

Extraordinary Experiences and Performance on Psi Tasks During and After Meditation Classes and Retreats

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Background: The field of meditation research has grown exponentially in the past two decades, driven largely by a growing appreciation of the potential for contemplative practices to positively affect psychophysiological functioning, reduce stress, and increase well-being (Khoury et al., 2013; Goyal et al., 2014). In 1990, approximately 500 peer-reviewed scientific articles on the science of meditation existed, and today the number is over 6,000. This body of research has shed light on the effects of meditation practices on basic mechanisms of attention, perception, and cognition (Chiesa et al., 2011; Fox et al., 2014; Tang et al., 2015). Studies investigating neural correlates of lifetime meditation practice (Fox et al., 2016; Boccia et al., 2015), as well as changes in brain function and structure associated with short-term mindfulness interventions (Hölzel et al., 2011), have led to a robust new field of contemplative neuroscience. However, many aspects of meditation experience and practice remain less researched. Experiences of oneness and interconnectedness; samadhi and siddhis; shakti and kundalini energies; spiritual transmission from teacher to student; past-life recall and reincarnation experiences; visions, synchronicities, precognition, extra-sensory perception; experiences of God, deities, and other non-physical entities; difficult stages of meditation, painful processes that can arise, and periods of disorientation and depersonalization - are described in the texts and teachings of most contemplative traditions. However, assessment of these experiences and abilities are rarely included, even in the most rudimentary way, in modern meditation scientific studies.

Anecdotal, survey, and interview data indicate that these “extraordinary” aspects of meditation may be more prevalent than is commonly recognized, and could represent important meditators or mechanisms by which meditation leads to beneficial cognitive, behavioral, and physiological outcomes (Vieten et al. 2006, Vieten et al., 2008). People do report having extraordinary parapsychological experiences during, after or as a result of meditation. Recent research by the scientists at the Institute of Noetic Sciences using cross-sectional, retrospective surveys showed that among meditators, such experiences were more common than might be expected (Vieten, Wahbeh, et al., 2018). Of 1120 respondents with an average of 14 years of meditation practice and psychological health in alignment with population norms, over 50% reported “many times” or “almost always” having extraordinary experiences such as experiences of timelessness, being in a realm with no space boundaries, sense of collective energy from the group, and increased synchronicities.

Over half reported experiencing clairvoyance or telepathy at least 2-5 times or more in the course of their meditation practice. In addition, far from being mere curiosities, when asked how meaningful or important of these experiences were, 60% of respondents said “quite a bit” or “very much,” and another 20% responded “somewhat.” Aside from a few studies using rudimentary techniques in the 1970’s and 1980’s, there has been very little empirical research investigating the relationship between meditation training and psi ability, and almost all has been retrospective. Roney-Dougal and colleagues (2008, 2011) conducted a series of studies

with meditation students, monks, Tibetan Lamas, and Rinpoches, and found a significant relationship between amount of lifetime meditation experience and performance on psi tasks. Previous research has demonstrated a positive correlations between those who endorse a longer history of meditation practice and performance on psi-related tasks. For example, one Bial-funded study by members of our team (Radin, Vieten et al., 2011) investigated whether EEG would show differences prior to light stimuli vs sound stimuli in those with a history of meditation practice vs. those without a history of meditation practice. Results showed that among control group participants (nonmeditators) there was no difference in electrocortical signals between unpredictable light vs. sound stimuli, whereas in meditators, five of 32 channels showed significant differences between forthcoming light vs sounds stimuli. This may reflect increased presentiment in those with a history of meditation.

Likewise, in another Bial-funded study published by our team in Physics Essays, Radin et al. (2012) found that meditation experience was positively associated with effects of attention directed toward a double-slit apparatus on perturbations in the double-slit interference pattern, indicating that meditation experience may increase the so-called "observer effect." A meta-analysis by Seidlmeier et al. (2012) confirming the benefits of meditation practice on psychological variables ended with this statement: "Both Hindu and Buddhist approaches hold that practitioners of meditation might develop a kind of supercognition, special abilities (siddhis) that exceed our normal abilities. Buddhist theory predicts that six kinds of siddhis might arise. Notably, the least spectacular one, destruction of the defiling impulses, is seen as the most significant. The others are psychokinesis, clairaudience, telepathic knowledge, retrocognitive knowledge, and clairvoyance. The Yoga Sutras report more of these siddhis as a result of extended yoga practice. Nonetheless, a theory about the effects of meditation would not be complete without consideration of these altered states of consciousness."

We propose that these aspects of meditation may happen more frequently than we understand, and may be crucial to people's psychological and spiritual development. Rather than being side-effects, these experiences could represent important outcomes of meditation practice, and may serve as mediators and/or mechanisms by which meditation confers additional benefits. Thus, in this research, we explored the frequency of such experiences in both meditators and non-meditators and examined the impact of participating in a meditation or mindfulness retreat or class. We specifically examined factors including self-reported aspects of mindfulness and paranormal experiences, and we also examined performance on psi tasks in before and after meditation retreats. Additionally, we explored the salience of such experiences to those experiencing them.

