School of Psychology
Faculty of Health Sciences

THE UNIVERSITY OF ADELAIDE AUSTRALIA

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Attention: Daniel Bessa

FINAL SCIENTIFIC REPORT TO THE BIAL FOUNDATION, JUNE 2020

GRANT No. 16/18

PROJECT: "THE PSYCHOLOGY AND PARAPSYCHOLOGY OF SPIRITUAL EMERGENCY"

PRINCIPAL INVESTIGATOR: DR. LANCE STORM

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The Bial Foundation has financially supported me, Dr. Lance Storm (principal investigator), and Dr. Monika Goretzki (co-researcher/experimenter) over the full course of the experiment—June 1, 2019 to May 31, 2020. All laboratory and online testing was completed (planned number of participants = 200; total number tested = 200). The School of Psychology, University of Adelaide, provided amenities for the conduct of this research.

The Psychology and Parapsychology of Spiritual Emergency

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Background and Objectives

Spiritual Emergency (SE) is "a critical and experientially difficult stage of profound psychological transformation that involves one's entire being" (Grof & Grof, 1991, p. 31). A defining aspect of SE is so-called 'psychic opening', characterized as psychic ability (i.e., psi performance). Individuals who undergo SE (i.e., 'SE-experients') may be differentiated from the general population by not only having high rates of psychic opening, but they may also perform well on psi tests. SE is related to psychosis, but not the psychosis-related symptoms, alogia (poverty of speech), depression, anxiety, and stress (Bronn & McIlwain, 2015), which may all be psi-inhibitive—psychosis generally may be psi-inhibitive. This study aims to assess the psychological and parapsychological aspects of spiritual emergency and differentiate it from psychosis.

Using the shamanic-like journeying protocol that accords with Storm and Rock's (2009) Imagery Cultivation Model, this study seeks to gain insight into the psi performance differences between two groups: (i) those experiencing spiritual emergency (a.k.a. SE-experients) and (ii) controls comprised mainly of university students. Results should tell us whether psi ability is superior in the SE-experients group; and whether psi ability is predicted by scores on the various administered scales and sub-scales listed below.

Method

Participants

Initially, First-Year Psychology students, who signed-up online, were tested and they received credit for participation as part of their curriculum program (using the Research Participation System). There were a number of participants who became aware of the project through online advertisements on various university websites. They contacted the principal investigator Lance Storm (L.S.) via SMS so that a suitable day and time for testing could be arranged. The target of 100 participants for the control sample was attained by Friday May 3, 2019.

The other type of participant had to have experienced (or were experiencing) spiritual emergency (SE). These were referred to as 'SE-Experients', and their suitability was assessed and approved by Dr. Monika Goretzki (M.G.), who contacted them through various websites, and invited them to participate. The target for the SE-experient sample of 100 participants was attained by June 15, 2020.

The sample consisted of 200 participants with a mean age of 33 years (*SD* = 16 years); 48 males, 152 females. The mean age of the controls was 23 years (*SD* = 11 years); 24 males, 76 females. The mean age of the SE-Experients was 44 years (*SD* = 15 years); 24 males, 76 females.

Measures

1. Spiritual Emergency Scale (SES; Goretzki et al., 2014)—measures spiritual emergency;
2. Experiences of Psychotic Symptoms Scale (EPSS; Goretzki et al., 2009)—measures positive symptoms of psychosis and alogia;
3. Spiritual Identification Scale (SIS; Astin, Astin, & Lindoholm, 2011)—measures spiritual identity (seeing oneself and others in spiritual terms);
4. Rasch-scaled Australian Sheep-Goat Scale (RASGS; Thalbourne, 1995)—measures belief in and alleged experience of the paranormal (i.e., ESP, psychokinesis, and life after death).

5. Mysticism Scale (MS; Hood, 1975)—measures experiences of connectedness that appear to relate to intense joyful or religious experience;
6. Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995)—measures depression, anxiety, and stress.

Materials

Computer program containing Information and Consent pages (i.e., screens), plus separate pages for each of the measures listed above. Also presented are a page of five photographs with rank scoring boxes for each photo, an outcome page, and a feedback page.

Apparatus

(1) A gallery of 300 photographs compiled by May (2007) from the Corel Stock Photo Library of Professional Photographs. The picture set consists of 12 Groups × 5 Categories × 5 Photographs = 300 photographs; (2) Desktop computers and laptop; and (3) headphones.

Procedure

Preliminaries. Instructions outlining the experiment were presented on-screen, and if participants chose to participate, they moved to another page which listed a series of consent statements. Participants then provided demographics details, and completed the SES, EPSS, SIS, RASGS, MS, and DASS-21.

