

EXTRASENSORY EXPERIENCE AND HALLUCINATORY
EXPERIENCE: COMPARISON BETWEEN TWO NON-CLINICAL
SAMPLES LINKED WITH PSYCHOLOGICAL MEASURES

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ABSTRACT

Hallucinations are experienced by numerous healthy people who are not suffering from neurological or psychiatric disorders. An extrasensory experience is one in which it appears that the experient's mind has acquired information directly; that is, seemingly without the mediation of the recognized human senses. The veridicality of psi information in ESP experiences involving hallucinations is a debatable matter in mental health and parapsychology. The 'extrasensory' in 'extrasensory experience' therefore pertains to appearances and not necessarily to reality; whereas the 'extrasensory' in 'extrasensory perception' refers to the nature of a hypothesized paranormal reality.

In this study, three specific hypotheses were tested: two samples of undergraduate students (Argentine and Peruvian) who have reported extrasensory experiences would have a higher capacity than non-experients for: (1) auditory, visual and tactile hallucination; (2) schizotypy proneness; (3) absorption/dissociation; and (4) fantasy proneness. The results showed a higher level in experients than in non-experients of hallucination proneness and cognitive-perceptual schizotypy, followed by absorption and fantasy proneness. The findings also suggest that cognitive-perceptual aspects of schizotypy are features of persons who have had ESP/hallucinatory experiences, on the assumption that underlying dissociative processes such as absorption and fantasy proneness are associated with ESP experiences.

INTRODUCTION

A hallucination is defined in the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* as a "sensory perception that has the compelling sense of reality of a true perception but that occurs without external stimulation of the relevant sensory organ" (American Psychiatric Association, 1994, p.767). Slade and Bentall (1988) define a hallucination as "any percept-like experience which (a) occurs in the absence of an appropriate stimulus, (b) has the force or impact of the corresponding actual (real) perception, and (c) is not amenable to direct and voluntary control by the experient" (p.23).

Hallucinations occur not only among various clinical populations, but they have also been reported in numerous studies of normal, healthy individuals who are not suffering, or have not suffered in the past, from neurological or psychiatric disorders. Several studies reveal that a substantial number of non-clinical participants (i.e. people who have not been clinically referred or have never received a psychiatric or neurological diagnosis) report having typical hallucinatory experiences (for a review, see Aleman & Larøi, 2008). Slade and Bentall (1988) have acknowledged this in their continuum hypothesis, which postulates that hallucinations reflect a continuum of normal conscious experience that includes vivid daydreams and vivid, but otherwise normal—

and healthy—thoughts. They did not mention ESP experiences, but according to Bentall and Slade's definition, some unusual perceptual experiences (such as ESP and OBEs for instance) could be included as well. Bentall and Slade's hypothesis also predicts that the incidence of 'benign' experiences such as vivid thoughts and daydreams should be related to the incidence of more significant experiences such as hallucinations and unusual perceptual experiences (Bentall, 2000, 2003; Johns, Hemsley & Kuipers, 2002). According to this line of reasoning, the main difference between pathological and normal individuals is quantitative rather than qualitative (Larøi, Marcezewski & van der Linden, 2004).

Extrasensory experiences include an additional dimension in that it appears that the experient's mind has acquired information that is not available via the mediation of the recognized human senses or processes of logical inference. According to the analysis of cases by L. E. Rhine (1953), ESP experiences may take the form of hallucinations (9%; the categories of experience were intuitive, realistic and unrealistic). The hallucinatory nature of these experiences should remind us that when we talk of extrasensory experience, 'extrasensory' here pertains to *appearances* and not necessarily to reality, whereas the 'extra-sensory' in extrasensory perception might be thought to refer to the nature of a hypothesized paranormal reality. We should be wary, then, of using the term ESP when clearly we are speaking of extrasensory experience (Irwin & Watt, 2007).