Aims: Aims of the study were to assess the frequency and impact of self-reported mindfulness, paranormal experiences and performance on psi tasks in two groups over time: one group attending intensive meditation retreats, and the other engaging in meditation rarely if at all (once per week or less) during the study period. Nearly all experiments to date have utilized retrospective measures of historical meditation practice. Our study focused on the prevalence and salience of extraordinary experiences, and changes in psi performance, prospectively, before and after intensive meditation training. We also examined self-reported mindfulness, paranormal experiences and performance on psi tasks of a comparison group who had little to no experience with meditation or mindfulness.

Methods:

Participants

This study was conducted at the University of Virginia (UVA) School of Medicine, Division of Personality Studies (DOPS) in Charlottesville, VA and the Institute of Noetic Sciences (IONS) in Petaluma, CA, both leading research centers in the United States in the field of meditation and parapsychology. All procedures were reviewed and approved by the Institutional Review Boards of each institution. Two subject populations were recruited – individuals who had signed up for meditation or mindfulness retreats or courses (on their own, not assigned by the investigators), and those who had little or no experience with meditation and did not engage in a retreat or course during the study period. The comparison group was non-randomized, unmatched, and primarily served to make sure that any changes observed over time in psychosocial outcomes or psi-related task performance could not be attributed to practice effects or repeated measurement over a relatively short (two week) time frame. We also wanted to know whether prevalence of paranormal or psi experiences during the two-week time frame would be differ from a normative sample.

Participants were recruited from people who enrolled in meditation and mindfulness courses and retreats at UVA and meditation retreats at the Institute of Noetic Sciences and partnering retreat centers. Comparison group participants were recruited from the general public at both sites, and were required to have little to no experience with meditation or mindfulness, and to not enroll in such a course during the study period. Participants were recruited through flyers and advertisements, presentation of the study during enrollment in the classes or retreats, email, and word-of-mouth. Recruitment materials were intentionally masked to avoid over-recruitment of people who might be biased toward belief in paranormal experiences. We wished to enroll 120 participants overall. Subjects were required to be adults of any gender (ages 18 – 80) who did not have a history of hallucinations, delusions, mania, or psychosis. Investigators at both sites have extensive experience in conducting such research and both followed best practices for the research project and management. Participants were not individually reimbursed but instead entered into a drawing for a free iPad, and one iPad was given to a randomly selected participant at each site.

Measures

1) Demographic Information – including age, race/ethnicity, gender, marital status, education, household income and employment, psychiatric history, and history of spiritual/religious/contemplative practices.

2) Psychosocial Measures - Standardized measures were used to assess social connectedness, mindfulness, self-transcendence, and five-factor personality.

3) Psi and Paranormal Beliefs and Experiences - We utilized a self-report measure of paranormal beliefs, paranormal experiences, psi beliefs and experiences (an early version of the Noetic Experiences and Beliefs Scale (NEBS) (Wahbeh et al, 2019 - <https://f1000research.com/articles/8-1741/v1>). We had intended to also use an implicit association task measuring extent of belief in psi (IAT-PSI) but were unable to due to challenges with the computer programing.

4) Meditation Experiences – we assessed experiences people have during or related to their meditation practice using a modified version of the survey we have used in our retrospective studies of meditators. This survey examines a) mystical, transcendent, or transformative experiences during or related to meditation practice, b) social, relational, and group aspects of meditation, c) contextual aspects of meditation practice, d) anomalous physical phenomena related to meditation, e) extended human capacities such

as precognition, clairvoyance, or ESP, and f) difficult states and stages of meditation practice. The survey asks respondents to report on whether any of these occurred in the course of their meditation, how frequently they occurred, and how important or meaningful they were to the respondent. These measures were used to assess frequency and salience of these experiences.

5) Psi Tasks - We assessed performance on tasks involving intuition, precognition and psychokinesis at baseline and after the meditation classes/retreats (or a period of two weeks for the comparison group), utilizing online tasks from the IONS Discovery Lab (IDL). These measures were used to determine whether meditation classes or retreats influence changes in performance on psi tasks. See the Appendix for a detailed description of each measure, along with scoring protocols. Subjects completed the tasks two times over the course of a week prior to their class/retreat (PreSession 1 and PreSession 2) and two times over the course of two days after the class/retreat (PostSession 1 and PostSession 2). Averaging across the two sessions was intended to avoid idiosyncratic one-time failures or successes. Questionnaires and surveys were distributed across these two sessions to reduce participant burden and response fatigue.

Procedures

After screening for eligibility and a brief study orientation, consent was obtained by a member of the research team, either in person or by phone with the consent form signed electronically. This study was considered very low risk by the Institutional Review Boards at each institution, and received expedited approval. Subjects were asked to complete the baseline measures within one week of beginning their meditation class or retreat, and to complete the post-measures within the week following the class or retreat. The comparison group (participants who were not enrolled in a meditation retreat or course) were asked to complete the same assessments during equivalent time periods. All assessments were administered via computer and no adverse events were reported.

Results and Discussion

We enrolled 127 participants at both sites, 9 participants were excluded due to not completing required components, and 118 participants (meditation group = 98; comparison group = 72) finished the study and their data was analyzed. Demographic details of the participants in both groups can be found in Table 1.

