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THE BOUNDARY CONSTRUCT AND ANOMALOUS EXPERIENCES IN PSYCHICS

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ABSTRACT

Personality differences between those reporting psi experiences and those reporting psi abilities have been insufficiently explored, although a number of studies have noted ‘sensitivity’ and ‘flexibility’ as characterizing psychic claimants. The present study aims to investigate differences between psychic claimants and non-psychics on their experience of hallucinations and abnormal perceptions and the ‘boundary’ construct. Participants were split between psychic and non-psychic groups, with the former having reported psychic abilities such as paranormal/anomalous feelings or impressions of being at unknown places and aura vision. Psychics ($n = 87$) and non-psychic ($n = 112$) completed the *Cardiff Anomalous Perception Scale*, the *Revised Transliminality Scale* and the *Boundary Questionnaire* (in addition, a scale to evaluate their psychic abilities). The psychics group scored higher on Anomalous Perception (measured by CAPS) and ‘thin’ boundary than non-psychics, but lower on Transliminality. In addition, Anomalous Experiences was the best predictor for psychic group membership ($\beta = .073$; $p = .031$) and secondly ‘thin’ boundaries. Psychic claimants would be likely candidates with whom to test Hartmann’s ‘continuity hypothesis’ because of their familiarity with their own alterations in consciousness and their functioning toward the thin-boundaried end of the continuum.

INTRODUCTION

Although surveys suggest that belief in psi phenomena such as clairvoyance, precognition, psychokinesis, and telepathy is quite common (e.g., Pechey & Halligan, 2012) and that the main contributor to paranormal belief is spontaneous experiences, a much smaller proportion refer to themselves as ‘psychics’ and claim to have one or more of a number of psi *abilities* such that they have some control over the phenomena they experience (for a review see Anderson, 2006; Krippner, 2010; Schouten, 1994). Little is known about the differences between those who report abilities and those who only have occasional experiences. Some studies have shown that self-labelled psychic groups tend to be less anxious (lower neuroticism scores), but more extraverted and conscientious than a control sample of ‘non psychics’ with experiences, but no abilities (e.g. Parra, 2011; Parra & Villanueva, 2011). Another study also showed that they tend to have more positive attitudes; their thinking is action-oriented; they are good behavioural copers;

they think in ways that promote effective action, and they are more accepting of others, and at the same time, they are more rigid in their thinking compared to non-psychic claimants (Parra, 2011). An additional study observed that male psychics also had significantly higher scores on dissociation, absorption, and fantasy proneness than female psychics (Parra & Argibay, 2012). In this paper we consider two relatively unexplored variables that are of interest as potentially differentiating between those reporting psychic experiences and those claiming psychic abilities: boundary thinness and transliminality.

The term *boundary* is employed to describe the extent to which a system is *connected* (thin-boundaried) versus *separated* (thick boundaried). The metaphor of boundary thinness may apply at many levels within the cognitive-perceptual hierarchy, and extra-personally (with other people and the environment). Although the notion of boundaries has been popularised more recently by Ernest Hartmann (1991) and Michael Thalbourne (1999), ideas about such thresholds and boundaries in the mind are not a new idea, having been explored over a century ago by Frederick Myers and William James (cf. Thalbourne, 1999).

Research by Sherwood and Milner (2004–2005) supports the idea that boundary structure might be a key component of the tendency to report psychic experiences. Boundary thinness has been associated with several exceptional experiences, including subjective success at a psi task (Richards, 1996); performance at a biological PK task (Palmer, Simmonds-Moore & Baumann, 2006); higher scoring among those who consider themselves to be psychic (Krippner, Wickramasekera & Tartz, 2001); and those who are working as shamans or psychics (Krippner, Wickramasekera, Wickramasekera & Winstead, 1998). Other research found no differences between mediums and controls (Roxburgh & Roe, 2011) or between healers and controls (Palmer, Simmonds-Moore & Baumann, 2006) in scoring on the Boundary Questionnaire. In the latter example, boundary thinness was uncorrelated with spiritual transcendence among a control group but correlated with spiritual transcendence among healers. This suggests that boundary thinness may have a complex relationship with psychic abilities.

