PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Interpretation of health news items reported with or without spin: Protocol for a prospective meta-analysis of 16 randomized controlled trials
AUTHORS	HANEEF, Romana; Yavchitz, Amelie; Ravaud, Philippe; Baron, Gabriel; Oranksy, Ivan; Schwitzer, Gary; Boutron, Isabelle

VERSION 1 – REVIEW

REVIEWER	Seow Ting Lee University of Colorado Boulder
REVIEW RETURNED	22-May-2017

GENERAL COMMENTS	The proposed study, based on a prospective meta-analysis of 16 randomized controlled trials to compare general audiences and patients' interpretation of health news items reported with and without "spin," focuses on a timely and compelling topic. In terms of scientific credibility, the research design is well-thought out generally but the operationalization of "spin" as presented in the proposal could be strengthened significantly through a clearer theoretical or conceptual framework. The authors define "spin" as misrepresentation of study results, regardless of motive (intentional or otherwise) that overemphasizes the beneficial effects of the intervention and overstates safety compared to that shown by the results. This operational definition of "spin" is problematic as it does not take into account the notion of intent. There is a huge body of empirical work in journalism and health communication that discusses the notions of truth, objectivity, credibility and their effects on audience comprehension, attitudes and behaviors that the authors can draw upon. Related to my earlier point about the need for a stronger theoretical grounding, the study outcomes could also be clearer in terms of how they relate to the research question, theory, and eventual discussion of the results including implications for both theory and practice. In addition, I urge the authors to reconsider their scales. Most of the questions to measure the study outcomes are based on a 10-point scale of "unlikely" vs. "likely." The wording is rather awkward and could be clearer and more logical. For example, to measure subjects' response to the question, "How safe do you think that treatment X would be for patients?", the researchers could use a semantic differential scale or "Unsafe" vs. "Very safe." Similarly, when asking, "Do you think this treatment should be offered to patients in the short term?", the logical answer is no-yes (or "Should not be offered" vs "Should be offered), but the authors are proposing

	a scale based on “very unlikely” and “very likely” instead. It is unclear why the research design included the variable of language (English vs. French). Do the authors have a hypothesis related to language or culture specifically? Overall, this is a promising protocol that can benefit from a number of improvements. I look forward to reading a revised protocol.

REVIEWER	Joachim Kimerle Leibniz-Institut für Wissensmedien, Tübingen, Germany
REVIEW RETURNED	04-Aug-2017

GENERAL COMMENTS	The authors of this manuscript suggest a very interesting research protocol that will produce relevant findings. The planned series of 16 RCTs in order to perform a prospective meta-analysis is very impressive. I’m sure it will provide important insights into how people understand health news depending on what the authors call “spin”. What I’m not really convinced of is the laconic statement that “no work has assessed that news items reported with spin can influence readers’ interpretations”. Though other authors might have used different terminology, there is indeed research on how the framing of the presentation of information in health news articles may influence the perception of information by laypeople. So “framing” may be a potential keyword the authors should use in their search for existing literature. There’s an example of such research from my own lab (I’m aware that it’s not a reviewer’s job to promote own research, but it is a problem that the authors are currently unaware of such research, so I dare to suggest this reading): An experimental study has found that an optimistic framing of research findings on deep brain stimulation in a newspaper article lead to a less critical perception of these findings by the readers than pessimistic framing. Moreover, weak emphasis of the limited reliability of the research findings likewise resulted in a less critical perception than strong emphasis (http://journals.sagepub.com/doi/abs/10.1177/1075547014556541?journalCode=scxb). There are several other studies—on deep brain stimulation research and other scientific information—that has brought similar results and that the authors should take into account.

VERSION 1 – AUTHOR RESPONSE

Reviewer # 1

Comment 1. In terms of scientific credibility, the research design is well-thought out generally but the operationalization of "spin" as presented in the proposal could be strengthened significantly through a clearer theoretical or conceptual framework. The authors define "spin" as misrepresentation of study results, regardless of motive (intentional or otherwise) that overemphasizes the beneficial effects of the intervention and overstates safety compared to that shown by the results. This operational definition of "spin" is problematic as it does not take into account the notion of intent. There is a huge body of empirical work in journalism and health communication that discusses the notions of truth, objectivity, credibility and their effects on audience comprehension, attitudes and behaviors that the authors can draw upon.

Answer: Thank you for this comment. We now clarify our theoretical framework and explicit our definition of spin under methods section (page 5):

Theoretical framework
Previous works have shown a high prevalence of spin in scientific articles (Boutron et al 2010, Ochdio et al 2013, Latronico et al 2013, Lazarus et al 2015) and in the mass media (Yavchitz et al 2012, Downings et al 2014, Sumner et al 2014, Haneef et al 2015). However, a question remains: Are readers influenced by spin or are they able to disentangle the appropriate interpretation from the news? In this study we will consider only news items reporting studies evaluating pharmacological treatments where readers may overestimate the beneficial effect of the treatment if the news is reported with spin and change their behavior accordingly. We will consider different types of readers: patients and the main public. To increase generalisability we will also consider 2 different populations: located in the US or located in France.

