

Author's response to reviews

Title: Thinking styles and doctors' knowledge and behaviours relating to acute coronary syndrome guidelines

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Author's response to reviews: see over



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Dr Brian Mittman
Editor, Implementation Science

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Dear Dr Mittman

Thinking styles and doctors knowledge and behaviours relating to acute coronary syndromes guidelines (MS: 1440274192156061)
Ruth M Sladek, Malcolm J Bond, Luan T Huynh, Derek PB Chew, Paddy A Phillips

Thank you for the detailed feedback from two reviewers relating to the above manuscript, and the opportunity to resubmit.

We have now carefully considered each issue and undertaken substantial changes to the text to address the various issues raised. A summary of our actions is attached for your consideration.

A general comment is that, given the criticisms of Reviewer 1 in particular, we have necessarily had to expand the text and referencing in the resubmission to provide more detail of the research base underpinning our argument. We therefore ask the editors' forbearance with the increase in references and length of the paper from approx 1800 words to 2700 words.

In support of this manuscript, we note that we have:

- (1) chosen a theoretical perspective (when the evidence shows that this is rarely done),
- (2) explored some of its potential in an area of clinical practice where there are known, documented gaps between what is done and what should be done (when the evidence shows that there are known evidence-practice gaps in treatment of acute coronary syndromes), and
- (3) done this in relation to the use of clinical guidelines which is one of the most common 'implementation strategies' used by professional bodies and governments around the world.

We therefore iterate, respectfully, that our view is that the paper is highly relevant for your readership.

We would be pleased to respond to any further issues in regard to this manuscript.

Yours sincerely

Ruth M Sladek
Corresponding author on behalf of all authors

inspiring
achievement

Reviewer 1: Susan Michie

Issue 1

Implications of a relationship between awareness/use of guidelines and thinking styles is not fully spelt out.

Several changes have been made to ensure that this issue is articulated:

- The new paragraph 7 (Background) has been added, commencing with “According to CEST, thinking styles may influence an individual’s receptivity to different messages. This is therefore inherently of interest to those designing strategies to inform and encourage healthcare workers to change their behaviour”.
- An overview of the research literature relating to “message matching” has then also been added to this paragraph.
- The Discussion has been expanded to include more detail and elaborate on the implications of a relationship between thinking styles and awareness/use of guidelines for the design of implementation strategies. These additions are throughout paragraphs 4 and 5 of the new Discussion.

Issue 2

Relevant literature from cognitive and behavioural psychology are not drawn on.

The Background has now been substantially extended and reworked, with a significant number of references relevant to this criticism added:

- Background/paragraph 2 commencing with “While ideas...” has been added. This places CEST within the historical context of cognitive and behavioural psychology.
- Background/paragraph 4 commencing with “These two modes...” has been added to link the ideas of a dual processing model of reasoning to a medical context.
- Background/paragraph 7 commencing with “According to CEST...” has been added to provide justification for why individual differences might be important in the design of message targeting health worker behaviour change.

Issue 3

Response rate not given

The Physicians Guidelines Study had a response rate of 39.2% which we acknowledge is only modest. However, this was beyond the control of the study reported in the manuscript under review. Of the 39.2%, 92.3% (84/91) elected to complete the data necessary for the current study. Methods/Participants now reads:

“A sample of 84/91 (92.3%) medical personnel responded to the current study, from an underlying pool of respondents in the Physicians Guidelines Study (response rate 39.2%). These included consultant general physicians, consultant cardiologists, registrars, residents, interns and private cardiac specialists with an active clinical role caring for patients with acute coronary syndromes”.

Issue 4

Style of reporting rather than behaviour is not discussed in depth.

The meaning of this comment is unclear. While we do not believe that it requires in-depth comment, the following sentence has been added to paragraph 2 of the Discussion which is concerned with the limitations of self-report:

“Second, it is possible that certain thinking styles are associated with a desire to present the self in a professionally appropriate manner”.

Issue 5

Lacks a psychological model of the relationship between thinking and behaviour in different contexts.

Our wording was originally somewhat non-specific, which may have led to the wrong impression that this research lacks the underpinning of a psychological model. CEST is actually a personality theory that specifically attempts to explain human behaviour. The dual processing model of reasoning is, more accurately, one of its assumptions, that relates to thinking. Indeed, it is a particular feature of CEST that it attempts to articulate the relationship between thinking and behaviour.

This is now more accurately reflected in 2 additional paragraphs of the Background:

- Paragraph 3, beginning with “As a personality theory ...”
- Paragraph 5, beginning with “According to CEST ...”

In terms of different contexts, CEST does accommodate both environmental and individual influences in its account of behaviour. Additional text has been added to describe the model more fully, including the relationship between the different systems and behaviour, and that behaviour may be influenced by a range of different situational (environmental) and dispositional (individual) factors [see added Background (paragraph 6) commencing with “The relative dominance ...” which refers to the relevant research relating to this issue.