The transliminality construct is comprised of absorption, fantasy proneness, magical ideation, paranormal belief, mystical experience, hyperaesthesia, (a “hypersensitivity to environmental stimulation”, Thalbourne, 1998, p. 403), creative personality, manic experience and attitude to dream interpretation. The relationship between transliminality and psychic experience is implicit in the nature of the construct itself. It also correlates with a range of paranormal experiences and beliefs (Thalbourne, 2009). Some studies have found that transliminality is associated with increased psi performance (Sanders, Thalbourne & Delin, 2000; Storm & Thalbourne, 1998–1999; 2001), while others have found only chance scoring (Simmonds, 2003). Houran and Lange (2009) have proposed that the relationship may be better understood if one takes both gender and transliminality into account. Their re-analysis of existing data found that females who are high in transliminality and males who are low in transliminality appear to perform better at a psi task. They also note that transliminality scores of experimenters and participants may interact with

gender in terms of psi effects, implying that ostensible psi may emerge from a system of interacting components.

The transliminality variable reflects “the hypothesised tendency for psychological material to cross thresholds into or out of consciousness” (Thalbourne & Houran, 2000, p. 861). The transliminality hypothesis suggests that the immediate source of our perceptions is not our eyes or our ears, but rather the subliminal consciousness: percepts are first processed at an unconscious level (and sometimes processed extensively), and then, usually speedily, they are presented ‘across the threshold’ to consciousness (see Thalbourne, 1999). Overall scoring is higher among those who consider themselves to be psychic and those who are working as shamans or psychics (Krippner, Wickramasekera & Tartz, 2001). With regard to anomalous experiences, Thalbourne (1999) has noted that “schizotypy represents what is probably the closest conceptually and empirically to transliminality” (p. 20). Hartmann’s construct of psychological boundaries refers to a continuum of boundary thinness in the mind and brain (Hartmann et al., 2001). The link between “scoring thin” and reported psychic experiences is not hard to conceptualize as the former has been characterized by unusual empathy, and fluidity of thought, imagery, and emotion. Schmeidler and other parapsychologists have long noted the ‘sensitivity’ and ‘flexibility’ characterizing psychic claimants (see Schmeidler, 1967, p. 317). Persons with thin boundaries may be more sensitive to faint psychic impressions and thus be able to develop strong interpersonal bonds conducive to interpersonal psi phenomena.

Finally, in relation to anomalous perceptions, interest has recently grown in a dimensional view in which the classically conceived experiences that are associated with psychosis, such as thinking and communication alterations are thought to be distributed continuously in the general population (Carpenter, 2014; Linscott & van Os, 2010). This model proposes a multifactor origin, which covers a range of variables from genetic alterations to environmental risk factors, which would modulate the appearance of different clinical expressions from ‘normality’ to clinical psychosis (Johns et al., 2004; Parra, 2014). Some of the scales aim to evaluate the tendency towards psychosis while others focus on special aspects of the continuum, such as delusions or hallucinations (López-Ibor, Ortiz, & López-Ibor, 2011).

Many of the measures are not limited to the exclusive evaluation of the presence of anomalous perceptions, but rather the evaluations are mixed together with alterations of other psychic functions, as, for example, in the Launay-Slade Hallucinations Scale-Revised (“*The sounds I hear in my daydreams seem so real that I sometimes think they exist*”). Bell, Halligan and Ellis (2006) designed the *Cardiff Anomalous Perceptions Scale* (CAPS) to measure perceptual anomalies. Critically, CAPS is not dependent on the clinical psychiatric context and considers subjective experiences from a range of different perspectives of insight awareness (including knowing that the percept is ‘not really there’, the percept seeming strange or unusual, or the percept being a nonshared sensory experience). Moreover, CAPS includes items pertaining to distortions in perceptual intensity, to experiences in all appropriate sensory modalities, and to sensory experiences traditionally associated with temporal lobe disturbances. Furthermore, they include items

related with distortions in perceptive intensity and experiences associated to all the sensorial modalities, together with others typically related with the temporal lobe.