A detailed outline of the procedures is given in the Appendix in the Progress Report uploaded to the Bial Foundation Grants Management System in 2019.[1]

Controls. Control participants (mainly First-Year Psychology students) signed up on the School of Psychology website (Research Participation System) for testing in the experimenters' laboratory (one session to complete the measures and the psi test). Other students sought participation via online advertisements or flyers advertised around the campus.

SE-Experients. Participants first had to meet the criteria for suitability, and this was done by email or telephone interview conducted by the second experimenter (M.G.) who is clinically-trained. Suitable participants were given a unique identifying code and log-on to the test website where they completed the measures and the psi test (data was time-stamped to confirm validated participation).

Data Analyses

The analytical component of this study involves testing (i) differences on paranormal performance (Direct Hitting, Rank Scores, and Sum-of-Ranks) between SE-experients and controls; and (ii) correlates between psi outcomes (Direct Hitting and Rank Scores) and the nine variables on six measures (SES, EPSS, SIS, RASGS, MS, and DASS-21), in accordance with the hypotheses given below.

Reliability and validity of the SES were tested (i.e., internal consistency, and structural, convergent, and divergent validity). The reliability and validity of the EPSS were also tested to confirm convergent and divergent relationships between SE and psychosis. As part of the post hoc analyses, correlation matrices were assessed to decide whether to conduct Multiple Regression Analyses (MRA) using suitable demographic details (gender, age, etc.) and scale data (SIS, EPSS, SIS, RASGS, SES, MS) as Independent Variables, with Direct Hitting and Rank Score (psi scoring) as the Dependent Variables (DVs). Outcomes of these analyses are reported in the above-mentioned paper.

[1] https://bialfoundation.secure.force.com/servlet/servlet.FileDownload?file=00P0X00001q7f1cUAA

Hypotheses

Hypothesis 1: There is a difference in psi scoring between SE-experients and controls, with SE-experients scoring (i) higher on Direct Hitting, and (ii) lower on Mean Rank Score.

Hypothesis 2: Direct Hitting correlates positively (Rank Scores correlate negatively) with spiritual emergency (SES), Psychic Opening (a subscale of SES), spirituality (SIS), paranormal belief (RASGS), and mysticism (MS)—but neither of the two psi measures correlate with psychosis (EPSS-POS), alogia (an EPSS subscale), depression, anxiety, or stress (DASS-21).

Results

Direct hitting for the whole sample was 50 hits out of 200, or 25% (where MCE = 20%). The effect is significant, Binomial Exact $z = 1.68$, $p = .049$ (one-tailed). The mean rank score for the whole sample was 2.84, where MCE = 3.00 (*Mdn* = 3.00). The effect is significant, $t(199) = -1.67$, $p = .049$ (one-tailed). Ranks are listed in Table 1.

Table 1
Rank Scores: Full Sample ($N = 200$)

Rank Score	Frequency	%
1	50	25.0
2	37	18.5
3	39	19.5
4	44	22.0
5	30	15.0
Total	200	100.0

The 'sum-of-ranks' test using the sum of ordinal weighted ranks formula was also calculated (see Solfvin, Kelly, & Burdick, 1978, pp. 97-99). Solfvin et al. assign a score (or 'weight') to all ranks (e.g., rank #1 scores 1, etc.), and then score counts are totalled.[2] An ordering of observed distributions is therefore induced. For the sample ($N = 200$), the sum-of-ranks statistic is significant, $z = 3.98$, $p = .000034$ (one-tailed). This results seems generous given the *p* value is three orders of magnitude larger than the *p* values for the previous two results (i.e., for direct hitting and mean rank score). However, sum-of-ranks conveys more information than the conservative direct-hit count (less so for mean rank score)—for example, note the psi-missing on rank #5 of only 15% in Table 1, thus indicating significant avoidance of rank #5, and upward shifts toward better scoring ranks, $z = 1.68$, $p = .046$.

Statistics for the six measures (and relevant subscales) are given in Table 2, which also shows ANOVA results assessing the differences between the two groups, Controls and SE-Experients. All differences were significant except for Alogia, DASS-DEP, and DASS-AX (see the **Discussion** section below for comments).

