risk misdiagnosing their patients and thereby harming them rather than helping them. A person with paranormal experiences who is developing a severe mental disorder needs help and treatment to prevent a severe mental breakdown, whereas a person who has paranormal experiences but is not developing a mental disorder needs help to understand the experience without being classified as disturbed.

Aims

This project aimed to investigate if there amongst paranormal believers and experiencers is one sub-group characterised by having good mental health and cognitive functioning compared to norms. It also aims to investigate which kinds of paranormal phenomena the study group has experienced since it might be the case that certain phenomena are more severe regarding mental health than others.

Examples of project questions:

Do schizotypy profile groups differ regarding cognitive abilities such as attention?

Do schizotypy profile groups differ from norms regarding cognitive abilities? A hypothesis here is that a schizotypy profile group with a high degree of positive schizotypy together with low degrees of the other schizotypy factors (compared with norms) will not differ from norms regarding cognitive function.

Are there schizotypy profile groups that have the same cognitive dysfunctions as have been found in people with psychosis spectrum disorders?

How are schizotypy profiles and paranormal beliefs and experiences related to mental health?

Do schizotypy profile groups differ regarding which types of paranormal phenomena they experience?

Method

Participants

There were 168 participants in this project. However, due to difficulties recruiting participants who believed in and experienced paranormal phenomena, most of the participants were undergraduate psychology students ($n=110$). This report will focus on the results from the participants from the general population who answered an advertisement asking for people who believed in and experienced paranormal phenomena ($n=58$). The mean age in this group was 49.8 years, 75% were women. The student sample data was used for comparisons.

Measures

The Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE; Mason, Claridge & Jackson, 1995) was used to measure schizotypal personality.

The Australian Sheep-Goat Scale (ASGS; Thalbourne & Delin, 1993) was used to measure paranormal beliefs and experiences.

Mental and physical health was measured with SF36 (Sullivan, Karlsson & Taft, 2002), and wellbeing was measured with the Sense of Coherence Scale (SOC; Antonovsky, 1991).

Cognitive functioning was measured with the Wechsler Adult Intelligence Scale (WAIS III; Wechsler, 2003), the Wisconsin Card Sorting Test (WCST; Heaton, Chelune, Talley, Kay & Curtiss, 1993), and the Color Trails Test (CTT; D'Elia, Satz, Lyons Uchiyama & White, 1996). The WAIS III measures four different cognitive domains: Verbal understanding, Perceptual organisation, Working memory, and Speed. The WCST measures cognitive executive function and successful test performance requires an ability to develop and maintain an appropriate problem solving strategy across changing stimulus conditions. The CTT measures cognitive skills such as perceptual tracking, sustained and divided attention. The interviews were semi-structured and question areas were: 1) the participants' paranormal experiences, 2) the participants' lives, 3) what the paranormal experiences mean to the participants, and 4) how the participants cope with the paranormal experiences.

Procedure

Advertisements for project participants (people who believed in and experienced paranormal phenomena) were placed in two morning papers in the Göteborg area. Persons who were interested in participating in the project ($n=74$) were given information about the project when they contacted the project leader and they were then sent written information about the project together with a form for informed consent and a questionnaire pack consisting of background questions, contact information, and the questionnaires: O-LIFE, ASGS, SF36, and SOC. They were informed to fill in the questionnaires and return them by post using a pre-paid envelope. When the questionnaires were returned (58 people returned completed questionnaires), the project leader phoned the participants to arrange for a date to conduct the psychological testing and the interview. Twenty-three participants agreed to participate in the psychological testing which took approximately two hours and required the participants to come to the Psychology Department in Göteborg. Seven participants agreed to be interviewed; each interview took approximately one hour and took place in the Psychology Department. However, some participants ($n=20$) declared that they were interested in taking part in both the testing and the interview but so far the time has not been right for them. These participants will be approached again.

Results

The result section will focus on the most important results from this project. Three schizotypy profile groups were identified in this project through cluster analytic procedures; one group with low or average scores on the O-LIFE sub-scales as compared to norm data and the whole

group of participants, one group with high score on the positive schizotypy sub-scale and low scores on the other sub-scales, and one group with high scores on the positive and disorganised schizotypy sub-scales (Table 2).

Table 2
Schizotypy profile groups

Cluster (n)	UE sub-scale		CD sub-scale		IA sub-scale	
	M	SD	M	SD	M	SD
Low/average schizotypy (26)	7.6	3.0	4.4	3.9	7.0	4.7
Positive schizotypy (15)	17.3	4.3	4.3	3.2	3.1	2.4
Positive/Disorganised schizotypy (17)	21.0	4.8	16.2	3.3	6.5	4.5
Total sample (58)	14.0	7.1	7.8	6.5	5.8	4.4
British norm data (Mason & Claridge, 2006)	8.8	6.2	10.7	5.9	6.4	4.5

The levels of paranormal beliefs and experiences and mental health across the schizotypy profile groups are described in Table 3. The results from the previous studies mentioned in the background section are included for comparison. Kruskal-Wallis tests were used to analyse differences across clusters and t-tests were used to compare schizotypy groups with norm data regarding the SF36. There were statistically significant differences across clusters regarding mental health and level of paranormal beliefs and experiences. The Low/Average schizotypy group had a higher level ($M_{rank}=32.9$) of well-being (SOC) compared to the Positive/Disorganised schizotypy group ($M_{rank}=13.4$; adj. 2-tailed $p=.001$) and also had a higher level ($M_{rank}=34.0$) of mental health (SF36) compared to the Positive/Disorganised schizotypy group ($M_{rank}=15.4$; adj. 2-tailed $p=.001$).