Table 1. Demographic information of study sample.

	Control Group (N = 40)	Meditation Group (N = 78)
Age	<i>M</i> = 43.47; <i>SD</i> = 13.39	
Gender		
Male	18 (45%)	10 (12.8%)
Female	21 (52.5%)	68 (87.2%)
Other	1 (2.5%)	0
Race		
Non-Hispanic White	28 (70%)	64 (82.1%)
Hispanic - Mexican	0	3 (3.8%)
Hispanic - Other	0	3 (3.8%)
Black or African American	0	2 (2.6%)
Asian American or Pacific Islander	5 (12.5%)	1 (1.3%)
Mixed Race	2 (5%)	3 (3.8%)

Other	5 (12.5%)	2 (2.6%)
Income		
Under 30K	9 (22.5%)	4 (5.1%)
30K – 75K	9 (22.5%)	16 (20.5%)
75K – 100K	7 (17.5%)	11 (14.1%)
100K – 150K	6 (15.0%)	18 (23.1%)
150K – 250K	4 (10.0%)	12 (15.4%)
250K or greater	2 (5.0%)	10 (12.8%)
Decline to answer	3 (7.5%)	7 (9.0%)
Marital Status		
Single	13 (32.5%)	8 (10.3%)
Married	18 (45.0%)	47 (60.3%)
Cohabiting	3 (7.5%)	2 (2.6%)
Divorced	4 (10.0%)	13 (16.7%)
Separated	0	2 (2.6%)
Domestic Partner	1 (2.5%)	5 (6.8%)
Widow(er)	1 (2.5%)	1 (1.3%)
Education Level		
High school or equivalent	3 (7.5%)	2 (2.6%)
Some College/Technical School	8 (20.0%)	13 (16.7%)
Bachelor's Degree	17 (42.5%)	18 (23.1%)
Some graduate school	1 (2.5%)	6 (7.7%)
Master's Degree	7 (17.5%)	24 (30.8%)
Doctoral Degree / Professional Degree	4 (10.0%)	15 (19.2%)
Employment		
Full-Time	23 (57.5%)	22 (28.2%)
Full-time college/university student	1 (2.5%)	1 (1.3%)
Part-time	4 (10.0%)	5 (6.4%)
Self-Employed	5 (12.5%)	28 (35.9%)
Unemployed	4 (10.0%)	1 (1.3%)
Retired	1 (2.5%)	18 (23.1%)
Other	2 (5.0%)	3 (3.8%)
Current religious affiliation		
Agnostic	5 (12.5%)	4 (5.1%)
Atheist	2 (5.0%)	1 (1.3%)
Buddhist	4 (10.0%)	2 (2.6%)
Episcopalian	0	1 (1.3%)
Hinduism	3 (7.5%)	0
Islamic	1 (2.5%)	0
Methodist	0	3 (3.8%)
New Thought (Religious Science)	1 (2.5%)	3 (3.8%)
Non-denominational Christian	1 (2.5%)	5 (6.4%)
Presbyterian	1 (2.5%)	1 (1.3%)
Quaker	0	1 (1.3%)
Roman Catholic	3 (7.5%)	2 (2.6%)
Spiritual but not Religious	10 (25.0%)	39 (50.0%)
Unitarian/Universalist	0	2 (2.6%)
Other	3 (7.5%)	11 (14.1%)
None	6 (15.0%)	3 (3.8%)

Baseline Comparisons

Since groups were self-selected (e.g. one group was enrolling in intensive meditation retreats, and the other was not), we anticipated observing baseline differences between groups. The meditation group reported higher levels of mindfulness at the beginning of the study than the comparison group. The meditation group reported higher levels of paranormal experiences than the control group ($p < .001$), higher levels of paranormal beliefs than the control group ($p < .001$) and higher levels of psi experiences measure that went along with the beliefs measure ($p = .008$). Not surprisingly, there was a positive correlation between paranormal beliefs, and paranormal experiences ($p = .61$), and between psi beliefs and reported psi experiences ($r = .84, p < .001$).

We also examined the correlations between self-reported paranormal experiences variables and meditation, mindfulness, and self-transcendence variables at baseline.

Reported paranormal experiences were positively correlated with:

- Having seriously engaged in a meditation practice ($r = .28$)
- Openness ($r = .18$)
- AMPS ($r = .36$)
- FFMQ_OB ($r = .25$)
- FFMQ_DES ($r = .26$)
- FFMQ_DET ($r = .20$)
- FFMQ_AM ($r = .27$)
- FFMQ_LY ($r = .34$)
- ASTI ($r = .30$)

In addition, there was a positive correlation between participants' response to "how important is your religious or spiritual practice to you now" and both Paranormal beliefs ($r = .45, p < .0001$), and Paranormal experiences ($r = .50$).

Baseline Characteristics and Performance on Psi Tasks at Baseline

We then examined history of meditation practice at baseline and performance on psi tasks at baseline. Having seriously engaged in a meditation practice was negatively related to the jar intuition difference at pretest ($r = -.21$), but no other correlations were significant.

