REVIEW ARTICLE

A REVISIT TO PARANORMAL BELIEFS – WHEN IS IT A PSYCHIATRIC DISORDER?

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Abstract

Objective: **Beliefs in paranormal phenomena, matters beyond the ability of current science to plausibly justify, are shared by a significant number in the population. It is useful in clinical practice to be able to determine when this may have psychiatric clinical implications. This review article aims to better delineate the group of individuals with such beliefs and experiences, and go on to offer a schema of approaching a patient with paranormal beliefs.** ***Methods:*** **A MEDLINE search of the current literature in this field is conducted. Relevant findings are presented in the review, grouped according to appropriate subheadings.** ***Results:*** **Demographics of believers are reviewed, while certain psychological and physiological traits found to have associations with paranormal beliefs are also highlighted. The functional role of paranormal beliefs and the psychological rationale behind them are considered. Certain psychiatric conditions, which have to be considered when clinically evaluating an individual with paranormal beliefs and experiences, are evaluated with reference to the ICD-10. These individuals also have different attitudes towards treatment options where required for a psychiatric condition.** ***Conclusions:*** **Individuals with paranormal beliefs are a distinct group. Thorough evaluation is required when these individuals are assessed, to pick up a psychiatric diagnosis where present. A schema is offered towards such a cause in a clinical consultation with an individual who has paranormal beliefs.** ***ASEAN Journal of Psychiatry, Vol.12(2): July – Dec 2011: XX XX.***

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Introduction

"Paranormal phenomena" describes an umbrella term encompassing a heterogeneous range of unusual experiences which lack scientific explanations, processes associated with cognitive or physiological activity falling outside of conventional scientific boundaries. Out-of-body experiences (the ability to come out and away from one's physical body), mediumistic communication (the ability to communicate with spirits) and extrasensory perception (the ability to access information which is not available to the five senses) are just some such examples, to name a few.

People with self-reported paranormal experiences also tend to have stronger inclinations to believe in the paranormal,

with moderate to strong positive correlations documented [1]. Believers in the existence of paranormal phenomena tend to speak from personal experience [2], and the strength of one's conviction in paranormal belief has been shown to have a positive correlation with the number of subjective paranormal experiences [3].

These believers form a population group that has been intently studied over the years often in contrast to their skeptic counterparts. The concept of "sheep" and "goats" was first introduced in 1942 by Gertrude Schmeidler, a professor of psychology. "Sheep" and “goats” referred respectively to believers and skeptics, with regards to beliefs of the existence of psi. A classic psi test with extrasensory perception cards was administered, in which subjects tried to guess sequences of target-cards. The remarkable conclusion was that the "sheep" had a significant deviation above chance, while "goats" were significantly below it. These results have been consistently repeated, shown in over 73 experiments [4], in what is known as the Sheep-Goat Effect.

Various interviews and scales have been used to assess for paranormal beliefs, but there is no clear gold-standard. Table 1 attempts to list some of the more common interviews and scales.

Table 1. Common Interviews and Scales to assess for Paranormal Beliefs

Author	Year	Title
Christensen	1995	Extrasensory Perception Survey
Tobacyk and Milford	1983	Paranormal Belief Scale
Tobacyk	1988	Revised Paranormal Belief Scale
Thalbourne	1995	Australian Sheep-Goat Scale
Eckblad and Chapman	1983	Magical Ideation Scale

A Newsweek article in 2008 [5] examined paranormal beliefs in greater detail, relating believers' explanations for the events and how the scientific perspective of paranormal beliefs involves normal brain activity carried to the extreme. It is almost as if the human mind, being prone to confirmatory bias and other flaws in perception, is wired to have paranormal beliefs. A significant proportion of Americans not suffering from any known mental illnesses have beliefs in possibility of encounters with aliens [6], ranging from mere contact (“experiencers”) to abduction (“abductees”).

Believers have also been interesting from a neurological perspective, with the right hemisphere identified to be dominantly involved. Hyperdopaminergia, more prominent in the right hemisphere, has also been implied in the genesis of unusual experiences such as paranormal thought. Other similar experiences include hallucinations, which makes the link between belief in the paranormal and clinically-relevant features of psychosis easy to appreciate. Prefrontal systems have also been shown to play a role in paranormal beliefs [7], again drawing the relation with psychiatric conditions like schizophrenia that also involve the prefrontal cortex.