Hypothesis 1. There is a difference in psi scoring between SE-experients and controls, with SE-experients scoring (i) higher on Direct Hitting, and (ii) lower on Mean Rank Score:

(i) Direct Hitting for SE-Experients was 26% (26/100), which is <u>higher</u> than the hit rate of 24% for the Controls (24/100). These hit-rates are in the directions expected. The Binomial hit-rate for SE-

[2] Level of scoring is determined from the sum-of-ranks score and the corresponding *Z* score. $Z = (M - U_M \pm 0.5)/\sigma_M$, "where *M* is the observed sum-of-ranks, $U_M = N(R+1)/2$, and $\sigma^2_M = N(R - 1)/12$. The 0.5 is the usual continuity correction and has sign opposite to that of $(M - U_M)$" (Solfvin, Kelly, & Burdick, 1978, p. 99). Psi hitting is indicated by a significant sum-of-ranks score that is lower (better) than MCE = 3.00.

Experients could be considered marginally significant (Exact $z = 1.38$, $p = .087$), but Controls did not produce a significant hit rate (Exact $z = 0.88$, $p = .189$). A Mann-Whitney test indicated that the difference was not significant, $U = 4900.00$, $p = .435$ (one-tailed).

(ii) The Mean Rank Score for SE-Experients was 2.71 (where MCE = 3.00), which is better than the mean rank score for the Controls of 2.96. Ranks for both groups are listed in Tables 3 and 4. A Mann-Whitney test indicated that the difference was not significant, $U = 4501.50$, $p = .108$ (one-tailed).

Table 2
Descriptives: Means, *SD*s, and (Full Sample [*N* = 200], Controls [*n* = 100] and SE-Experients [*n* = 100])

Variable	Full Sample (*SD*)	Controls (*SD*)	SE-Experients (*SD*)	*F*(1, 198)	*p* (2t)
1a. SES	66.01 (24.79)	49.90 (17.57)	82.12 (20.05)	146.10	< .001
1b. Psychic Opening	14.08 (5.29)	10.93 (4.29)	17.23 (4.22)	109.51	< .001
2a. EPSS-POS	27.00 (11.30)	24.36 (8.67)	29.63 (9.47)	16.86	.013
2b. Alogia	6.61 (2.72)	6.64 (2.79)	6.58 (2.65)	-0.02	.876
3. SIS	32.41 (6.57)	28.37 (6.06)	36.44 (4.15)	120.69	< .001
4. RASGS	26.33 (7.07)	22.11 (5.68)	30.55 (5.67)	110.51	< .001
5. MS	110.19 (31.38)	89.40 (23.86)	130.97 (23.19)	156.10	< .001
6a. DASS-DEP	5.97 (4.49)	6.32 (4.83)	5.62 (4.12)	-1.22	.272
6b. DASS-AX	6.04 (4.39)	6.43 (4.56)	5.64 (4.19)	-1.63	.203
6c. DASS-ST	8.07 (4.55)	8.71 (4.49)	7.42 (4.55)	-4.08	.045

Notes. SES = Spiritual Emergency Scale; EPSS-POS = Experiences of Psychotic Symptoms Scale (positive symptoms); SIS = Spiritual Identification Scale; RASGS = Rasch-Scaled Australian Sheep-Goat Scale; MS = Mysticism Scale; DASS = Depression Anxiety Stress Scale (DEP = Depression, AX = Anxiety; ST = Stress).

Table 3
Rank Scores: Control Group (*n* = 100)

Rank Score	Frequency	%
1	24	24.0
2	17	17.0
3	16	16.0
4	25	25.0
5	18	18.0
Total	100	100.0

Table 4
Rank Scores: SE-Experients Group (*n* = 100)

Rank Score	Frequency	%
1	26	26.0
2	20	20.0
3	23	23.0
4	19	19.0
5	12	12.0
Total	100	100.0

For SE-experients, the sum-of-ranks statistic was $z = 4.94$ ($p < .001$), but for Controls, the statistic was only $z = 0.61$ ($p = .271$). Scoring for SE-Experients was significant, and the *z* score difference ($[4.94 – 0.61]/\sqrt{2} = 3.06$) between the two groups was also significant ($p < .01$). Note too, for SE-Experients, the very low number of hits on rank #5 of only 12% (MCE = 20%), thus indicating psi-missing ($z = 1.87$, $p = .030$), suggesting a preference for better ranks.

Hypothesis 2: Direct Hitting correlates positively (Rank Scores correlate negatively) with SES, Psychic Opening, SIS, RASGS, and MS—but neither of the two psi measures correlate with EPSS-POS, alogia, depression, anxiety, or stress.

As some scales were significantly skewed, and Direct Hitting is a dichotomous measure, and Rank-score is ordinal, Spearman's rho tests were conducted. Direct hitting did not correlate significantly with any of the five variables, although all were positively correlated. However, as predicted, the

other five variables (i.e., EPSS-POS, alogia, depression, anxiety, and stress) did *not* correlate significantly with Direct Hitting, although the correlations were negative.