There were trends toward correlations between paranormal beliefs and time estimation difference ($r = -.16, p = .092$), meaning that time estimation trended toward being slightly more accurate in those with more paranormal beliefs vs. those with less. Importance of religion and spirituality in one's life showed a trend toward being associated with more accuracy on the remote viewing task ($r = .17, p = .063$), and with greater presentiment on the Bem task ($r = .20, p = .070$).

Pre-Post Comparisons

Prevalence and Saliency of Psi and Paranormal Experiences During Retreats

First we examined whether participants in the meditation group experienced more paranormal experiences during the two week study period than the comparison group. Overall, those who engaged in a meditation practice (and scored higher on the mindfulness variables) endorsed higher levels of paranormal experiences. At post-test, the meditation group ($M = 1.81, SD = .15$) was significantly more likely to report paranormal experiences over the preceding two week period than the control group ($M = 1.48, SD = .18$) ($p < .001$).

Additionally, in response to the question: "Was this experience important or meaningful to you?" rated from 1 to 100, the meditation group reported higher levels of meaning (M = 78.10, SD = 17.04) than the control group (M = 64.89, SD = 25.40), $p = .002$.

Changes in Psychosocial Measures and Psi Task Performance

Then we explored whether there were changes in psychosocial measures and psi task performance during the course of the two-week study period. We conducted a mixed-ANOVA comparing treatment and comparison groups (at pre-test and post-test, and examined the interaction between time and condition. We also tested for a main effect for time (e.g., whether all participants increased from time 1 to time 2) or condition (e.g., whether data from participants in the meditation group were significantly different from participants in the control group).

Psychosocial Measures

Results from measures of social connectedness, mindfulness, and self-transcendence are summarized in Table 2. Multiple psychosocial measures improved in the meditation group, including increased social connectedness, increased day to day mindfulness as measured by the AMPS, all five facets of the measure of tendency toward mindfulness (FFMQ) except the observing scale which was borderline significant at $p = .059$, and the measure of self-transcendence.

Table 2. Time and Condition Effects on Social, Mindfulness, and Self-Transcendence

• Social connectedness
○ No sig. ixn ($p = .456$)
○ Main effect time ($p = .062$), Time 2 higher
○ Main effect condition ($p = .074$), M group higher
• AMPS
○ Sig. ixn ($p = .008$), M group increased, C group decreased
○ No main effect time ($p = .545$)
○ Main effect condition ($p < .001$), M group higher
• FFMQ_OB
○ Sig. ixn ($p = .044$), M group increased, C group decreased
○ No main effect time ($p = .450$)
○ Main effect condition ($p = .059$), M group higher
• FFMQ_DES
○ ixn close ($p = .068$), M group decreased slightly, C group decreased more
○ Main effect time ($p = .010$), Time 2 lower
○ Main effect condition ($p = .029$), M group higher
• FFMQ_DET
○ Sig. ixn ($p = .012$), M group increased, C group decreased
○ No main effect time ($p = .172$)
○ Main effect condition ($p = .007$), M group higher
• FFMQ_AM
○ No sig. ixn ($p = .718$)
○ No main effect time ($p = .940$)
○ Main effect condition ($p = .021$), M group higher
• FFMQ_LY
○ No sig. ixn ($p = .601$)
○ No main effect time ($p = .471$)

○ Main effect condition ($p < .001$), M group higher
● ASTI
○ Sig. ixn ($p = .008$)
○ No main effect time ($p = .219$)
○ Main effect condition ($p < .001$)

Psi Task Performance

Changes in performance on psi tasks were examined over time for both groups and are summarized in Table 3 and Table 4. Our hypothesis based on previous retrospective studies is that performance on psi tasks would improve after meditation classes and retreats was not supported. No differences on any of the psi tasks were observed from pre- to post-meditation retreat, with the exception of the comparison group improving on accuracy of time estimation over the course of the study period ($p < .05$). With multiple comparisons, this may be a spurious result.

Table 3: Time and Condition Effects of Psi Tasks

● Bubble task
○ No sig. ixn ($p = .826$)
○ No main effect time ($p = .703$)
○ No main effect condition ($p = .194$)
● Jar task
○ No sig. ixn ($p = .686$)
○ No main effect time ($p = .928$)
○ No main effect condition ($p = .144$)
● Jar task (log)
○ No sig. ixn ($p = .213$)
○ Main effect time ($p = .092$), decrease from T1 to T2
○ No main effect condition ($p = .149$)
● Remote viewing task
○ No sig. ixn ($p = .451$)
○ No main effect time ($p = .786$)
○ No main effect condition ($p = .432$)
● Time estimation difference (numbers as is)
○ No sig. ixn ($p = .739$)
○ Main effect time ($p = .058$), decrease from T1 to T2
○ No main effect condition ($p = .275$)
● Time estimation difference (absolute value)
○ No sig. ixn ($p = .810$)
○ Main effect time ($p = .016$), decrease from T1 to T2
○ No main effect condition ($p = .130$)
● BEM
○ No sig. ixn ($p = .903$)
○ No main effect time ($p = .683$)
○ No main effect condition ($p = .185$)
● BEM (log)
○ No sig. ixn ($p = .924$)
○ Main effect time ($p = .087$), decrease from T1 to T2
○ No main effect condition ($p = .306$)

