Reviewer’s report

Title: A survey on beliefs and attitudes of trainee surgeons towards placebo

Version: 0 Date: 28 Feb 2016

Reviewer: Sam Adie

Reviewer's report:

Thank you for the opportunity to review this paper.

The authors have conducted an email survey on the knowledge and attitude towards placebo (and in particular placebo surgery), amongst orthopaedic surgery trainees in the UK.

The authors should be congratulated. The topic of placebo surgery is interesting, important and under-explored. Placebo or sham surgery is a rare thing in surgical randomised trials, but is nonetheless essential if the truth is to be elaborated on the benefits and harms of surgical procedures.

The authors found that most trainees have a good understanding of placebo, and most are willing to participate in a placebo controlled trial. But there remain a significant proportion of respondents who don't understand the role of placebo both in clinical practice and in research. The manuscript is well written and easy to follow and understand. The authors have provided details of the survey conducted, which has some validity given it has been used in a previously cited paper on consultant orthopaedic surgeons. The results are appropriately interpreted and the discussion is concise.

Main points-

As the authors have pointed out, difficulties were faced with determining the size of the target population. The response rate cannot be calculated. But even optimistically, the response rate was low. Is it possible to somehow clarify the accuracy of the email list? (Please see more
detailed comments below). Given the low response rate, is there any further information (apart from gender) that allows a comparison between respondents and non-respondents? (I note other data was collected about the characteristics of the sample).

There is some lack of detail about the statistical analyses presented (Please see more detailed comments below).

Other points are provided here in order of appearance in the manuscript.

ABSTRACT

Paragraph 3, Results: It may be appropriate, given that this is the main methodological drawback of this study, to include the response rate (or the total number contacted) here.

Paragraph 3, Results: "The majority of trainees thinks that…" should be "The majority of trainees think that…"

Paragraph 4, Conclusions: "show willingness to recruit into placebo controlled trial however…" should be "show willingness to recruit into placebo controlled trials however…"

BACKGROUND

Paragraph 1: I agree with your statement regarding "soft" outcomes being more prone to bias than "hard" outcomes, but can you please provide a reference for the statement

Paragraph 2: "…clinical symptoms or patient's well-being..." should be either "…clinical symptoms or a patient's well-being..." OR "...clinical symptoms or patients' well-being".
Paragraph 2: "consequence of patient's expectations..." see the previous point.

Paragraph 2: Can you please very briefly elaborate what you mean by "conditioning".

Paragraph 3: There is empirical evidence that can guide the first few statements of this paragraph which I suggest the authors cite. See [HRÓBJARTSSON and GÕTZSCHE. Is the Placebo Powerless? N Engl J Med, Vol. 344, No. 21, May 24, 2001].

Paragraph 5: "about their opinions about placebo" may be better phrased as "about their opinions towards placebo".

METHODS

Paragraph 1: Thank you for providing details of ethics approval. This is often neglected in survey research.

Paragraph 1: Can the authors please clarify whether all British Orthopaedic Trainees are contained in the list of emails supplied by BOTA. Can the authors also please clarify whether the emails kept by BOTA are accurate, and whether BOTA is in regular contact with trainees with regards to other issues (which would make the accuracy of the contact details more likely).

Paragraphs 2-4: These provide a good overview of the survey used and when placed next to the provided appendix makes everything quite clear.

Paragraph 6: Can the authors please provide details on which trainee characteristics were included in the regression model? Can the authors also provide any evidence for why these characteristics were hypothesized to be associated with willingness to recruit. If not, then I would suggest the authors use the term "exploratory" to describe their analysis. Also, I note that the authors planned to compare trainees' results with those of a previous study done on consultant surgeons. Can the authors please specify which results were compared and what analyses were planned?
RESULTS

Paragraph 1: There are a few concerns here. The response rate is unclear. I appreciate that the BOTA database may not be entirely accurate, but since the authors have chosen it, it should be assumed to be the best representation of orthopaedic trainees available. Therefore is it fair to say that there were 1000 potential respondents and only 189 responded? Was there any evidence of invalid "bounced" emails? My experience with these online survey tools is that invalid emails may be detected when they bounce back to the sender. Also, it would make it much easier to appreciate the response rate if a flow diagram is presented, including how many responded after the first / second reminder.