Definition of spin:
In the context of this study, we define […].The definition of spin we used has been used for exploring spin in the scientific literature (Boutron et al 2010, Boutron et al 2014, Yavchitz et al 2012, Yavchitz et al 2016, Lazarus et al 2015, Lazarus et al 2016). This definition does not take into account the notion of intent because it is impossible to distinguish between the two (i.e., intentional and unintentional spin) and the consequences for readers could be the same.

Comment 2. Related to my earlier point about the need for a stronger theoretical grounding, the study outcomes could also be clearer in terms of how they relate to the research question, theory, and eventual discussion of the results including implications for both theory and practice.

Answer: Thank you for this comment.
This is clarified in the text under the section of "Study outcomes" (page 13).
These study outcomes are surrogate markers measuring the perception by readers of the treatments' efficacy, safety, availability and use in current clinical practice.

Comment 3. In addition, I urge the authors to reconsider their scales. Most of the questions to measure the study outcomes are based on a 10-point scale of "unlikely" vs. "likely." The wording is rather awkward and could be clearer and more logical. For example, to measure subjects' response to the question, "How safe do you think that treatment X would be for patients?", the researchers could use a semantic differential scale or "Unsafe" vs. "Very safe." Similarly, when asking, "Do you think this treatment should be offered to patients in the short term?", the logical answer is no-yes (or "Should not be offered" vs "Should be offered), but the authors are proposing a scale based on "very unlikely" and "very likely" instead.

Answer: Thank you for this comment.
We agree and have updated the scales for some questions as follows (page 13):

Comment: How safe do you think that treatment X would be for patients? (scale 0 [very unsafe] to 10 [very safe]

Comment: Do you think this treatment should be offered to patients in the short term? (scale 0 [absolutely no] to 10 [absolutely yes]
We will update the scales at ClinicalTrials.gov and will inform the ethics committee.

Comment 4) It is unclear why the research design included the variable of language (English vs. French). Do the authors have a hypothesis related to language or culture specifically?

Answer:
There were two main reasons: First, we want to increase the generalisability of our results by including different types of populations with different cultures, and second it was more practical to recruit the participants from the United States and France.
We have clarified this information in the protocol under the section of "Population" (page 11).
"We will compare the health news reported in English and French languages and will assess their interpretation by different types of populations to increase the generalisability of our results."

Reviewer # 2
Comment: What I'm not really convinced of is the laconic statement that "no work has assessed that news items reported with spin can influence readers' interpretations". Though other authors might have used different terminology, there is indeed research on how the framing of the presentation of information in health news articles may influence the perception of information by laypeople. So "framing" may be a potential keyword the authors should use in their search for existing literature. There's an example of such research from my own lab (I'm aware that it's not a reviewer's job to promote own research, but it is a problem that the authors are currently unaware of such research, so I dare to suggest this reading): An experimental study has found that an optimistic framing of research findings on deep brain stimulation in a newspaper article lead to a less critical perception of these findings by the readers than pessimistic framing. Moreover, weak emphasis of the limited reliability of the research findings likewise resulted in a less critical perception than strong emphasis (http://journals.sagepub.com/doi/abs/10.1177/1075547014556541?journalCode=scxb).
There are several other studies—on deep brain stimulation research and other scientific information—that has brought similar results and that the authors should take into account.

Answer:
Thank you very much for your comments and for highlighting this work.

We modified the statement in the introduction section and now highlight this important work as follows (page 4):
"However, some studies have explored whether laypeople are able to recognize the tentativeness of research findings reported in media (Kimmerle at al 2014, Feinkohl et al 2016). Kimmerle et al. found that negative framing and accentuation of the limited reliability of provisional research findings in a newspaper report made people more aware of the tentativeness of these findings (Kimmerle at al 2014). In another work, the authors assessed the impact of some personality factors (i.e., scientific literacy, epistemology beliefs, and academic self-efficacy) and previous users' comments on an online website on laypeople's understanding of the tentativeness of medical research findings. Laypeople's understanding of the tentativeness of research findings was influenced by their personality factors and also by other users' comments contributed to the forum (Feinkohl et al 2016).

To our knowledge, no meta-analysis has assessed whether news items reported with spin can influence readers' interpretations."

VERSION 2 – REVIEW

REVIEWER	Joachim Kimerle Leibniz-Institut für Wissensmedien - Knowledge Media Research Center, Tübingen, Germany and Eberhard Karls University, Tübingen, Germany
REVIEW RETURNED	13-Sep-2017

GENERAL COMMENTS	This is a successful revision – no further comments.

Correction: *Interpretation of health news items reported with or without spin: protocol for a prospective meta-analysis of 16 randomised controlled trials*

Haneef R, Yavchitz A, Ravaud P, *et al*. Interpretation of health news items reported with or without spin: protocol for a prospective meta-analysis of 16 randomised controlled trials. *BMJ Open* 2017;7:e017425. doi: 10.1136/bmjopen-2017-017425.

The author name 'Ivan Oranksy' should be spelled 'Ivan Oransky'. There is also a typo in the Acknowledgements section: 'eporting' should read 'Reporting'.

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