Table 4: Pre/Post Psi Task Performance in Meditation and Comparison Groups

Task	Meditation Pre	Comparison Pre	Meditation Post	Comparison Post	Meditation Pre/Post Change	Comparison Pre/Post Change
Bubble task	.003 (.07)	-.005 (.07)	.0005 (.07)	-.01 (.07)	.0002 (.106)	.006 (.103)
Bubble Task (Absolute Values)	.0773 (.0420)	.0803 (.0432)	.0765 (.0424)	.0767 (.0436)	.001 (.061)	-.010 (.069)
Bubble Task Last Only	.003 (.094)	.011 (.103)	-.012 (.093)	-.023 (.106)	.002 (.106)	.006 (.103)
Bubble Task Last Only Absolute Values	.074 (.058)	.084 (.060)	.070 (.062)	.0793 (.073)	-.004 (.083)	.005 (.095)
Jar intuition difference	301.55 (421.49)	232.65 (134.66)	259.55 (193.23)	230.80 (166.18)	-11.351 (503.115)	17.921 (229.817)
Jar intuition log difference	5.14 (.85)	5.05 (.89)	5.05 (.88)	4.77 (1.00)	.052 (1.290)	.346 (1.315)
Jar Intuition OverUnder	1.224 (.340)	1.211 (.353)	1.216 (.382)	1.132 (.307)	.007 (.384)	.079 (.054)
Remote viewing task	.19 (.05)	.20 (.06)	.20 (.06)	.19 (.06)	-.004 (.082)	.007 (.082)
RV Mean Difference from Chance	-.003 (.049)	-.003 (.057)	.001 (.066)	-.010 (.057)	-.004 (.082)	.007 (.082)
Time estimation difference	.620 (3.58)	.403(1.843)	.131 (1.932)	-.292 (1.570)	.488 (4.261)	.694 (2.338)*
Time estimation difference (Absolute Values)	2.357 (3.087)	1.903 (1.370)	1.787 (1.321)	1.435 (1.052)	.570 (3.052)	.468 (1.362)**
BEM	.00004 (.00002)	.00004 (.00002)	.00004 (.00003)	.00004 (.00003)	.000001 (.00004)	.000002 (.00003)
BEM Log	.03 (.01)	.02 (.01)	.02 (.02)	.02 (.01)	.004 (.021)	.004 (.019)

* T = 2.30, DF 59, p = .025

** T = 2.66, DF 59, p = .010

Summary data comparing paranormal experiences and beliefs for both the meditation and control groups at the beginning and end of the study are presented in Table 5.

Table 5. Summary Data of Paranormal Experiences and Beliefs

Measure	Meditation Pre	Control Pre	Meditation Post	Control Post
Paranormal Experiences total (1 = yes, 2 = no)	1.32 (.16)	1.57 (.22)	1.63 (.22)	1.84 (.19)
Paranormal Experiences total (1 = this has never happened to me, 6 = this happens all the time)	3.02 (.78)	2.08 (.67)	N/A	N/A
Paranormal Beliefs (1 = I believe in this, 3 = I do not believe in this)	1.27 (.28)	1.71 (.62)	N/A	N/A

Paranormal Beliefs (1 = I believe in this, 3 = I do not believe in this)	Meditation Pre	Control Pre	Meditation Post	Control Post
in the power of my mind to heal my own body	1.17 (.41)	1.45 (.64)	N/A	N/A
that people can heal other people through energy or prayer, even at a distance	1.20 (.43)	1.78 (.80)	N/A	N/A
that houses or places can retain negative energy or been haunted	1.31 (.50)	1.83 (.84)	N/A	N/A
that my consciousness is not limited by my physical brain and body	1.07 (.31)	1.35 (.62)	N/A	N/A
that it is possible to gain	1.10 (.34)	1.70 (.85)	N/A	N/A

information about distant events, people, or objects without using the traditional five senses				
that telepathy, or communication between minds can occur, even at a distance, without using conventional means of communication	1.11 (.32)	1.68 (.83)	N/A	N/A
that extraterrestrial beings have visited earth	1.83 (.63)	2.00 (.72)	N/A	N/A
that it is possible to gain information about the future, not only through deduction or inference	1.31 (.52)	1.85 (.83)	N/A	N/A
that some people can contact and communicate with people who have died	1.32 (.50)	1.83 (.90)	N/A	N/A
that the mind can directly influence matter	1.20 (.50)	1.73 (.78)	N/A	N/A
in life after death	1.23 (.45)	1.58 (.78)	N/A	N/A
that people sometimes access information from other dimensions or non-physical beings that is channeled or coming through them rather than from them	1.28 (.51)	1.78 (.89)	N/A	N/A