The Positive schizotypy group also had a higher level ($M_{rank}=41.8$) of well-being (SOC) compared to the Positive/Disorganised schizotypy group ($M_{rank}=13.4$; adj. 2-tailed $p<.0005$) and a higher level ($M_{rank}=37.6$) of mental health (SF36) compared to the Positive/Disorganised schizotypy group ($M_{rank}=15.4$; adj. 2-tailed $p=.001$).

Compared to Swedish norm data for the SF36 ($M=50.0$; Sullivan et al., 2002), the Positive/Disorganised schizotypy group had a significantly lower level of mental health ($M=36.5$, 2-tailed $p=.0008$). There were no significant differences across clusters or as compared to norm data regarding physical health.

Regarding paranormal beliefs and experiences, the Low/Average schizotypy group had a lower level ($M_{rank}=19.8$) compared to both the Positive/Disorganised schizotypy group ($M_{rank}=35.1$; adj. 2-tailed $p=.011$) and the Positive schizotypy group ($M_{rank}=40.0$; adj. 2-tailed $p=.001$).

Table 3

Means and Standard Deviations Regarding Paranormal Beliefs and Experiences, Sense of Coherence, and Mental Health for the Different Schizotypy Groups

	Paranormal Beliefs and Experiences		Sense of Coherence		Mental Health (SF36)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Schizotypy groups in study I (n)						
CD/IA	16	14.6 7.3	110.0	20.7		
UE	23	19.9 9.1	140.9	9.5		
LS	49	12.9 7.9	143.7	14.8		
Schizotypy groups in study II (n)						
CD	33	29.0 4.8	136.3	16.5		
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Schizotypy groups in study III (n)						
UE	14				45.5	11.2
CD	9				34.9	12.8
IA	22				47.1	10.8
LS	46				51.1	8.5
Schizotypy groups in present project (n)						
Low/Average	26	22.9 5.5	152.1	18.9	50.2	10.8
Positive	15	30.0 5.0	162.7	12.2	53.4	6.5
Positive/Disorganised	17	28.3 4.8	120.0	21.4	36.5	13.4

There were no significant differences across clusters on the WAIS III domains and all clusters had scores within the average or above the average range (Wechsler, 2003) on all domains. Moreover, there were no significant differences across clusters regarding the WCST. There are published norm data for five of the seven WCST sub-tests (Heaton et al., 1993). The Low/Average and Positive schizotypy groups had scores within or above the average range on those sub-tests, whereas the Positive/Disorganised schizotypy group had scores below the average on four of the sub-tests. Again, there were no significant differences across clusters regarding the CTT Interference Index and all groups had scores within or above the average range (D'Elia et al., 1996) on this test.

The interviews were analysed with a phenomenological method and the participants typically talked about paranormal experiences that could be classified as extrasensory perception, psychokinesis, and contact with spirits. None of the respondents talked about experiences that could be classified as bizarre psychotic experiences (see American Psychiatric Association, 2000). The main themes identified in the interview data were: 1) What is reality?, 2) Doubts, 3) Trying to integrate, and 4) Coping strategies.

To summarize, the schizotypy profile groups Low/Average and Positive schizotypy had no worse mental health or cognitive functioning than the general population. Thus, the hypothesis that the schizotypy profile group with a high degree of positive schizotypy together with low degrees of the other schizotypy factors (compared with norms) would not differ from norms regarding cognitive function was confirmed.

The Positive/Disorganised schizotypy group had worse mental health and this group also had cognitive functioning below the average range regarding four WCST sub-tests. However, the results from the cognitive tests were inconclusive since this group had scores within the average range on the other two cognitive tests. There were no significant differences regarding cognitive functioning across schizotypy profile groups.

This project aimed to investigate if there amongst paranormal believers and experiencers is one sub-group characterised by having good mental health and cognitive functioning compared to norms. There were two such groups, the Low/Average and Positive schizotypy groups. The project also aimed to investigate which kinds of paranormal phenomena the study group has experienced and the experiences could be classified as extrasensory perception, psychokinesis, and contact with spirits. These results support the fully dimensional model for schizotypy and indicate that for some people positive schizotypy should not be regarded as a sign of mental ill-health or as a symptom.

Dissemination of results

Two research articles have been written; one on the relation between schizotypy and health, and one that reports the results from the interview data (this article is based on a Master's thesis in Psychology). These articles are in the process of being reviewed for language problems since they are written in English by a non-native speaker and will be published in English peer-reviewed research journals. A third article concerned with the relation between schizotypy and cognitive functioning is being written but this will not be sent to a research journal until the beginning of 2012. The reason for this is to allow participants who were interested in taking part in the psychological testing but were unable, to take part. Some results were presented at the SPR Conference in Edinburgh in September 2011 and the project leader was interviewed by Swedish radio P1 (Science radio, Forum). This interview was broadcast in August 2011. Also, the project leader presented some of the results from the study in a popular science talk at the Chalmers University of Technology in May 2011. Other popular science talks are scheduled to take place in December 2011 and in the spring 2012. The results will be presented at the BIAL Symposium in the spring 2012.

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