Issue 6

Difficult to read as a plethora of terms are used

On reflection we concur. Various modifications have been made to the manuscript to improve its readability (in addition to small word changes designed to contain word length and complexity). The major changes are:

- The term ‘thinking styles’ has now been uniformly introduced to replace ‘thinking dispositions’.
- Three new Tables (Tables 1, 2 and 3) are now included to aid the readers’ understanding of terms and concepts and how they relate to hypotheses. [We acknowledge that this substantially increases the “footprint” of the manuscript and are in the hands of the editor as to their ultimate utility.]
- An example of learning to drive has been included to illustrate the differences between the rational and experiential systems in a more readily understandable way (paragraph 3 of Background).
- Paragraph 4 of Background linking the 2 processing modes to medical examples has been added to assist the readers’ understanding of the two modes.

Issue 7

Power calculations and corrections for multiple comparisons have not been conducted

While we acknowledge the general validity of these comments, we note that reviewer 2 had no such concerns. Our preference is not to act on these issues for the reasons below.

Power calculation

It is not uncommon for descriptive studies to be conducted in the absence of power calculations. As in the current study, large samples are often difficult to recruit. Further, the lack of a power calculation would be more relevant had we reported no significant associations. By definition, we had enough power to detect the associations we have presented. An alternative interpretation is that if the study is underpowered, our results represent a conservative test of the hypotheses.

Multiple comparisons

There are at least two schools of thought regarding correction for multiple comparisons. The strictest strategy is to literally adjust alpha based on the number of comparisons made (and accept or reject results accordingly). Often this results in little more than a shift in alpha to the commonly reported .01 or .001 levels. The alternative (as we have done) is to report exact probabilities for all comparisons and allow the reader to evaluate the import of the findings.

Issue 8

There is no abstract

Our apologies for this omission which arose due to our misinterpretation of the submission guidelines. The Abstract should now be available.

Issue 9

Interesting but a small study so needs to be set within an evidence-based model of cognition and behaviour to be convincing

This comment appears to suggest that CEST is not evidence-based, which we refute. There is a substantial body of literature to support the tenets of CEST. However our intent was not to review the evidence base for this theory, nor to particularly justify its use other than we have done. Both of these goals would require an extensive review paper rather than simply a background introduction to an empirical investigation. CEST was used for its potential to explain evidence to practice gaps, and while we undertook some interpretation of the theory, our purpose was to faithfully report its structure and consider its implications. Paragraph 3 of Background has been added (as also described for Issues 5 and 6), which describes CEST in more detail, allowing the reader more information about what it proposes.

Issue 10

Needs some language corrections

As reported earlier in our response to Issue 6, various modifications have been made to improve readability and consistency of language.

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Reviewer 2: Maggie Toplak

General

Issue 1

One weakness is the very modest correlations

Indeed, the correlations on which we base our conclusions are generally in the range of $\pm .20$ to $.29$. However, there was consistency across all scales, and given the lack of research in this area we maintain that these are important, encouraging findings. Further, the modest effect sizes that these correlations represent were acknowledged as a potential shortcoming in the Discussion of the original manuscript. This text remains.

Issue 2

Another weakness is the lack of dissociation between faith in intuition and need for cognition scales

Originally the correlations demonstrating these two constructs share little association with each other were not reported. In response to the above comment we have added the following to the Methods/Measures section:

“Preliminary analyses demonstrated that, consistent with CEST, there were only modest associations between need for cognition and faith in intuition scores, thus supporting their consideration as two separate, independent constructs (maximum $r = -.18$, $p = .130$ for total scores).”

Major Compulsory Revisions

1. Description of results should be clearer [in the last paragraph of the Results section] and caution against over inferring results by use of the word ‘predict’...

To improve clarity, the exact Physician Guidelines Study Question number (to enable cross-referencing with the instrument in the Appendix) has been added to each reported finding (new text underlined):

“Higher faith in intuition (all scores) was significantly related to higher levels of agreement with the statement “There are times when I do not give my patients guideline suggested care as the guidelines differ from what I have always done previously” (Physician Guidelines Study Question 5). Higher faith in intuition scores (all scales) was also associated with a higher average self-stated guideline discordant practice across eight different clinical scenarios concerning the use of: aspirin, clopidogrel, beta blockers, calcium channel blockers, ACE inhibitors, statin therapy, early invasive strategy in high risk NSTEMI/ACS, and reperfusion therapy (Physician Guidelines Study Question 6).”

2. Authors refer to ‘prediction’ in a correlational study – shouldn’t over-infer results

In the relevant section of the Discussion, the word “predict” has been replaced by “association”.

3a. In the Discussion, more elaboration/discussion is required about what the results mean

The Discussion has been completely revised and rewritten to address this comment. The issue of why a link between thinking styles and guideline use might be important is now elaborated. Paragraph 4 of the new Discussion has been added to articulate the possible meaning of the findings in relation to theory. Paragraph 5 (also new) states the mechanisms for change according to CEST theory and gives an example of a potential strategy worthy of investigation.

3b. Is discordant behaviour a bad thing...

We chose not to introduce any discussion about whether or not discordant behaviour is a ‘bad thing’, as this would introduce the long-standing debate about clinical versus statistical prediction, or in other words, experience versus evidence. It was our view that this is a complex issue, somewhat beyond the core scope of the current study.

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