Paranormal Experiences (1 = yes, 2 = no)	Meditation Pre	Control Pre	Meditation Post	Control Post
Have you ever had a strong impression, intuition, dream, or vision about something that you could not have known about or expected at the time, but that you later learned had actually happened?	1.28 (.45)	1.40 (.50)	1.72 (.45)	1.85 (.36)
Have you ever seen, heard, or felt the presence of a deceased person?	1.27 (.44)	1.55 (.50)	1.61 (.49)	1.93 (.27)
Have you ever had an experience in which you seemed to be outside your physical body, so that you could see your body or your physical surroundings from a point of view outside it?	1.42 (.50)	1.65 (.48)	1.71 (.46)	1.90 (.30)
Have you ever had a serious medical condition that suddenly or unexpectedly resolved in a way that was apparently not the result of normal medical	1.73 (.45)	1.88 (.33)	1.87 (.34)	1.98 (.16)

intervention?				
Have you ever had a memory of something that you think might have happened to you in a previous life?	1.41 (.50)	1.68 (.47)	1.75 (.43)	1.90 (.30)
Have you ever had a particularly unusual coincidence that was so meaningful that you thought there must be some spiritual or universal force at work?	1.06 (.23)	1.25 (.44)	1.36 (.48)	1.73 (.45)
Have you ever seen colors or energy fields around people or things?	1.45 (.50)	1.83 (.38)	1.77 (.43)	1.88 (.33)
Have you ever felt like you were in communication or contact with someone distant from you without any conventional means of communication?	1.27 (.44)	1.63 (.49)	1.61 (.49)	1.80 (.41)
Have you ever known you were dreaming during your dream or been able to control your dreams?	1.22 (.42)	1.28 (.45)	1.52 (.50)	1.60 (.50)
Have you ever felt like you received information without any	1.15 (.36)	1.48 (.51)	1.38 (.49)	1.85 (.36)

traditional way of knowing the information?				
Have you ever felt healing "energy" from another person that had an effect on your body or mind?	1.10 (.30)	1.50 (.51)	1.35 (.48)	1.78 (.42)
Have you ever felt like you delivered or directed healing "energy" to another person that had an effect on their mind or body?	1.21 (.41)	1.75 (.44)	1.49 (.50)	1.80 (.41)
Have you ever had a strong impression, intuition, dream, or vision of something before it occurred, and that you could not have anticipated or expected to happen?	1.68 (.47)	1.58 (.50)	1.78 (.42)	1.85 (.36)
Have you had any other experience that you would consider "paranormal?"	1.69 (.47)	1.73 (.45)	1.84 (.37)	1.95 (.22)

Paranormal Experiences (1 = this has never happened to me, 6 = this happens all the time)	Meditation Pre	Control Pre	Meditation Post	Control Post
Have you ever had a strong impression, intuition, dream, or vision about	2.87 (1.47)	2.50 (1.43)	N/A	N/A

something that you could not have known about or expected at the time, but that you later learned had actually happened?				
Have you ever seen, heard, or felt the presence of a deceased person?	2.99 (1.53)	2.03 (1.37)	N/A	N/A
Have you ever had an experience in which you seemed to be outside your physical body, so that you could see your body or your physical surroundings from a point of view outside it?	2.44 (1.52)	1.70 (1.14)	N/A	N/A
Have you ever had a serious medical condition that suddenly or unexpectedly resolved in a way that was apparently not the result of normal medical intervention?	1.44 (.89)	1.23 (.73)	N/A	N/A
Have you ever had a memory of something that you think might have happened to you in a previous life?	2.54 (1.45)	1.75 (1.32)	N/A	N/A

Have you ever had a particularly unusual coincidence that was so meaningful that you thought there must be some spiritual or universal force at work?	4.27 (1.25)	3.30 (1.65)	N/A	N/A
Have you ever seen colors or energy fields around people or things?	2.48 (1.61)	1.33 (.92)	N/A	N/A
Have you ever felt like you were in communication or contact with someone distant from you without any conventional means of communication?	3.30 (1.71)	1.98 (1.42)	N/A	N/A
Have you ever known you were dreaming during your dream or been able to control your dreams?	3.37 (1.58)	3.08 (1.47)	N/A	N/A
Have you ever felt like you received information without any traditional way of knowing the information?	3.82 (1.48)	2.38 (1.48)	N/A	N/A
Have you ever felt healing "energy" from another person that had an effect on your	3.92 (1.35)	2.28 (1.47)	N/A	N/A

body or mind?				
Have you ever felt like you delivered or directed healing "energy" to another person that had an effect on their mind or body?	3.66 (1.69)	1.58 (1.15)	N/A	N/A
Have you ever had a strong impression, intuition, dream, or vision of something before it occurred, and that you could not have anticipated or expected to happen?	2.85 (1.56)	2.33 (1.29)	N/A	N/A
Have you had any other experience that you would consider "paranormal?"	1.69 (.47)	1.73 (.45)	N/A	N/A

Plans for Follow-Up Analyses & Publication

We are in the process of manuscript preparation, and will publish these results in a peer-reviewed journal. We also intend to engage in a number of post-hoc analyses, which will be identified as such in any publications resulting from this work. To determine whether background characteristics moderate the results, ANCOVAs will be performed for categorical variables and multiple regressions for continuous variables. Mediation analyses will be conducted to determine whether meditation experiences during the retreats or classes mediate any of the outcomes observed. We will also examine whether some participants did improve in psi task performance, and examine whether baseline or meditation retreat variables (such as, which retreat? What kind of meditation? Did they have any extraordinary experiences during the retreat?) can predict who is in the high performing group.

