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RESEARCH NOTE

REVISED People who report anomalous information reception have higher dissociation symptom scores [version 2; peer review: 1 approved, 1 approved with reservations, 1 not approved]

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Abstract

Background: Dissociative states exist on a continuum from nonpathological expressions, such as highway hypnosis and day-dreaming, to pathological states of derealization and depersonalization. Claims of communication with deceased individuals or mediumship have been dismissed as dissociative symptoms in the past, although current definitions of dissociative pathologies have been qualified to include distress from the disorder and functional disability. This study examined the relationship between dissociative symptoms and mediumship or anomalous information reception (AIR) in a large convenience sample.

Methods: Secondary analyses of cross-sectional survey data were conducted. The survey included demographics, the Dissociation Experience Scale Taxon (DES-T), and AIR data. Summary statistics and linear and logistic regressions evaluated the relationship between dissociative symptoms and AIR endorsement with and without covariates.

Results: 3,023 participants were included and were mostly middle-aged (51 years $\pm$ 16; range 17-96), female (70%), Caucasian (85%), college educated (88%), had an annual income over \$50,000 (55%), were raised Christian (71%) and now affiliated as Spiritual but not Religious (60%). AIR ability was endorsed by 42% of participants. AIR experiences usually began in childhood (81%). Also, 53% had family members with similar AIR experiences. The mean DES-T score was 14.4 ± 17.3 (range 0-100) for all participants and was significantly higher for AIR claimants (18.2 ± 19.3) non-claimants (11.8 ± 15.2 ; $t = -10.3$, $p < 0.0005$). In total, 11% of non-claimants and 22% of claimants had a cut-off score greater than 30 ($X^2 = 63.0$, $p < 0.0005$).

Conclusions: Mean DES-T scores for all participants were lower than a

Open Peer Review

Approval Status

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version 3			
(revision)
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version 2			
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version 1
10 Aug 2017	view		

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2. **Colin A. Ross**, The Colin A. Ross Institute for Psychological Trauma, Richardson, USA

3. **Adrian Parker**, University of Gothenburg, Gothenburg, Sweden

Any reports and responses or comments on the article can be found at the end of the article.

clinical cutoff for pathological dissociation. Future studies comparing AIR claimants and non-claimants may benefit from using a more comprehensive measure of dissociative symptoms. In addition, evaluating the participant's functional impairment would help discern the pathological versus non-pathological nature of purported AIR experiences.

Keywords

Dissociation, Anomalous information reception

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Author roles: **Wahbeh H:** Conceptualization, Data Curation, Formal Analysis, Investigation, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; **Radin D:** Conceptualization, Funding Acquisition, Methodology, Supervision, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

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The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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REVISED Amendments from Version 1

We have improved the manuscript based on feedback from our first reviewer. This version (within the constraints of a 1000 word article) includes clearer language, additional references and context of the larger literature, corrections in statistical reporting, and the addition of a Bonferroni multiple comparisons correction for the significance value cutoff.

See referee reports

Introduction

Dissociation is conceptualized as the disruption to usually integrated functions of consciousness, memory, identity or perception of the environment¹. Dissociative Identity Disorder is defined as a personality disorder, when two or more distinct identities or personalities are present, each with its own pattern of perceiving, relating to and thinking about the environment and self. The core clinical symptoms of dissociative disorders include amnesia, depersonalization, derealization, identity confusion and identity alteration. Dissociative states are prevalent in other psychiatric disorders, such as PTSD², and are more prevalent in younger non-clinical populations³. Dissociative states exist on a continuum⁴⁻⁶, from nonpathological expressions, such as highway hypnosis and day-dreaming, to pathological states of derealization (surrealness), and depersonalization (absence of identity)⁷. Almost half of United States adults have experienced a dissociative episode in their lives⁸.

A widespread belief possibly related to dissociative symptoms is the idea that it is possible to communicate with deceased individuals; people who report such experiences are called “mediums”⁹. A survey of 18,607 people in the United States and thirteen European countries found that 25% reported contact with the dead¹⁰. Some empirical literature suggests that in some cases the information obtained is accurate even under double-blind conditions¹¹⁻¹⁴. Claims of such abilities have been considered symptoms of dissociative disorders^{5,15,16}. However, studies have not systematically demonstrated pathological dissociation in people who maintain mediumship claims compared to control groups or the general population^{17,18}. Also, the Diagnostic and Statistical Manual of Mental Disorders (5th edition) requirements for pathological DID now include that “the person must be distressed by the disorder or have trouble functioning in one or more major life areas because of the disorder” and that “the disturbance is not part of normal cultural or religious practices”¹.