Predictions

The aim was to compare a group of self-claimed psychics with a group of non-psychics in a similar vein to previous studies (Parra & Argibay, 2007, 2009, 2013a, 2013b). The specific purpose of the present study was to investigate a number of putative psychological differences, including differences in hallucinations and abnormal perceptions (measured using the *Cardiff Anomalous Perception Scale*), in transliminality (as measured with Thalbourne's *Revised Transliminality Scale*), and "boundary thinness" (as measured by Hartmann's *Boundary Questionnaire*). Although most of this work was conceived as exploratory, based on general patterns in previous research we made some directional predictions, namely:

- H₁: The psychic group will have higher levels of anomalous perceptions than the non-psychic group,
- H₂: The psychic group will have higher levels of transliminality than the non-psychic group,
- H₃: The psychic group will have "thinner" boundaries than the non-psychic group.

METHOD

Categorization procedure

Participants were recruited by mailed announcements (pamphlets) and also by an announcement placed on the Internet (www.alipsi.com.ar). A categorization procedure was performed to split psychic/non psychic group. An index, or count, of psi abilities (Psi Index) for each subject, based on the range of "One time" and "Multiples times" responses to questions about extrasensory (or psi) abilities was designed. The index had a range from 0 (= no ability) to 25 (= having reported all the abilities listed), with a Mean of 8.32 (SD = 4.75). Then, the range obtained was clustered into two groups (non-psychic group = 0–8 and psychic group = 9–25; Median split-cut off = 8).

Participants

Psychic. The sample consisted of 87 participants (67 females, 20 males), all of whom were well-educated, psi-believing participants. Their ages ranged between 18 and 65 yrs (Mean = 40.33; SD = 12.08). All participants had some training in meditation or other techniques involving an internal focus of attention.

Non-psychic. The sample consisted of 112 participants (81 females, 31 males), all of whom were well-educated, psi-believing participants. Their ages ranged between 17 and 72 yrs (Mean = 46.15; SD = 13.13). Fifty percent of the participants had some training in meditation or other techniques involving an internal focus of attention.

Design and Materials

The *Cardiff Anomalous Perception Scale* (CAPS; Bell, Halligan & Ellis, 2006) consists of 32 self-report items designed to assess perceptual anomalies

such as changes in levels of sensory intensity, distortion of the external world, unexplained source, sensory flooding and verbal hallucinations, thought echo, and temporal lobe symptoms. Participants were asked to rate each item using a “no” (0) and “yes” (1) format. Furthermore, each one of the items has 3 dimensions that measure the grade of distress, intrusiveness and frequency with a Likert (1–5) scale, so that the range goes from 0 to 160. Each one of the three dimensions seeks to evaluate the relevance of the experience for the subject. This has been described as fundamental for the differentiation between a normal and pathological experience and not the mere experience itself. Scores range from 0 (low) to 32 (high), with higher scores indicating a greater number of perceptual anomalies. The internal reliability of the CAPS is good, with a Cronbach’s alpha coefficient of .87; test-retest reliability has also been found to be acceptable. The results indicate that the Spanish version of the CAPS has good internal consistency and test-retest reliability. Analysis of the relationship with other scales indicates evidence of good convergent and divergent validity and the exploratory and confirmatory factor analysis of the CAPS showed a structure with three consistent factors (Jaén-Moreno, Moreno-Díaz, Luque-Luque, & Bell, 2014).