Paragraph 1: Given there is a low response rate, did the authors make any effort to determine how respondents differed from respondents? For example, does the BOTA database also contain information on the age, gender, and year of training of each of their trainees? Can this information be used to determine the similarity between respondents and non-respondents? This is important to determine whether your respondent sample was representative of BOTA trainees.

Paragraphs 3-5: These results are really interesting and I appreciate how the authors have summarized the additional comments made by respondents, which are impossible to summarise numerically but nonetheless shed light on trainees' attitudes. My only concern is the way these questions on placebo definition were phrased in the survey. I appreciate the authors wanted a concise survey, but is it possible the questions were suggestive of the answer? This is particularly important given the disparity of respondents' answers here, and the answers provided on the effectiveness of placebo and their use in clinical practice. Can the authors please comment?

Paragraph 6: I would suggest removing "not significantly different" and changing to "not substantially different". While the meaning is correct, "significant" in the context of a research paper implies inferential statistical analysis was performed.

Paragraph 6-9: Again, the results here are fascinating. As the authors have previously mentioned, there seems to be a misunderstanding of what placebo is and the
ethics of their use in clinical practice. It is interesting to see that 60% of respondents would consider using placebo in clinical practice, and that only 13% would not use it because it is ineffective (although by definition a placebo is ineffective).

Results tables 3-5: Although the presentation of the results in these tables is efficient, it is not visually stimulating. Will the authors consider using a graphic instead? For example, a bar graph for each question with the green part of the bar being "yes" and the red part of the bar being "no". (Similar to what the authors have presented in Figure 1).

DISCUSSION

Generally, the discussion is well written, has a logical flow of ideas, and has a conclusion that is supported by the findings.

Paragraph 9: "In our study, the perceived mechanism of the placebo effect were most commonly been attributed to psychological factors, which is in line with other studies." Can the authors please correct this sentence.

Paragraph 9: "and the fact that placebo response involves actual physiological changes." Should be "and the fact that the placebo response involves actual physiological changes."

Paragraph 9: "differs from a natural history of the disease" should be "differs from the natural history of a disease".

Paragraph 9: "None of the respondents suggested adding an observational, non-interventional group to control for the natural history of the disease". Of all the authors' findings, I think this one is of greatest concern. Can the authors please emphasise this finding a bit more, by including a discussion on the implications for trial research. The authors can also cite a couple of trials that have NOT included a
non-intervention group (there are plenty of those), and have therefore represented a missed opportunity.

Paragraph 10: "This may be related to an element of agency..." I am not sure what this means? Did the authors mean "an element of urgency"?

Paragraph 10: "Interestingly, fewer trainees reported that they have never observed an operation with a placebo component than surgeons answering that they have never performed a procedure with a significant placebo component." This sentence may better be phrased as: "It is interesting that, compared to surgeons, fewer trainees reported that they have never observed an operation with a placebo component".

Paragraph 11, Limitations: Is there any way the authors can elucidate the response rate? It seems that the reader of the article will assume a response rate of 18.9%. Having used Survey Monkey before, I know there are methods for determining bounced emails, but this depends on the method used to send the survey out. Does BOTA perhaps have a record of the invalid emails? Presumably these emails are used for bulk messages sent out by BOTA, will they be able to tell the authors how many messages bounce?

Paragraph 11, Limitations: Can the authors discuss potential reasons for the lower response rate? Are trainees / junior doctors less likely to participate in survey research? Could the survey itself have been better? Was the survey addressed personally or generic? Were the reminders sufficient?

Discussion: I am not sure about the current orthopaedic training environment in the UK, but in my country the orthopaedic training program is currently undergoing a major review. The authors have identified a number of issues that have been poorly understood amongst trainees (and surgeons). Given that surgical RCTs are only feasible with the general support of the orthopaedic community, can the authors please add a brief discussion about the training implications of their findings? Is there a problem with the teaching of clinical epidemiology and evidence based medicine on the training program? How can this be improved?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.
Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Unable to assess

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.
Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.
I am able to assess the statistics

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Please indicate the quality of language in the manuscript:
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