In an effort to further our understanding on this topic, this study’s aim was to examine the relationship between self-report dissociative symptoms and anomalous information reception (AIR) about deceased humans in a large convenience sample of surveyed adults. We hypothesized that the prevalence of dissociative symptoms in people who claim these purported abilities would be the same as in those who do not maintain such claims.

Methods

Analyses were performed on data collected during a larger research study approved by the Institute of Noetic Sciences (IONS) Institutional Review Board (approval number, wabh_2016_01). A survey was administered through SurveyMonkey.com with HIPAA compliant methods. Participants were recruited through the IONS Facebook page, IONS mailing lists, including the IONS membership list, and the IONS community networks.

The survey ([Supplementary File 1](#)) began with the study’s purpose and informed consent details. Date and country of birth, race, education, and childhood and current spiritual/religious affiliation were collected. Gender was collected on a subsample of participants. Participants indicated if they had experienced AIR or “mediumship,” defined as the “ability to mediate communication between spirits of the dead and the living or the empathic ability to feel the presence and energies of spirits,” age of onset (if applicable), and family history of AIR.

Measure

Participants then completed the Dissociation Experiences Scale Taxon (DES-T)³ that distinguishes pathological dissociation with a cutoff score of 30 with an 87% positive predictive value (Cronbach Alpha of 0.75)^{19,20}. Respondents select a percent frequency for eight dissociative symptoms. The DES-T results in two variables: the mean of the eight items; and a binary variable based on the >30 cutoff score³.

Statistical analysis

Categorical variable percentages were calculated and presented qualitatively. Means, standard deviations and ranges of continuous variables were calculated. Covariates included gender, age, race, education, income, childhood spirituality and current spirituality, family history, and age of the claimed ability onset. Missing values were randomly distributed except for gender. T-test and chi-square tests evaluated differences between variables by AIR status. Linear and logistic regressions examined the relationship between dissociative symptoms scores and AIR status. A conservative Bonferroni multiple comparison correction was applied to the α significance value designating 0.003 as the cutoff for a significant result ($\alpha = 0.05$ divided by 19 items analyzed: seven demographic items, eight DES-T items, DES-T total, DES-T cut-off, linear and logistic regression). Statistics were performed with Stata 12.0 (StataCorp LLC, College Station, Texas).

Results

In total, 3984 participants took the survey from May 4, 2016 to June 7, 2017. Participants were not required to complete all fields and thus only data from 3023 participants who answered the “AIR” question (question 49 of the survey) and completed the DES-T (question 75) were included. Most participants were from the United States (62.6%) followed by the United Kingdom (7.7%) and then Canada (6.3%), and the remaining participants represented thirteen other countries. Participants were mostly middle aged (51 years $\pm$ 16; range 17–96), female (70%),

Caucasian (85%), college educated (88%), had an annual income over \$50,000 (55%), were raised Christian (71%), and now affiliated as Spiritual but not Religious (60%; [Table 1](#)). Current spiritual/religious affiliation was different by AIR status.

AIR ability was endorsed by 42% of participants, with their first experience starting in childhood (81%), and 53% having family

members with similar experiences. The mean DES-T score was 14.4 ± 17.3 (range 0-100) for all participants and was significantly higher for AIR claimants (18.2 ± 19.3) compared to non-claimants (11.8 ± 15.2 ; $t = -10.3$, $p < 0.0005$; [Table 2](#)). A linear regression model for DES-T total score and AIR status including all covariates found only race and education to be significant ($F(3, 2947) = 73.2$, $p < 0.0005$). For the DES-T binary cutoff

Table 1. Demographic variables for participants by purported ability for anomalous information reception about deceased humans. Mean, $\pm$ - standard deviation, t - Student's two-sample t-test statistic, X^2 - chi-square statistic, p - probability. * = significant at Bonferroni corrected $\alpha = 0.003$.

	Anomalous Information Reception		N	t/ X^2	p
	Yes N - 1,257	No N - 1,766			
Age	51.7 ± 14.3	51.4 ± 16.4	2751	-0.4	0.68
	Range (17-96)	Range (17-89)			
Gender (% Female)	80.0%	67.2%	519	5.99	0.01
Race (% Caucasian)	86.5%	83.6%	2970	4.76	0.03
Education (% $\geq$ some college)	87.3%	88.9%	2977	1.66	0.20
Income (% $\geq$ \$50,000 annual income)	38.6%	35.7%	2768	2.32	0.13
Childhood Spiritual/Religious Affiliation (% Christian)	71.7%	70.6%	2986	0.44	0.51
Current Spiritual/Religious Affiliation (% Spiritual but not religious)	65.9%	56.1%	2991	29.6	<0.0005*

Table 2. The eight item and total means, standard deviations, and mean difference sorted by highest mean percentage by AIR endorsers. * = significant at Bonferroni corrected $\alpha = 0.003$.