The information in hallucinatory experiences is often incomplete and the *message* may also be conveyed in the form of a sensory hallucination; for example, at the moment of the unexpected death of a loved one in a distant location, there are people who report having seen an apparition of the person in question or heard his or her voice calling them (Parra, 2003, p. 114):—

I had gone to bed, when I was woken up by the sound of a strong wind. When I opened my eyes, I suddenly saw a frightening image, like a big, full moon, just in front of me, which blew in my face. The image was horrible; it dissolved in smoke smiling towards the ceiling. It looked at me with devilish eyes. When I told my sister about it the following day, I refrained from saying that it was a nightmare: I knew that something bad would happen, I told her. Ten days later, my son died. In some way, this image represented death.

In other cases, the experience is a combination of a visual illusion/hallucination, and may have premonitory content, as in the following experience (Parra, 2003, p. 114):—

My younger sister had a friend who lived in the province of Buenos Aires, whom we went to visit. She was a 10-year-old girl who played the harp. When we were in her house, suddenly, while she was playing, she looked all wet. Her face had transformed into a purple or violet colour. This image surprised me. I closed my eyes, and when I opened them, I again saw the violet colour, and this time, the water had come to my feet. I thought this came as an effect of being tired this day, or as an effect of the music. But it didn't stop troubling me. Ten days later, I got to know that the girl had died, drowning in a swimming pool.

Gómez Montanelli and Parra (2000) found that over a third of undergraduate students surveyed had had an experience such as dream precognition or telepathic perception, and a third of the respondents had consulted family members, friends and acquaintances about those experiences, while over a

quarter of the sample had consulted a professional (such as a psychiatrist or psychologist). Psychotherapists' clients' concerns included feeling other people's pain, unwanted telepathic contact, unpleasant premonitory dreams, or a diffuse sense of foreboding.

Psychological Correlates of Extrasensory Experiences

In an effort to understand what kind of person is likely to report such experiences we have identified the following variables as of interest.

Schizotypy is a personality dimension that is normally distributed in the population. Although high scorers on schizotypy have a putatively heightened susceptibility to psychotic breakdown, this may be correlated with a variety of other phenomena besides psychosis. The similarity between symptoms of schizotypal personality disorder and characteristics of ESP experiences is marked; of the diagnostic criteria for schizotypal personality disorder specified in *DSM-IV* (American Psychiatric Association, 1994), several resemble possible forms of ESP experiences, such as ideas of reference (interpretation of chance events as having particular personal meaning), odd beliefs or magical thinking (e.g. "belief in clairvoyance, telepathy or 'sixth sense'", p.645), and unusual perceptual experiences (e.g. hearing voices). In addition, it has been asserted that some of the social factors considered in the diagnosis of schizotypal personality disorder, including isolation, suspiciousness or anxiety, could potentially be products of poorly integrated ESP experiences (Neppe, 1988; Thalbourne, 1995), and there is empirical evidence that people with schizotypal personality disorder are inclined to endorse paranormal beliefs (Williams & Irwin, 1991).

Fantasy Proneness. People who report spontaneous ESP might have greater imaginative or fantasy activity or be more fantasy-prone. This hypothesis is consistent with Wilson and Barber's (1982) views of the characteristics of the fantasy-prone personality and may support Blackmore (1978) and Siegel (1980) in their suggestion that auras could be a hallucinatory fantasy, which would be especially easy for fantasy-prone people to produce. During these episodes, individuals become totally absorbed in their experience, with "a full commitment of available perceptual, motoric, imaginative, and ideational resources to a unified representation of the attentional object" (Wilson & Barber, 1983, p.341). There is also research suggesting that hallucinatory/ESP might be related to cognitive processes involving visual and tactile hallucinations and fantasy proneness (Palmer, 1979; Wilson & Barber, 1978). It also appears to be greater among paranormal experiencers than non-experiencers (Myers, Austrin, Grisso & Nickelson, 1983). Wilson and Barber (1983) claimed that high fantasy-prone participants report a variety of both imagery-related and psi experiences.