Conclusions and Recommendations

Our overarching research question was whether people engaging in intensive meditation retreats and classes over a brief period of time would have mystical and paranormal experiences, and whether their performance on psi tasks would improve. This question is rooted in the theory that subjective experiences of oneness, interconnectedness, timelessness, and dissolution of ordinary limits of perception might have some basis in reality, and lead to increases in intuition and extrasensory perception. Our project examined 78 people enrolling in

intensive meditation classes and retreats, as well as a comparison group of 40 people not engaging in meditation retreats (primarily to rule out practice effects if performance on tasks did improve, and to compare how prevalence of paranormal and psi experiences during retreats would compare to a more normative sample).

While there were no significant association of engaging in meditation retreats with performance on psi tasks, several other findings were notable.

The best evidence for meditation potentially impacting paranormal experiences comes from the correlations at pretest. Those who said they had engaged in a meditation practice (and scored higher on the mindfulness variables) were more likely to report paranormal and psi beliefs and experiences as a part of their history. Reporting those beliefs and experiences was in turn significantly associated with history of meditation practice, openness to experience, several facets of mindfulness (the ability to engage with moment to moment experiences with an accepting, curious, and nonjudgemental/nonreactive stance), and scores on a measure of self-transcendence (feeling connected to something larger than oneself, self-knowledge and integration, peace of mind, nonattachment, presence in the here and now). Self-rated importance of religious and spiritual practice in one's life was also significantly correlated with paranormal beliefs and experiences.

There were some tantalizing trends at baseline in the overall sample, showing that a higher amount of meditation practice was associated ($r = -.21$) with a more accurate estimation of how many small items (such as M&Ms) were in a jar, in an image flashed too quickly to be counted (or conversely, a lower amount of meditation practice associated with a larger difference between the estimated number of items in the jar and the actual number of items). In addition, paranormal beliefs trended toward being associated with more accurate time estimation ($p = .092$). And, self-rated importance of spiritual and religious practices exhibited nonsignificant trends of being associated with more accuracy on the remote viewing task ($p = .063$), and greater presentiment on the Bem task ($p = .070$). Since these analyses utilized the whole sample, it may be that increased power is needed to detect associations of meditation with psi tasks. It also may be that people who have paranormal experiences are naturally drawn to meditation, and the combination of the two over the lifespan leads to effects on psi performance, as opposed to an acute effect that could be observed to result from an intensive retreat.

Nearly all of the psychosocial measures were significantly improved over the course of the meditation retreat period, both within subjects and when compared to the comparison group. This is not a surprise given the robust body of evidence linking meditation practice with an array of positive psychosocial outcomes. In addition, the group engaging in meditation retreats demonstrated increased mindfulness scores over time, and their mindfulness scores were positively associated with reporting higher levels of paranormal experiences both before and during the meditation retreat. The meditation retreat group reported more paranormal experiences during the two-week study period than the comparison group, and reported that these experiences were more important or meaningful to them than the comparison group.

We conclude that this study provides enough evidence to warrant a more sophisticated examination of the relationship between meditation, paranormal and psi beliefs and experiences, and performance on psi tasks. We recommend that future research utilize both historical lifespan variables to predict psi performance, along with prospective designs that follow people for more than two weeks of practice. We also recommend increased sample sizes, to increase power, and studies that utilize a controlled design. Based on this preliminary data, we intend to further our research by conducting a randomized controlled prospective trial

in which we randomly assign participants to either an intensive meditation group or an active control group that does not involve meditation, but controls for time and engagement. Such a design will help further explore the prevalence of extraordinary experiences and psi abilities in both populations and over time. We also wish to explore the endorsed impact of such experiences or abilities upon the individuals experiencing them. We will employ assessment strategies already developed to help capture information regarding psi performance in real time in order to assess whether people experience enhanced intuitive ability (i.e. psi) as a result of learning meditation and explore what this means to them.

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Appendix: PSI TASKS

Measuring: Intuition

Task name: Object counting task

Acronym (if applicable):

Validated: No

Number of items: 1

Description: The Object Counting Task investigates intuition. "Intuition is the ability to understand immediately without conscious reasoning and is sometimes explained as a 'gut feeling' about the rightness or wrongness of a person, place, situation, temporal episode or object." The participant is presented with a picture of a jar containing items. The image is displayed very briefly such that they are not able to consciously count the number of items. The participant guesses how many items they believe are in the jar. The participants are shown different images at their pre- and post-assessments.

Scoring: The participants enter the number that they think corresponds to the quantity of objects contained in the jar. The closer it is to the actual number, the more accurate is the intuitive response of the participant, which corresponds to a smaller score.

Psychometric properties: NA

References: NA

Measuring: Clairvoyance

Task name: Remote viewing

Acronym (if applicable): RV

Validated: No

Number of items: 10 trials

Description: Remote viewing is a mental faculty that allows a perceiver to describe or give details about a target that is inaccessible to normal senses due to distance, time, or shielding. For this task, a blank frame is displayed in the center of the screen, and 5 photos are displayed below it. The participant chooses which of the 5 images they think will appear in the blank space. After they select the picture, the target picture is shown in the blank frame and the participant may press a button to move to the next trial. The participant completes 10 trials.