DES-T Item	Yes (n=1257)	No (n=1766)	Mean Difference	t	p
5. Some people sometimes have the experience of feeling that other people, objects, and the world around them are not real.	25.8 ± 32.0	17.5 ± 26.7	8.3	-7.7	<0.0005*
8. Some people sometimes find that they hear voices inside their head which tell them to do things or comment on things that they are doing.	25.5 ± 33.5	13.7 ± 25.7	11.8	-11.0	<0.0005*
3. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see themselves as though they were looking at another person.	22.2 ± 29.8	12.9 ± 22.9	9.3	-9.7	<0.0005*
7. Some people find that in one situation they may act so differently compared to another situation that they feel almost as if they were two different people.	21.5 ± 30.6	17.6 ± 28.2	3.9	-3.6	<0.0005*
6. Some people sometimes have the experience of feeling that their body does not seem to belong to them.	20.6 ± 30.0	13.4 ± 24.5	7.2	-7.2	<0.0005*
1. Some people have the experience of finding themselves in a place and having no idea how they got there.	13 ± 23.3	7.8 ± 17.2	5.2	-7.06	<0.0005**
2. Some people have the experience of finding new things among their belongings that they do not remember buying.	10.4 ± 21.5	6.9 ± 17.4	3.5	-4.95	<0.0005
4. Some people are told that they sometimes do not recognize friends or family members.	6.6 ± 17.7	4.3 ± 14.3	2.3	-4.0	.0001*
Total	18.2 ± 19.3	11.8 ± 15.2	6.4	10.3	<0.0005*

score, 11% of AIR non-endorsers and 22% of AIR endorsers had a cut-off score greater than 30 ($X^2 = 63.0$, $p < 0.0005$). A logistic regression of the DES-T binary cutoff score and AIR status was significant with education (> college) and income (>\$50,000) as significant covariates (LR $X^2 = 99.12$, $p < 0.0005$).

Dataset 1. Dissociation symptoms for those with and without self-report anomalous information reception

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DT# are the Dissociation Experience Scale Taxon items.

Discussion

In total, 42% of participants endorsed the “ability to mediate communication between spirits of the dead and the living or the empathic ability to feel the presence and energies of spirits” in this convenience sample. The prevalence of “contact with the dead” in other studies is variable: 10%²¹, 25–30%¹⁰, 29%²², and 42%²³. The overall mean dissociation experience score for AIR claimants fell below the clinical cutoff for pathological dissociation despite being higher than and different to non-claimants scores. Much debate exists for the use of cutoff scores^{3,24}. Notably, the top five endorsed DES-T items were consistent with an AIR experience. Also, our total samples grand mean DES-T score was higher than observed in random general population samples¹⁹. This likely reflects the convenience sampling method for this survey, which reduces the generalizability of these findings. This outcome also

does not clarify if AIR endorsers with high DES-T scores have the five core clinical symptoms of dissociation¹. Future studies comparing AIR claimants and non-claimants may benefit from the using a more comprehensive measure of dissociative symptoms. In addition, evaluating participant’s functional impairment would help discern the pathological versus non-pathological nature of purported AIR experiences.

Data availability

Dataset 1: Dissociation symptoms for those with and without self-report anomalous information reception. DT# are the Dissociation Experience Scale Taxon items. doi, [10.5256/f1000research.12019.d171352](https://doi.org/10.5256/f1000research.12019.d171352)²⁵

Competing interests

No competing interests were disclosed.

Grant information

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The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Acknowledgements

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Supplementary material

Supplementary File 1: Survey on genetics of psychic ability.

[Click here to access the data.](#)

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[Data Source](#)

Open Peer Review

Current Peer Review Status:

Version 2

Reviewer Report 01 December 2017

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Adrian Parker

Department of Psychology, University of Gothenburg, Gothenburg, Sweden

The version I have seen is basically sound but needs some attention to the issues that I raise below. As a native (UK) English speaker, I can endorse that the English in this version is correct (with the exception of a couple of missing words noted below) and clear. The statistical treatments are appropriate and are judged to be correct. The study has some importance relating to the efforts to distinguish little understood spiritual and transpersonal experiences from the more bizarre and perhaps pathological ones.