The *Revised Transliminality Scale* presents 29 true/false items to the participant, just 29 of which are scored in a raw-score to Rasch-score transformation (Thalbourne, 1998). Transliminality has most recently been defined as a hypersensitivity to psychological material originating in (a) the unconscious, and/or (b) the external environment. “Psychological material” is taken to cover ideation, imagery, affect and perception, and thus is a rather broad concept. High transliminality tends to imply (alleged) paranormal experience, mystical experience, creative personality, fleeting manic experience, magical ideation, high absorption, fantasy-proneness, hypersensitivity to sensory stimulation, and positive attitude towards dream interpretation (Houran, Thalbourne & Hartmann, 2003).

The *Boundary Questionnaire* (BQ) is a 138-item questionnaire including items about many different aspects of boundaries (Barbuto & Plummer, 1998, 2000; Hartmann, 1989, 1991), which is divided into 12 categories: Type of boundary; Sleep/wake/dream; Unusual experiences; Thoughts-feelings-moods; Childhood-adolescent-adulthood; Interpersonal; Opinions about organizations Sensitivity; Neat-exact-precise; Edges-lines-clothing; Opinions about children and others; Opinions about people-nations-groups; and Opinions about beauty and truth. The response format for each question runs from ‘0’ (“Not at all”) to ‘4’ (“Very much so”). Approximately two thirds of the items are phrased so that full endorsement indicates a ‘thin’ boundary, and the remaining items are phrased so that “Very much so” indicates a ‘thick’ boundary. The BQ has good test-retest reliability over six months (r ’s of about .77 in two samples; Funkhauser, Würmle, Comu, & Bahro, 2001).

RESULTS

The Mann-Whitney U test was used to test the hypotheses, since the scores were not normally distributed. The resulting U statistic was transformed into a z -score for the purposes of assigning probability values. All comparisons are one-tailed. H1 was that the psychics group would score

higher on Anomalous Perception than non psychics. Table 1 shows that this difference was significant for overall CAPS scores and for all of its subscales, supporting the hypothesis. H2 was that the psychics group would score higher than non psychics on the Transliminality Scale. However, the non-psychics group scored higher on this scale, failing to support this hypothesis. H3 predicted that the psychics group would score as thinner boundaried than non-psychics, and indeed, the psychics group scored strongly higher on this scale ($p < .001$, $Es = .71$), and on 5 of 13 subscales, including Unusual experiences ($p < .001$, $Es = .74$), Thoughts ($p < .001$), Interpersonal ($p = .003$), Organizations ($p = .003$), and Psychic experiences ($p < .001$, $Es = .94$), which supported the hypothesis.

Table 1

Comparison of transliminality, anomalous perception, and boundary thinness between psychics and non-psychics

Variables	Non psychic (n = 112)		Psychic (n = 87)		z	p	Es
	Mean	SD	Mean	SD			
<i>Anomalous Perception (CAPS)</i>	9.67	6.34	14.45	6.23	4.68	.012	.73
Sensory Intensity	1.65	1.50	2.35	1.40	3.16	.002	.48
Nonshared Sensory Experience	1.56	1.36	2.45	1.29	4.28	< .001	.67
Distorted Sensory Experience	0.68	0.91	1.27	1.06	4.06	< .001	.59
Unexplained Source	2.34	1.50	3.37	1.52	4.60	< .001	.68
Distortion of Form	0.50	0.86	0.98	1.01	3.67	< .001	.51
Verbal Hallucinations	0.60	0.82	1.16	1.00	3.91	.001	.61
Sensory Flooding	0.72	0.69	1.01	0.70	2.75	< .001	.41
Thought Echo	0.31	0.52	0.52	0.59	2.66	.006	.37
Temporal Lobe	1.69	1.05	2.13	1.10	2.49	.008	.40
<i>Transliminality</i>	12.68	5.24	9.70	5.12	4.09	< .001	.57
<i>Boundary Thinness</i>	237.48	40.02	265.72	39.42	4.26	< .001	.71
Sleep/wake/dream	13.43	7.96	15.30	7.65	1.64	.100	.23
Unusual experiences	17.25	8.19	23.33	8.16	4.47	< .001	.74
Thoughts	19.35	9.63	25.01	8.79	4.02	< .001	.57
Childhood/adolescence	10.28	4.02	10.75	3.58	0.90	.365	.12
Interpersonal	21.05	4.06	23.17	5.08	2.96	.003	.46
Sensitivity	13.20	3.02	13.77	3.63	1.38	.166	.17
Neat	17.48	4.73	18.17	5.52	0.67	.503	.13
Edges	30.68	6.23	32.88	6.09	1.91	.055	.35
Children	22.13	4.54	23.17	4.91	1.70	.089	.21
Organizations	20.74	4.58	22.25	4.49	2.09	.037	.23
People	27.51	6.00	29.11	5.95	1.92	.054	.26