Through presenting a collection of cases in 2003, Bobrow had opined that there was "sufficient smoke to warrant a search for fire" when pertaining to paranormal phenomena in medical literature [8]. To the best of the authors' knowledge, there has been no prior comprehensive review of paranormal beliefs and their associated clinical implications. This review seeks to evaluate and summarize the vast literature available and provide a holistic outlook towards such individuals, so as to better understand differences in people with paranormal beliefs. In the course of a clinical encounter with a patient reporting paranormal beliefs, evaluation for several psychiatric diagnoses has to be performed and these conditions are briefly outlined.

Methods

Our review consisted of epidemiological studies, randomized controlled trials, systematic reviews and meta-analyses of associations related to paranormal ideations. These articles were identified through searches of MEDLINE, as of February 2010. Search terms included “paranormal belief” and “paranormal ideation”. A total of 95 search terms were elicited. Findings were screened based on their titles, and then abstracts and full text articles. Other resources highlighted by the initial findings were also screened for their relevance to the topic under review.

Results

A. Epidemiology

Paranormal beliefs have been found in various studies to be more common amongst younger populations without psychiatric disorders [9]. This has been suggestive of a physiological neurodevelopmental stage favouring the expression of psychosis proneness in normal subjects [10]. A survey on the World Wide Web [11] with 998 respondents found statistically significant correlations between paranormal belief and female gender, scores on external locus of control, good mood, extraversion, and emotional well-being.

B. Perceptions

Many psychological experiments and studies have been done involving people with paranormal beliefs. In summary, believers tend to :

- make more deductive reasoning errors and display more delusional ideation [12]
- have poorer impulse control and organizations in executive functioning [7]
- perceive chance events and unchosen experiences as meaningfully connected ('apophenia') [13-14]
- be more susceptible to suggestions consistent with their own paranormal beliefs [15]
- be prone to hindsight and confirmatory biases [16], impairing the critical thinking process [17]
- be more fantasy-prone, have higher levels of dissociativity, absorption and creativity; be unusually prone to false memories. [6]

Based on the above, errors in judgement appear to be apparent in paranormal believers. However, they may not accurately represent the basis for paranormal beliefs. Probability misjudgement shown in paranormal believers were no longer significantly correlated when adjusting for final examination grades in 72 college students [18]. This would suggest that differences in general cognitive performance may provide an explanation, at least in part, for the basis of paranormal beliefs.

Apart from the above reported differences, some studies had reported findings which highlight concerns in the process of collecting self-reported data pertaining to paranormal belief. The ongoing thought process of the subject, at the point of completing the interview instrument, has been demonstrated to affect the yield in terms of findings in two studies worthy of mention. When college students were made to rehearse a five-digit number while completing the Paranormal Belief Scale, higher rates of reported paranormal beliefs were noted as compared with a control group [19]. Order effects also cannot be ignored when evaluating paranormal belief, when 72 college students found that those who took the Paranormal Belief Scale prior to the Emotional Intelligence Scale scored lower on the latter, as compared to those who took it alone [20].

C. Physiological Functioning

Various distinct physiological parameters have been identified, when studying believers. This helps to shed some light on

how believers are different, in terms of bodily functions, compared to the neutrals and skeptics.

Electroencephalography (EEG) is the recording of electrical activity along the scalp produced by the firing of neurons within the brain [21]. Simply put, it provides a measure of brain waves. Findings in EEG studies have been able to provide some degree of enlightenment on physiological differences in the brain distinguishing believers. EEG findings in believers showed :

- more right-located sources of the beta2 band (18.5-21 Hz, excitatory activity), in addition to more general negative affect and more hypnagogic-like reveries after a 4-min eyes-closed resting period [22]. These were suggestive of higher right hemispheric activation and reduced hemispheric asymmetry of functional complexity.
- more negative event-related potentials when processing sentences with core knowledge violations (for example, "The house knows its history") [23].

Some significant findings have surfaced when correlating the dominance of the right hemisphere's function in believers. Believers experienced significantly enhanced lexical-decision accuracy in the left visual field/right hemisphere when given a lateralized tachistoscopic lexical-decision task [24], which is in keeping with previous studies indicating a bias for right-hemisphere processing. One's belief system cannot be regarded as a distinct entity from one's physiological functioning, as paranormal beliefs have been shown to exert some effect on the mediation of pain sensation in a study done on forty healthy participants [25]. The participants, sorted into two equal groups based on their scores on the Magical Ideation Scale, used placebo analgesia in the form of a sham cream for relief of unilaterally-applied nociceptive stimuli. Those with strong paranormal beliefs had increased pain tolerance only on the left side, while disbelievers had increased pain tolerance on the right. The likely physiological rationale for this is due to the right hemisphere also being dominantly involved in the mediation of pain sensation.