Rank scores correlated negatively and significantly with RASGS, $r_s(198) = -0.12$, $p = .048$, so that high paranormal belief scores tended to indicate better rank scores. Rank scores also correlated negatively and significantly with psychic opening, $r_s(198) = -0.12$, $p = .049$; and SIS, $r_s(198) = -0.13$, $p = .036$; and marginally significantly with SES, $r_s(198) = -0.11$, $p = .061$. It did not correlate significantly with MS (but the correlation was negative). As expected, rank scores did *not* correlate significantly with EPSS-POS (psychosis), alogia, depression, anxiety, or stress (though the correlations were all positive).

Other Analyses

An inspection of the correlation matrix of parapsychological and psychological variables (11 in total) revealed 32 out 66 correlations (48%) were significant. We corrected for multiple analysis leaving us with 28 (42%) correlations significant at $p < .001$. The following selected correlations confirm theoretical suppositions and/or past findings (all tests are two-tailed; relevant prior research is parenthesized):

- EPSS-POS (positive psychosis) correlated significantly with depression (.38), anxiety (.43), and stress (.36; see also Bronn & McIlwain, 2015, p. 363);
- SES did *not* correlate significantly with depression, anxiety, and stress (see also Bronn & McIlwain, 2015, p. 363; for depression, see Storm, Drinkwater, & Jinks, 2017, p. 224);
- EPSS-POS and alogia correlated significantly (.71; see also Bronn & McIlwain, 2015, p. 362);
- EPSS-POS and SES correlated significantly (.69; see also Bronn & McIlwain, 2015, p. 363);
- SES and SIS (spiritual identity) correlated significantly (.70; see also Bronn & McIlwain, 2015, p. 363);
- SES and MS (mysticism) correlated significantly (.78; see also Bronn & McIlwain, 2015, p. 363);
- SES and RASGS (paranormal belief) correlated significantly (.67; see also Storm & Goretzki, in press).

Discussion

The final results for this study are generally favourable. Results for Hypothesis 1, on group differences between SE-experients and controls, were all in the hypothesized directions for direct hitting, mean rank score, and sum-of-ranks. While the first two group differences were not significant, the sum-of-ranks difference, which is a more sensitive measure, was significant. Also, SE-experients had a marginally significant mean rank score compared to the chance baseline (MCE). As we hypothesized, the higher psi test results suggest that SE-experients may experience more psychic opening (see also Table 2), which is phenomenologically associated with spiritual emergency.

Results for Hypothesis 2 were mixed. The hypothesized directions were generally as expected, but none of the direct-hitting correlations were significant. The failure of direct hitting to correlate significantly with SES, Psychic Opening, SIS, RASGS, and MS is somewhat surprising; it was noted, however, that effects were small ($r_s < 0.1$). We also hypothesized that direct hitting would *not* correlate with the pathological measures, alogia, depression, anxiety, and stress—none of these were significant, but the relationships were negative as expected since we regard these pathological conditions as psi-inhibitive (again, effects were small, $r_s < 0.1$). Rank score proved to be a better psi measure—it correlated negatively and significantly with psychic opening, spiritual identity, and RASGS, and marginally significantly with spiritual emergency.

In Table 2, it is noted that spiritual emergency (SES, including psychic opening), positive psychosis (EPSS-POS), spiritual identity (SIS), paranormal belief (RASGS), and mystical experiences (MS), are at significantly *higher* levels for the SE-experients (compared to controls), but SE-experients are significantly *lower* in stress (not significantly lower for alogia, depression, and anxiety). It is possible, even likely, that there are psychological advantages in having high levels of spirituality, psychic opening, paranormal belief, and mystical disposition, alongside low levels of stress. Indeed, they may act as resilience factors that help combat positive symptoms of psychosis and spiritual emergency, neither of which can be considered a desired state of mental health, though we do take issue with the claim that the latter indicates psychopathology.

In conclusion, the statistical evidence suggests SE-experients experienced more psychic opening and more psi than controls. Rank score correlated significantly with three measures (psychic opening, spiritual identity, and paranormal belief), and marginally significantly with spiritual emergency. Direct hitting, rank scores, and SE did not correlate significantly with the three psychosis measures (depression, anxiety, and stress), but the psychosis measure did correlate significantly with alogia, depression, anxiety, stress, and SE. While SE overlaps with psychosis, it was differentiated from psychosis, by not correlating significantly with depression, or anxiety.

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