Absorption. Paranormal experiencers have been found to have a substantially greater capacity for absorbed mentation than non-experiencers (Glicksohn, 1990; Irwin, 1985; Myers & Austrin, 1985). Such experiencers are also more likely to report a para-somatic form, tactile hallucinations, and sensations of subtle energies (Irwin, 1985). The high absorption capacity of paranormal experiencers is also compatible with observations that they tend to practise meditation (Palmer, 1979), have lucid dreams (Irwin, 1988), and are hypnotically

susceptible (Palmer & Lieberman, 1976). Normal individuals with an internalized, curious, intellectual and stable personality might report phenomena such as OBEs, lucid dreams, precognitive dreams, and ESP experiences. As absorption has been found to be conducive to hypnotic trance (Tellegen, 1981), there may be an association between hypnotic susceptibility and openness to paranormal experiences, perhaps because individuals concerned with and attentive to their own mental processes may be more open to having hallucinatory/ESP experiences.

Rationale for the Study

Based on the literature summarized above, we argue that hallucinatory/ESP reports are part of the natural range of healthy human experience and as such deserve and require study in and of themselves, both with and without efforts to relate them to possible paranormal factors. This perspective is consistent with Palmer's (1979) and Alvarado and Zingrone's (1994) discussion of the importance of distinguishing conventional models of explanation from paranormal ones in parapsychology.

Little is known about the psychological factors and processes that underlie hallucinatory/ESP reports, but there are indications in the psychological, parapsychological, and psychiatric literature that particular psychometric variables are important. The study of individual differences in those who report hallucinatory/ESP experiences is important if for no other reason than that it relates a phenomenon traditionally shrouded in the mystery of occult traditions to more familiar forms of psychological functioning.

Hypotheses

The present study is exploratory. Firstly, an analysis was planned in order to evaluate differences between two samples of students, from Argentina and Peru respectively, to see if their data could be combined. Then three hypotheses were proposed:—

- Participants who have reported ESP experiences will report a higher incidence of auditory, visual, tactile and hypnagogic/hypnopompic (HG/HP) hallucination than will non-experients.
- Participants who have reported ESP experiences will report a higher level of schizotypy proneness as measured by the total score of the SPQ scale and cognitive-perceptual schizotypy sub-factor than will non-experients.
- Participants who have reported ESP experiences will report higher levels of absorption/dissociation and fantasy proneness than will non-experients.

METHOD

Participants

Participants were recruited from among undergraduate psychology students at the Faculty of Psychology of the Universidad Abierta Interamericana from Buenos Aires, Argentina ($N = 648$), and from the Faculty of Psychology at the Universidad Ricardo Palma, from Lima, Peru ($N = 220$). Basic demographic data for the two samples are given in Table 1.

Psychological and Personality Measures

An English version of the measures was translated into Spanish and comprised the following: the *Creative Experiences Questionnaire* (Merckelbach, Horselenberg & Muris, 2001), which is a 25-item self-report measure of fantasy proneness (Cronbach's alpha = 0.82); the *Tellegen Absorption Scale*, which consists of 34 true/false items (Cronbach's alpha = 0.77) and measures how frequently people engage in absorbing-concentrative activities (Tellegen & Atkinson, 1974); and the *Schizotypal Personality Questionnaire*, which consists of 74 yes/no items measuring three components of schizotypy — cognitive-perceptual, disorganized, and interpersonal (Raine, 1991, 1992; Raine & Baker, 1992; Raine & Benishay, 1995; Raine, Lencz & Mednick, 1995). Only the total score (Cronbach's alpha = 0.91) and the cognitive-perceptual factor (Cronbach's alpha = 0.89) were used for this study, because they measure perceptual anomalies.