A study done on healthy believers and skeptics [26] found that believers showed stronger indirect (but not direct) semantic priming effects than disbelievers after left (but not right) visual field stimulation, indicating faster appreciation of distant semantic relations specifically by the right hemisphere, reportedly specialized in coarse rather than focused semantic processing. Such findings had suggested that a disinhibition with semantic networks may underlie the formation of paranormal belief.

The field of anthropometry also has contributions to provide some insight on differences in believers from their counterparts. Paranormal beliefs were found to be correlated [27] with features such as fluctuating asymmetry of finger length, which may be related to greater intraindividual variability in the degree of 'atypical' functional lateralization. An intraindividual variability index was found to significantly predict the strength of paranormal beliefs. These findings have led to postulations that patterns of functional hemispheric asymmetry that may be related to perturbations during fetal development may partly explain variance in strength of paranormal beliefs.

Differences in the physiological state at the point of encounter and evaluation of a potential paranormal experience have been noted. A state of arousal, both objective and subjective, was correlated with overestimating in the rate of telepathic transmission among believers [28]. This leads the authors to the conclusion of the important role of covariation bias in the maintenance of paranormal belief.

D. Associations with conditions

Apart from distinguishing themselves by the beliefs that they hold, believers also have been noticed to have behavioural

predilections that may have clinical bearing in their management. Professionals working in clinical settings involving mental health, such as psychiatrists and psychologists, would be interested to know that paranormal beliefs have reported potential associations with the following conditions:

- attention-deficit hyperactivity disorder, depression and dissociation [29]
- schizotypal personality [24, 30]
- a hypothesized personality continuum [31] with manic-depressive psychosis, regarded as bipolar affective disorder in the current diagnostic context, at one extreme
- isolated sleep paralysis [32]

E. Psychological Rationale for Paranormal Beliefs

Postulation on the psychological function of paranormal beliefs has seen various explanations for rationales behind such beliefs. These include :

- "self-serving cognitive biases" to ensure psychic integrity [33]
- a component of a complex defensive framework in the face of perceived uncontrollability in life [34]
- an effort to regain some sense of organization by detecting patterns [35]
- provide a sense of control and hence offer a powerful emotional refuge [36]

It is not possible to consider a stance towards the paranormal without taking into consideration one's religious background and belief in the supernatural. Stronger religiosity in undergraduate students decreased their paranormal beliefs, as they were more accepting of supernatural phenomenon. The interaction of supernatural belief and negative affect was shown to be a significant predictor of belief in the paranormal situation [37].

A brief mention is warranted for the opposing camp of skepticism. Skeptics insist on replicable experiments by neutral or even skeptical observers, before accepting a claim. Kurtz believes in two forms of skeptics, the total and the selective [38]. The former are regarded as nihilistic, dogmatic, essentially self-defeating and self-contradictory while the latter operates as a methodological principle of inquiry, testing hypotheses and theories in the light of evidence, but always open to new departures in thought.

F. Genetic Correlation

Attempts were made to correlate the phenotype of paranormal belief with a dopaminergic gene (COMT). These were made due to the gene's involvement in prefrontal executive cognition and for a polymorphism which was positively correlated with suggestibility [39]. Despite initial inconclusive findings, it remains a baby step in the long road to finding associations of paranormal beliefs with a genetic basis.

Discussion

Looking at the bigger picture, paranormal experiences are one aspect of broader psychotic-like experiences at both clinical and sub-clinical levels. A recent systematic review [40] found that 75-90% of developmental psychotic experiences (of which, paranormal experiences form a portion of) are transitory and disappear over time. Based on the findings, the review suggested evidence for a psychosis proneness-impairment-persistence model, where transitory developmental expression of psychosis (proneness) may become abnormally persistent (persistence) and subsequently clinically relevant (impairment), depending on the degree of genetic and environmental risk the person is additionally exposed to.

From an earlier study [41] examining the period of early adulthood in the clinical expression of psychotic symptoms, it is interesting to note that younger subjects without a lifetime history of psychiatric

disorder scored higher on paranormal beliefs as one of the dimensions of delusional beliefs as compared to their older compatriots who scored higher on religiosity which was another one of the dimensions considered.