Given the major constraints of the word count then the paper is acceptable but it is less than commendable that no hint of the complexity of the issues has been made in the paper. The article focuses rather exclusively on one singular conception of dissociation – that by Colin Ross and co-workers and their the DES-T scale. According to this view there is a normal continuum to dissociative experiences along with a cut-off point for the more bizarre types of experiences, which are seen then as an expression of pure pathology. The eight questions from DES-T that were selected for this study are those highlighting this potential diagnosis. There are of course other conceptions – such as those of Watson and co-workers - and at least a half dozen other tests of dissociation (Watson, 2001¹; Watson & Loftus, 1999²). The authors write “Claims of such abilities have been considered symptoms of dissociative disorders” which is partially true but it is equally true that contact with dead (or even living) spirits is often considered to be symptomatic of individuals being psychosis-prone that is schizotypy – and if there is no distress to warrant a main DSM-diagnosis or DSM axis of personality disturbance - then this is labeled “happy schizotypy”. Indeed, found amongst the authors’ battery of tests and questions which number some 70 or more, are a set relating to just this. From this presentation it is clear that this study is only a minor part of a larger one, which will be or is being “milked” for several papers. This is of course nowadays a standard practice (but involving naturally some major weaknesses) with internet studies. What is perhaps here rather misleading is that the study is presented to the potential responders as “a study of genetics of extended human experience” – a presentation which might be considered a little disingenuous in the context of the issues in the current paper(s).

This brings up the issue of what I think needs to be dealt with before indexing: how the context of

the presentation might have influenced the major finding that the authors report and which the reviewer Prof. Ross attributes much importance to, namely that mediumship claimants were twice as likely as non-claimants to end up on the ill-side of the pathology cut-off. Although together 42% of the respondents endorsed communicating with the dead - the so-called "AIR experiences", it should be emphasized that AIR experiences were not the same as trance in that so-called channeling and clairsaudience experiences might fall under this. Indeed it is surprising that a simple question concerning trance states does not seem to have been included since such individuals might have formed an interesting core group. The Noetic Sciences website under the aegis of which the (SurveyMonkey) study was conducted, is dedicated to studying "interconnectiveness" so it seems likely that those viewing the website and willing to answer the huge multitude of questions were highly motivated to confirm the mission of the website. This may well have created response biases. The authors write: "Notably, the top five endorsed DES-T items were consistent with an AIR experience." (Personally I think the addition of yet another acronym and neologism in the form of AIR only adds confusion to the overlaid terminology in this field - it would surely have been better to keep to the explicit term mediumship.). Accordingly I think their comment should be extended here so as to make some concession as to how the above findings can be vulnerable to the above mentioned influence.

Page 1 line 6 from bottom: should read than non-claimants

Page 3 line 3 from bottom should read (presumably) of pathological dissociative

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Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Partly

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reader Comment 19 Dec 2017

Helané Wahbeh

Thank you for your thoughtful comments to our manuscript. We have revised the manuscript in an attempt to address your feedback.

Regarding complexity of dissociative pathology:

We have added a sentence about this in the discussion and included another sentence and reference about schizotypy.

Regarding larger dataset.

Additional language was added to the manuscript to clarify that this manuscript included a secondary analysis of data collected from a study with very different research questions. The survey included “a study of genetics of extended human experience” since that was the purpose of the larger study through which the data was collected. This secondary analysis was not a research question or aim of that study. The results of that study will be submitted for publication when it is complete.

Regarding mediumship versus the other AIR experiences surveyed.

Yes, we agree we are very interested in such relationships. We are working on another analyses that will explore the relationship of the different AIR data collected in this and other studies in a full-length research paper. We were particularly interested in the mediumship and dissociation relationship and thus, evaluated this relationship in the data in this short report.

Regarding AIR versus mediumship terminology.

We agree this language likely confuses the issue. We have replaced AIR with mediumship throughout.

Competing Interests: No competing interests were disclosed.

Reviewer Report 06 November 2017

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Colin A. Ross

The Colin A. Ross Institute for Psychological Trauma, Richardson, TX, USA

This is an interesting study with a large N. Within the limitations of the methodology, it tells us that individuals with anomalous information reception (AIR) tend to be somewhat more dissociative than those without such experiences. This is consistent with prior literature. The study would have been stronger if the taxometric statistical analysis had been applied to the 8 DES-T items (available at www.isst-d.org), and if the full 28-item DES had been administered, but this would have made for a lengthy survey. The sample population is more dissociative and has more AIR than the general population and this provides interesting information about IONS members and affiliates that I don't think has been published before. As Dr. Cardena noted, the references could have been more extensive, but I would say they are sufficient for a brief report.

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

I cannot comment. A qualified statistician is required.