<i>Variables</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>			
Beauty	15.35	3.54	14.95	3.47	0.55	.455	.11
Psychic experiences	9.03	5.26	14.18	5.58	5.25	< .001	.94

As a final *post hoc* analysis, a number of correlations explored the relationship between Anomalous Experiences scores and the two boundary measures (Transliminality and BQ). Correlations were all positive (see Table 2). Using the Fisher r-to-z transformation, a value of z was calculated to assess the significance of the difference between two correlation coefficients (psychic/non-psychic) on CAPS/ Transliminality and CAPS/BQ. There were no significant differences for transliminality correlations, but two marginally significant differences were found for BQ: for Sensory Flooding and Unexplained Source factors.

In addition, a binary logistic regression (Enter method) was used to evaluate what is the best predictor for psychic/non-psychic group membership. For the sample of 199, the results of the best model found that the Anomalous Experiences was the best predictor [$\beta = .073$; $df = 1$; $p = .031$; $R^2 = .18$], and secondly if Anomalous Experiences is excluded from the regression, ‘thin’ Boundary was the best predictor [$\beta = .15$; $df = 1$; $p = .004$; $R^2 = .15$] with a higher β . This suggests that Boundaries may underlie the differentiation of the two groups of subjects.

Table 2

Correlation between transliminality and “thin” boundary with anomalous experiences in psychic/non-psychic groups and difference between two correlation coefficients

<i>CAPS Items</i>	<i>Transliminality</i>				<i>“Thin” Boundary</i>			
	<i>Psychics Rho</i>	<i>Non-psychics Rho</i>	<i>Z</i>	<i>p</i>	<i>Psychics Rho</i>	<i>Non-psychics Rho</i>	<i>z</i>	<i>p</i>
<i>Anomalous Perception</i>	.59***	.56***	0.31	.37	.53***	.60**	0.71	.23
Sensory Intensity	.46***	.49***	0.27	.39	.43***	.57***	1.29	.09
Nonshared Sensory Experience	.42***	.47***	0.43	.33	.32**	.49***	1.41	.07
Distorted Sensory Experience	.51***	.37***	1.20	.11	.47**	.45***	0.17	.43
Unexplained Source	.28**	.33**	0.38	.35	.18	.39***	1.58	.05
Distortion of Form	.38***	.30**	0.62	.26	.36**	.33**	0.23	.40
Verbal Hallucinations	.25*	.28**	0.22	.41	.33**	.24*	0.68	.24
Sensory Flooding	.49***	.38***	0.94	.17	.51***	.28**	1.89	.02
Thought Echo	.25*	.16	0.65	.25	.20	.20*	0	.50
Temporal Lobe	.45***	.53***	0.73	.23	.48***	.59***	1.07	.14