Table 1

Descriptive Data for Argentine and Peruvian Samples

		Argentinean sample N = 648	Peruvian sample N = 220
Experients	Sample size	N = 293 (45%)	N = 95 (43%)
	Gender	M = 63 (22%) F = 230 (78%)	M = 26 (28%) F = 69 (72%)
	Age Range	17–57 years	17–47 years
Non-experients	Sample size	N = 355 (55%)	N = 125 (57%)
	Gender	M = 99 (26%) F = 256 (74%)	M = 30 (24%) F = 95 (76%)
	Age Range	17–54 years	17–51 years
Frequency	One time	42 (6.6%)	34 (15.6%)
	Sometimes	235 (36.9%)	54 (24.8%)
	Almost always	16 (2.8%)	7 (3.2%)
Emotional Impact	Mean (1–7) ⁽¹⁾ – SD	2.65 – 1.50	3.23 – 1.28
Explanation	Rational/Explicable	124 (42.9%)	35 (36.8%)
	Don't know	121 (41.9%)	49 (51.6%)
	Paranormal/ Unexplained	48 (15.2%)	11 (11.6%)

The *Hallucination Experiences Scale* was based on two hallucination inventories (the *Launay-Slade Hallucination Scale, LSHS-R*; see Aleman, Nieuwenstein, Bocker & De Haan, 2001; Waters, Badcock & Mayberry, 2003; and the *Barrett's Hallucinations Questionnaire Form C*, see Barrett & Etheridge, 1992), which measure predisposition to hallucinations in normal

individuals (Cronbach's $\alpha = 0.93$) divided into six sensory modalities, such as hearing one's own name when nobody is present, hearing one's own thoughts aloud, hearing voices coming from a place where there is nobody present, or hearing voices belonging to dead friends or relatives. The frequencies with which these phenomena are experienced are rated on a Likert scale (from 0, never, to 5, very often). We also inserted five items to collect hypnagogic/hypnopompic hallucination experiences based on each sensorial modality.

The *Paranormal Experiences Questionnaire, PEQ*, was inspired by the American version of the AEI, developed by Pekala, Kumar and Marcano (1995), and Palmer's (1979) survey of students. We developed a self-report inventory to collect information on spontaneous paranormal experiences using an 18-item questionnaire that asks about experiences such as ESP dreams, telepathy, perception of lights/energies, out-of-body experiences, near-death experiences, recall of past lives, sense of presence, mediumship/possession experiences, spontaneous psychokinesis, healing experience (as healer), *déjà vu*, mystical experience, and apparitional experiences (hearing or seeing presences). It maps three dimensions of experience marked as "yes" under frequency (never, once, sometimes), subjective explanation (i.e. rational, unknown and paranormal), and positive or negative (emotional) impact (using a scale of 1 being the lowest and 7 the highest), and "no" (i.e. never). For ESP experiences, the statement for consideration was: "I have had the experience of mentally grasping the thoughts of other people or transmitting my thoughts over a distance (distant telepathy), and have had other psi experiences, such as premonitions or presentiments through an unknown sensorial mechanism" (# 3).

Procedure

The questionnaires were presented under the pseudo-title *Questionnaire of Psychological Experiences, Forms A, B, C*, etc. in a counterbalanced order to encourage unbiased responding. The set of scales in a single envelope was handed to each student during a class. Each student received information (but not the hypothesis) about the aims of the study and was invited to complete the scales voluntarily and anonymously in a single session, selected from days and times previously agreed upon with the teachers. Participation was voluntary and the students received no payment.

A co-worker (JV) tallied the scores from questionnaires, remaining blind as to whether the respondent belonged to the ESP group or to the non-ESP group. The data were exported into a statistical package (*SPSS 11.1*, Spanish version) for double-checking and further analysis. All data entry and analyses were double-checked by both authors together, as was the calculation of probability values. With the exception of two analyses testing the main hypotheses of the study, all statistical tests were two-tailed.

RESULTS

Participants who answered "yes" (one time, sometimes, or frequently) were classified as "ESP experiencers" (for the Argentinean sample, $N = 293$; for the Peruvian sample, $N = 95$) and participants who answered "no" were grouped as "non-experiencers" (Argentinean sample, $N = 355$; Peruvian sample, $N = 125$).