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Dissociative disorders, psychological trauma

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 21 August 2017

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This paper is a good example of why the F1000Research model is so bad... The manuscript is poorly written, does not show a good grasp of the relevant literature or that a good literature search was conducted, misrepresents some of its references, and very probably has an important mistake in a Table or its analyses. All of these issues could have been solved during the regular peer review process so that at the end the only publicly available version would have been an adequate one.

Although it is a short paper, it would take me too long to list all of the problems in it, so I will just mention 2-3 examples per problematic issue:

1. Poor writing:

From the abstract: a) "symptoms of [a] dissociation [dissociative] disorder". b) "Both AIR claimants and non-claimants scored lower than the clinical cutoff" [despite the previous sentence in the abstract mentioning that percentages of both groups had scored above the cutoff. c) "incorporating [a] comprehensive dissociative symptom measurement, as well as their effects on the person's functionality" [grammatical number is inconsistent, besides the fact that "measurement[s]" would not have an effect on functionality.

2. Inadequate coverage of the literature:

a) There have been various recent studies specifically evaluating possible psychopathology in people reporting anomalous experiences (in general) and spirit possession/mediumship (in particular), yet only very few are listed in the Reference section. b) Contrary to what the authors write that "Claims of such abilities are often considered to be symptoms of dissociation [dissociative] disorders", yet both the anthropological literature and, more relevant in this case, the Diagnostic and Statistical Manual taxonomy, ever since its 4th edition, has specifically required that clinically significant levels of distress or dysfunction be present to consider a dissociative manifestation pathological.

3. Misrepresentations of cited literature:

a) A paper by Rebecca Seligman is used to support the above quotation that mediumship abilities are often considered to be symptoms of dissociation, yet she specifically states that "dissociation is not a pathological experience, but rather a therapeutic mechanism", along the lines of what others in anthropology and psychology have written. b) "Almost half of United States adults...", yet this study was conducted in Winnipeg, Canada.

4. Statistical issues:

a) In Table 1, a 3% difference (87 vs 84%) is reported as significant at the minus .05 level, yet an almost identical difference with about the same number of participants (87 vs 89%) is reported as non-significant. I very much doubt that both statements, particularly the first one, are accurate. b) There are multiple references to probability values = 0 or less than 0, but of course it goes against inferential statistics to state that instead of, for example, less than .001, or whatever.

Is the work clearly and accurately presented and does it cite the current literature?

No

Is the study design appropriate and is the work technically sound?

Partly

Are sufficient details of methods and analysis provided to allow replication by others?

No

If applicable, is the statistical analysis and its interpretation appropriate?

No

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

No

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to state that I do not consider it to be of an acceptable scientific standard, for reasons outlined above.

Author Response 10 Oct 2017

Helané Wahbeh

Response to Reviewer #1

"This paper is a good example.....so that at the end the only publicly available version would have been an adequate one."

-Thank you for you taking the time to review our paper and for your thoughtful comments. Yes, we agree that through the traditional peer-review process, the final public version is superior to initial versions. We appreciate the transparent nature of F1000 review process as a way to reduce bias in publishing.

"Poor writing"

-Thank you for highlighting writing errors in our manuscripts. We have corrected the highlighted grammatical errors and unclear wording. We have also reviewed the entire paper for other writing errors.

"Inadequate coverage of the literature"

-We agree that the paper does not fully examine the literature related to this topic. The reason for this is the word count limits of a short article (1000 words). We have included additional references and attempted to succinctly include a broader understanding of the current literature.

"Misrepresentations of cited literature"

a) A paper by Rebecca Seligman

- *Rebecca Seligman also states "Medical approaches to the question have implicated psychological disturbance as a motivational factor for some, yet they fail to explain how and why some psychological disturbances, in some individuals, come to be expressed as spirit-possession mediumship." She also has a very nice discussion in the section "MEDIUMSHIP AND MENTAL ILLNESS REVISITED" on mediumship being considered a pathology. Because of the word limitations, we did not highlight the specific sections of her paper that refer to these issues but allow the reader to read the paper to appreciate the full scope of the discussion of mediumship and mental illness.*

b) "Almost half of United States adults...", yet this study was conducted in Winnipeg, Canada.

-*This reference has been corrected.*

"Statistical issues"

a) In Table 1, a 3% difference (87 vs 84%) I very much doubt that both statements, - particularly the first one, are accurate."

-*These statistics have been double checked and they are accurately represented. We have also included a conservative Bonferroni multiple comparisons correction.*

b) There are multiple references to probability values = 0 or less than 0, but of course it goes against inferential statistics to state that instead of, for example, less than .001, or whatever.

-*The p statistic reporting has been corrected.*

Competing Interests: We have no competing interests to disclose

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