Paranormal beliefs are not spared from the influence of one's cultural background.
In a comparison study done by Otis and Kuo in 1984 [42], university students from Singapore demonstrated higher levels of global paranormal belief. This cross-cultural difference was most marked for groups of items related to religious concepts and to spiritualist phenomena, although differences also were evident for individual items concerning extraordinary life forms and precognition.

There has not been much contribution from psychiatrists in general, pertaining to the academic field of paranormal beliefs. Whilst their input may over-represent a portion of the spectrum where such beliefs are pathological in nature, it is nevertheless necessary to convey the full extent of the spectrum of paranormal beliefs.

Paranormal beliefs have been hypothesized to be on a dimensional continuum with delusional beliefs, in psychotic illnesses. It should be of little surprise that people with paranormal beliefs score higher on various measures relevant to schizophrenia [43]. Significantly higher scores for believers were seen on the Magical Ideation Scale, the Perceptual Aberration Scale, and a scale combining both of the above.

The term "prodrome" by definition cannot be appropriately used until the full-blown syndrome has developed, making it a retrospective label. Paranormal beliefs may be a feature of the At-Risk Mental State by one or more means (see Table 2A). Certain scales (see Table 2B) are used in an attempt to provide both accurate and valid assessments of ultra-high-risk individuals. Close follow-up is required for those suspected to have a psychotic disorder.

Table 2A. Role of Paranormal Beliefs in At-Risk Mental State

- Schizotypal personality disorder
- Attenuated positive psychotic symptoms
- Brief limited intermittent psychotic symptom

Table 2B. Scales for Evaluation of At-Risk Mental State

- Comprehensive Assessment of At-Risk Mental State (CAARMS)
- Structured Interview of Prodromal Symptoms (SIPS)
  this includes the Scale of Prodromal Symptoms (SOPS)
- Schizophrenia Prediction Instrument for Adults (SPI-A)

If paranormal beliefs should surface in a clinical evaluation, this would warrant careful evaluation, taking into account the believer's educational background, religious and cultural beliefs. Pertaining to religious experiences, certain indicators [44] help to distinguish between those associated with psychiatric morbidity (see Table 3A) and those intrinsic to a person's belief with less likelihood to denote psychiatric illness (see Table 3B).

Table 3. Suggestive Indicators for Establishing a Religious Experience

Table 3A. Probably Associated with Psychiatric Morbidity

The experience causes a significant amount of distress to the individual
Persistence of the experience is noted for sustained durations
There are other recognizable symptoms of mental illness
The lifestyle, behaviour and direction of personal goals of the person subsequent to the event are consistent with the natural history of mental illness, rather than with an enriching life experience
Such behaviour is consistent with disorders in the person's personality
The phenomenology of the experience conforms with psychiatric illness

Table 3B. Intrinsic to the Person's Belief, less likely to denote Psychiatric Illness

The person shows some degree of reticence to discuss the experience, especially with those he anticipates will be unsympathetic
It is described unemotionally with matter-of-fact conviction and appears 'authentic'
The person understands, allows for and even sympathizes with the incredulity of others
He usually considers that the experience implies some demand upon himself
The religious experience conforms with the subject's recognizable religious traditions and peer group

A schema is proposed here (see Table 4), with some questions of use to the clinician approaching a patient with paranormal beliefs, in a clinical encounter. If the paranormal belief is deemed to be of a pathological value, certain clinical diagnoses are to be considered.

Table 4. Proposed Schema to Approach Paranormal Beliefs

- Routine baseline outlook of the individual towards the paranormal
- Origins of the beliefs (in particular, any association with significant life events for the person)
- Strength of the belief
- Whether the beliefs are individual or shared (family, religious/cultural group)
- Record of intake/usage of drugs or alcohol
- Any red flags for possible psychopathology (as a result of the paranormal beliefs) :
  - associated personality changes
  - behavioural changes
  - deterioration in functioning
  - concurrent psychotic symptoms

Relevant information from ICD-10 corresponding to some of the possible conditions is highlighted as below.

Schizophrenia

People suffering from schizophnrenia have distortions of thinking and perception, with an affect that may be inappropriate or blunted. Consciousness is maintained, while cognitive deficits are known to evolve with time. Without adequate treatment, functional deterioration is inevitable. Schneider had listed psychotic symptoms, today known as Schneiderian First-Rank Symptoms [45], that were particularly characteristic of this

condition. Paranormal beliefs in the schizophrenic might be of a delusional quality.

Acute Schizophrenia-like Psychotic Disorder

The symptoms of psychosis in this condition justify a diagnosis of schizophrenia, but are present for not more than one month. In cases where the symptoms persist on follow-up, the diagnosis is subsequently revised to schizophrenia.