Basic descriptive data for the Argentinean and the Peruvian samples are given in Table 2 and show that the Peruvian sample scored significantly higher than the Argentinean sample for auditory hallucination ($z = 6.45$ and 4.50 respectively; $p \text{ dif} < 0.001$), and for schizotypy proneness scores ($z = 30.92$ and 23.27 respectively; $p \text{ dif} < 0.001$), and marginally higher for HG/HP hallucination ($z = 2.42$ and 1.98 respectively; $p \text{ dif} = 0.03$). We decided to combine the samples for further analysis,¹ but since the data were not normally distributed, the Mann–Whitney U test was used to test the hypotheses.

Table 2

Mean (and standard deviation) of Scores on Psychological Measures for Peruvian and Argentinean Students Who Report Extrasensory Experiences

<i>Variables</i>	Argentine sample ($N = 648$)	Peruvian sample ($N = 214$)	<i>t</i>	<i>p</i>
Auditory Hallucination	4.50 (5.30)	6.45 (5.35)	4.67	< 0.001
Visual Hallucination	1.83 (3.00)	2.02 (2.70)	0.83	0.40
Tactile Hallucination	1.79 (2.57)	2.03 (2.18)	1.22	0.22
HG/HP Hallucination	1.98 (2.63)	2.42 (2.63)	2.10	0.03
Schizotypy proneness	23.27 (11.63)	30.92 (11.51)	8.25	< 0.001
Cognitive–Perceptual S.	7.74 (4.93)	8.46 (4.87)	1.83	0.06
Absorption	24.61 (13.34)	26.01 (14.31)	1.29	0.19
Fantasy Proneness	33.16 (15.58)	33.27 (17.26)	0.08	0.93

Comparisons between experient and non-experient samples for scores on the various psychological measures are given in Table 3. Hypothesis 1 predicted that experients would score higher on auditory hallucination than non-experients, and it can be seen that this was supported ($z = 5.05$; $p < 0.001$). We also predicted that experients would score higher on visual hallucination than non-experients, and this too was supported ($z = 5.17$; $p = 0.008$); experients similarly scored significantly higher than non-experients on tactile hallucination ($z = 4.74$; $p = 0.021$) and HG/HP hallucinations ($z = 4.10$; $p = 0.021$).

Hypothesis 2 stated that experients would score higher than non-experients on measures of schizotypy proneness. This hypothesis was supported, both for

¹ It was felt that, despite two significant differences between the samples, when all variables were taken into consideration the samples were sufficiently similar to warrant combination here.

overall schizotypy proneness scores ($z = 5.52$; $p < 0.001$) and for the cognitive-perceptual dimension ($z = 9.43$; $p < 0.001$).

Hypothesis 3 predicted that experiencers would score higher than non-experiencers on measures of absorption, and this also was supported ($z = 7.63$; $p < 0.001$); similarly, experiencers scored higher on fantasy proneness than non-experiencers ($z = 6.89$; $p < 0.001$).

Table 3

Mean (and standard deviation) of Scores on Psychological Measures of Students Who Report Extrasensory Experiences with Those Who Do Not Report Them

<i>Variables</i>	Non-experiencers (<i>N</i> = 528)	Experiencers (<i>N</i> = 340)	<i>U</i>	<i>z</i>	<i>p</i>
Auditory Hallucination	4.08 (4.29)	6.04 (6.26)	12,999.0	5.05	< 0.001
Visual Hallucination	1.44 (2.31)	2.40 (3.48)	14,465.0	5.17	0.008
Tactile Hallucination	1.50 (2.09)	2.25 (2.81)	14,443.5	4.74	0.008
HG/HP Hallucination	1.78 (2.37)	2.45 (2.85)	14,836.0	4.10	0.02
Schizotypy Proneness	23.31 (12.13)	27.77 (11.57)	11,064.0	5.52	< 0.001
Cognitive-Perceptual S.	6.47 (4.64)	9.68 (4.68)	11,182.5	9.43	< 0.001
Absorption	21.77 (12.95)	28.87 (13.40)	10,605.5	7.63	< 0.001
Fantasy Proneness	29.50 (15.23)	37.47 (15.86)	12,460.5	6.89	< 0.001

Logistic Regression Analysis

Which of the nine variables best discriminate between experiencers and non-experiencers of ESP/hallucinatory experiences? A binary logistic regression analysis was performed to answer this question. Partly on account of colinearity among the scales, the forward Wald method was applied, after verifying that the assumptions of the test were met. The best model revealed (in step 1) that cognitive-perceptual schizotypy was the primary predictor, Beta = 0.05, Wald = 3.98; $df = 1$; $p = 0.04$; Exp(B) = 1.05; Nagelkerke's $R^2 = 0.075$. The remaining variables did not significantly improve the prediction.