*** $p < .001$; ** $p = .01$; * $p < .05$

DISCUSSION

The general aim of this study was to compare a group of psychics with a group of non-psychics to see if psychological differences between the groups could be found. The psychics group tended to hear voices or experience smells or odours (Nonshared Sensory Experience), to see shapes, lights, or colours, hear noises/sounds or to smell everyday odours from unexplained sources, and to hear sounds much louder than they normally would be. For example, Anderson (1988, quoted by Irwin, 2009, p. 98) found psychic experience correlated positively with magical ideation, as well as with a measure of schizotypy with trance mediums. Other results showed that the psychics group tend to have 'thinner' boundary and report more Unusual and Psychic experiences than non psychics. Interestingly, these reflect boundaries relating to subjective experiences in states of consciousness, cognition and emotion, but not those associated with ways of thinking and interacting with the world. It may be that the more abstract boundaries are not relevant for understanding psychic abilities, although more work is needed to delineate specifically which boundaries are relevant for different types of experience.

These findings are consistent with other research that shows that overall scoring is higher among those who consider themselves to be psychic (Krippner, Wickramasekera & Tartz, 2002) and those who are working as shamans or psychics (Krippner, Wickramasekera, Wickramasekera & Winstead, 1998). Psychic claimants would be likely candidates with whom to test Hartmann's 'continuity hypothesis' because of their familiarity with their own alterations in consciousness, and the likelihood that many of them are functioning toward the thin-boundaried end of the continuum even while awake. This has implications for problem-solving activity, as some people may regularly engage in thick-boundaried problem-solving while others produce solutions that emerge from dreams, hypnagogic and hypnopompic imagery, reverie, and other thin-boundaried conditions.

Much recent research should be considered in relation to other variables in order to ascertain the way in which boundaries are thin and that moderating factors on boundary thinness should be considered in terms of better understanding their relationship with psychics abilities and other exceptional experiences. One possibly fruitful line of research to follow is that of Persinger and Makarec (1987), who have explored the relationship between temporal lobe signs and claims of psychic phenomena. Sensory intensity (sounds are much louder than they normally would be), non-shared sensory experiences (e.g., hear voices, smells or odours, and see things that other people cannot) also scored higher in the psychics. Such findings suggest that psychic abilities may be related to cognitive processes involving transliminal activity and cognitive perceptual schizotypy proneness, and that these factors are correlated. However, this may not be the whole picture.

The transliminality variable reflects the tendency for psychological material to cross thresholds into or out of consciousness (Thalbourne & Houran, 2000, p. 861). The transliminal construct is comprised of absorption, fantasy proneness, magical ideation, paranormal belief, mystical experience, hyperaesthesia, (a 'hypersensitivity' to environmental stimulation, Thalbourne, 1998, p. 403). Those whose subliminal consciousness

is 'in ferment' are likely to experience sensory images faster and more intensely than other people. Other studies have found that transliminality correlates positively with boundary thinness (Houran, Thalbourne, & Hartmann, 2003; Sherwood & Milner, 2004–2005), schizotypy (Thalbourne, 1998; Thalbourne, Keogh, & Witt, 2005) and temporal lobe lability (Thalbourne, Crawley & Houran, 2003). In addition, Simmonds-Moore (2009–2010) found common variance between schizotypy, transliminality, Hartmann's boundary questionnaire and temporal lobe lability. The fact that psychics showed higher anomalous experiences and 'thinner' boundaries is also in conceptual agreement with studies that have found that measures of fantasy-proneness seem to be successful predictors of psychic phenomena (Wilson & Barber, 1982). The regression used to discriminate between psychics and non-psychics showed that Anomalous Experiences may underlie the differentiation of the two groups. Thalbourne (1999) suggested that hypnosis researchers should examine the correlation between transliminality and hypnotisability, expecting it to be positive and significant (see Healy, 1984), which may be related to some physiological differences in perceptual processing may also underlie it.

It is tentatively concluded that the constellation of interrelated factors that make up the construct of the boundaries provide a psychological predisposition for psychic abilities. It also supports the view that psychic claims of the type described here may have important experimental applications (e.g. see Parra & Argibay 2007, 2009, 2013a, 2013b).

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