Schizoaffective disorder

Prominent episodic components of both affective and schizophrenic symptoms are to be present to warrant this diagnosis. Affective symptoms can be depressive, manic or mixed. Like schizophrenia, paranormal beliefs in schizoaffective disorder may be of a delusional quality.

Delusional Disorder

This condition is diagnosed if the predominant clinical characteristic is a single delusion or set of related delusions. Other features of psychotic disorders in schizophrenia or definitive evidence of brain disease have to be excluded, and functional capacity (outside of the delusion's influence) is otherwise preserved. The delusional belief tends to be well-encapsulated, and does not affect other spheres of functioning. The need for treatment will depend on a thorough assessment of risk to self and/or others.

Induced Delusional Disorder

This should be considered if two or more people, usually with close emotional links, present with a delusional belief. Treatment differs because only one person has a genuine psychotic disorder (as above, in Delusional Disorder) while treatment for the other(s) usually only requires geographical separation for the delusion to resolve.

Acute psychotic episode

Clear psychotic features develop over a short period of time of two weeks or less, with no organic cause apparent after the necessary evaluation. There may be stressful events preceding the episode by one to two weeks. Complete recovery should be expected within days to a few weeks, up to months.

Organic conditions

It is worthwhile to briefly mention that psychosis can occur also in other organic conditions, such as epilepsy and brain disease. Psychoactive substances, be it illicit drugs or certain prescribed medications such as corticosteroids, can also lead to a drug-induced psychosis that is classically self-limiting upon discontinuation of the offending agent. A thorough history of medical conditions and current medications will have to be carried out to exclude this.

Schizotypal Personality Disorder and Schizotypal Disorder

People with the above condition tend to have eccentric behaviour and have bizarre ideas. They are socially withdrawn and with limited capacity to express feelings and experience pleasure. In schizotypal personality disorder, the features are present since adolescence and persist into adulthood whereas this might not be the case for schizotypal disorder. The paranormal ideations in these conditions may be overvalued and at times quasi-psychotic, but not overtly of a delusional quality.

Trance and Possession Disorders

Psychotic disorders as above are the primary psychopathology that one would have to exclude, but outside of the realm of psychosis, paranormal phenomena may also surface in trance and possession disorders. As mentioned earlier, one of the paranormal phenomena which people might believe in or experience is that of having an out-of-

body experience. This above disorder might be more likely to be suspected when the patient complains of temporary loss of the sense of personal identity, despite retaining full awareness of the surroundings. Such states have to be involuntary or unwanted, occurring outside religious/culturally-accepted situations.

Earlier studies of dissociative trance disorders in Singapore found certain personality traits being more prevalent [46] and psychosocial stressors present in all of the cases [47], warranting a clinician to look for this in the clinical evaluation if trance and possession disorders should be suspected. Where do we draw the line where trance states are truly pathological, requiring psychiatric intervention, and when are they simply an ephemeral artefact? Griffith and Ruiz had suggested [48] certain conditions where the trance state is considered to be abnormal (see Table 5).

Table 5. Conditions where the Trance State is considered to be Abnormal

- It lasts too long, since it is typically a quick and transitory experience
- There is no perceivable stimulus or condition (ie, a ceremony, thunder or lightning, or accidents)
- It has a negative orientation (sickness possession, as compared to positive orientation in ritual possession)

Over the years, the medical doctor of today has come to terms with the fact that the patient of today might not turn solely to them for help, if at all. Alternative medicine refers to healing practice which either does not fall within the realm of conventional medicine [49] or that which has not been shown consistently to be effective [50]. This is frequently grouped with complementary medicine, interventions used in conjunction with mainstream techniques, under the term Complementary and Alternative Medicine (CAM). Individuals with paranormal beliefs have been shown to have stronger beliefs in CAM [51]. Believers used more CAM and had a more positive perception towards it [50], which could possibly be attributed to a more intuitive and 'holistic' thinking style. Relatives of Indian subjects formally diagnosed to have schizophrenia had denied magico-religious beliefs, but a majority still sought magico-religious treatment for their relatives [52].

Conclusion

Individuals with paranormal beliefs are a group that has been keenly studied over the years, and with good reason for doing so. Compared to others, certain striking features have been noted in the course of this review. In the clinical setting, the psychiatrist is invariably going to have to assess patients with paranormal beliefs. Thorough evaluation is required with due consideration for the possible psychiatric diagnoses, if any.

Declaration of Interest

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