DISCUSSION

The present study examined the differences between persons who do and do not report ESP/hallucinatory experiences on various cognitive and personality

measures. The results show significantly greater auditory, visual and tactile hallucination and fantasy proneness, absorption, and cognitive-perceptual schizotypy in experiencers than in non-experiencers. The findings suggest that especially cognitive-perceptual aspects of schizotypy are influential features of persons who report ESP/hallucinatory experiences, and support the dissociational model of extrasensory experiences, which asserts that underlying dissociative processes such as absorption and fantasy proneness are associated with such experiences. Analysis comparing Argentinean and Peruvian experiencers showed that Peruvian experiencers just scored higher on auditory hallucination ($M = 6.45$ vs. $M = 4.59$; $p \text{ dif} < 0.001$) and also schizotypy proneness score than Argentinean experiencers ($M = 30.92$ vs. $M = 23.27$; $p \text{ dif} < 0.001$).

A possible theoretical model that seems to emerge from the present results is that of a 'happy schizotypic' (McCreery & Claridge, 1995) as someone who is functional despite—or perhaps even in part because of—anomalous experiences, including ESP/hallucinatory experiences. Positive schizotypy, reflecting hallucinations and unusual perceptual experiences, has been related to subjective anomalous and paranormal experiences and beliefs (e.g. Simmonds & Roe, 2000; Wolfradt, Ouibaid, Starube, Bischoff & Mischo, 1999). Such data are consistent with Claridge's (1997) distinction between schizotypy as a long-term personality trait, or set of traits, and schizophrenia as a distinct breakdown process to which high schizotypy is only one predisposing factor.

People who are highly hypnotizable and fantasy-prone report a high frequency of such experiences (Myers & Austrin, 1985; Wilson & Barber, 1983). Similarly, Myers and Austrin (1985), Nadon and Kihlstrom (1987), and Glicksohn (1990) have established a relationship between the occurrence of ESP experiences or unusual perceptual experiences and psychological absorption (the capacity for total attentional involvement). This is also in conceptual agreement with studies which have found that measures of fantasy proneness seem to be successful predictors of psychic phenomena in general other than extrasensory experiences (Myers, Austrin, Grisso & Nickelson, 1983; Wilson & Barber, 1983). Such findings suggest that visions of extrasensory experiences may be related to cognitive processes involving fantasy proneness and cognitive-perceptual schizotypy proneness, and that these factors are correlated.

Collectively, these findings might be interpreted as suggesting that a capacity to enter altered states of consciousness is a factor in the predisposition to ESP/hallucinatory experiences. Certainly a state of high absorption is a common context for experiences; in fact, the score for experiencers was significantly higher on Absorption and Fantasy Proneness than for non-experiencers. Extrasensory experiencers tend to have a strong interest in psychologically absorbing experiences (see Irwin, 1985b); for example, they often recall and analyse their dreams (Haraldsson, Gudmundsdottir, Ragnarsson, Lofrsson & Jonsson, 1977; Palmer, 1979). The predisposition to ESP/hallucinatory experiences, therefore, may encompass both an interest in and a tendency towards dissociation and fantasy. Irwin (1985) has claimed support for his hypothesis that individuals reporting psychic experiences (mainly OBE) would score high on absorption; in fact, this measure is generally considered to be the most common of all dissociative experiences.

The association of experience with fantasy-prone personality may support suggestions that some anomalous/paranormal experiences that are interpreted as paranormal could be simply hallucinatory fantasies.

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