Scoring: Percentage of “hits” are recorded, and distance from proportion correct expected by chance is calculated (investigator-developed).

Psychometric properties: NA

References: Targ, R. and H. Puthoff, *Information transmission under conditions of sensory shielding*. Nature, 1974. 251(5476): p. 602.

May, E. C., Marwaha, S. B. (2014). *Anomalous Cognition: Remote Viewing Research and Theory*. McFarland Publishers.

Measuring: Intuition

Task name: Time estimation

Acronym (if applicable):

Validated: No

Number of items: 1

Description: People’s perception of time is changed during altered states of consciousness such as meditation. The time estimation task evaluates the participants’ perceived passage of time. The participant is asked to estimate 10 seconds. The participant pushes a button to start the task and then pushes it again when he/she thinks 10 seconds has passed. Time perception encompasses different time experiences (interval length estimation and perceived speed of time passage).

Scoring: Deviation from the actual time passed

Psychometric properties: NA

References:

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Measuring: Precognition

Task name: Retroactive priming BEM task

Acronym (if applicable): none

Validated: Yes

Number of items: 40

Description: The procedure is identical to experiment 4 of Bem’s series (2011), which is a fast-thinking protocol using retrocausal priming. In each trial an image was randomly selected and displayed to the subject, followed by a randomly selected incongruent or congruent priming word. Participants were instructed to identify images as “pleasant” or “unpleasant” as quickly as they could by pressing the corresponding key; after participants responded to the priming word flashed briefly. A total of 20 “unpleasant” and 20 “pleasant” images followed by a randomly selected priming word (20 congruent and 20 incongruent) were shown. These images were from a standard IAPS (International Affective Picture System) set, as used in Bem’s original study.

Scoring: Speed of response & accuracy of response for congruent and incongruent trials.

Psychometric properties: In 2011, Bem reported 9 experiments that tested for retroactive influence by time-reversing well-established psychological effects so that the individual’s responses were obtained before the putatively causal stimulus events had occurred (Bem, 2011). A meta-analysis conducted shows that these results seem to be validated in subsequent replication (Bem et al., 2016). Other researchers attempted to replicate some of the experiments online and were not successful (Galak et al., 2012).

References:

- Bem, D. Feeling the Future: Experimental Evidence for Anomalous Retroactive Influences on Cognition and Affect. *Journal of Personality and Social Psychology*, 100, 407-425, 2011.
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Links: <https://f1000research.com/articles/4-1188/v1>

Measuring: Psychokinesis

Task name: Bubble Task

Acronym (if applicable):

Validated: No

Number of items: 1

Description: The bubble task is a psychokinetic task. Small bubbles are moving on the screen and the participant is asked to concentrate to make the bubbles form a circle for 15 seconds. The participants then relax for 15 seconds. The movement of the bubbles to form a circle is linked to a random number generator. The normal function of the random number generator results in a value of zero for this task. If the participant is able to affect the random number

generator, then their values would deviate away from zero. Greater numbers represent a greater psychokinetic effect.

Scoring: Difference between mean random number (as well as standard deviation of random numbers) during the focus period compared to rest periods

Psychometric properties:

References: Radin, D. I. (2013). *Entangled Minds*. New York: Simon & Schuster.

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Measuring: Divergent thinking

Task name: Guilford Creativity Task

Acronym (if applicable):

Validated:

Number of items: 1

Description: Participant is given 2 minutes to write down as many uses of a common item as possible. Participants received a different image at baseline and endpoint visits.

Images

Image 1 - Newspaper

Image 2 - Brick

Image 3 - Paper or envelope

Image 4 - Hanger

Scoring:

Step 1. Fluency - Look at the response of each participant and count the number of acceptable responses. An unacceptable response is one that is not possible. Place number of acceptable items in column G for Use1 (column F) and column M for Use2 (column L).

Step 2. Flexibility – categorize each word in the response by category of use. For the brick example, building a house, building a chimney, building stove would all be the same category, whereas building a house (building), throwing at a person (weapon), a doorstep (weight) would be three separate categories.

Step 3. Elaboration – rate the responses for amount of detail (for Example "a doorstep" = 0 whereas "a door stop to prevent a door slamming shut in a strong wind" = 2 (one for explanation of door slamming, two for further detail about the wind) and a rating of 1 would be in between those examples.

Step 4. Originality – This will take some creative problem solving to figure out how to do this for this dataset. The overall objective is to evaluate the originality of the person's responses compared to the responses of the other people in the dataset. Each response is compared to the total amount of responses from all of the people you gave the test to. Responses that were given by only 5% of your group are unusual (1 point), responses that were given by only 1% of your group are unique - 2 points). Total all the points. Higher scores indicate creativity. This will take some manipulation of the dataset.

Psychometric properties:

References:

Guilford, J. P. (n.d.). Creativity: Yesterday, Today and Tomorrow. *Journal of Creative Behavior*, 1(1), 3–14.

Links: <https://www.mindgarden.com/>

http://curtbonk.com/bobweb/r546/modules/creativity/creativity_tests/guilford_uses_task.html