Author's response to reviews

Title: Multiple goals and time constraints: perceived impact on physicians' performance of evidence-based behaviours

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Author's response to reviews: see over
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Re: Manuscript ID 1972160092777806

Dear Editors,

Thank you for inviting us to revise the manuscript entitled, "Multiple goals and time constraints: perceived impact on physicians’ performance of evidence-based behaviours". We found the reviewers’ detailed comments on the first version of the manuscript very helpful. Enclosed is a revised version of the manuscript, which addresses the reviewers’ comments. Notably, we reconsidered and substantially revised the discussion to better discuss the main implications of the study in terms of theory and application for implementation science. We believe that revising the manuscript in light of the reviewers’ comments has improved the quality of the paper. We hope that our paper will be of interest to implementation science researchers that use and develop theory-based approaches to understanding health professionals’ performance of evidence-based behaviour.

We have listed below the reviewers’ comments (in bold, copied directly from their comment sheets) and our responses (in regular font) and in-text revisions (in italics). In instances where lengthy changes were made, for instance with respect to the reworked discussion, we did not paste the text and rather referred the reviewer to the manuscript.

Please also note that we wish to add another Additional File, which presents the topic guide used in the interviews reported in this study as suggested by the reviewers. We thank you once again for considering our manuscript for publication in Implementation Science, and await your decision about the revised manuscript in due course.

Best regards,

Justin Presseau
On behalf of the co-authors (Falko Sniehotta, Jill Francis, and Neil Campbell)
Response to Reviewer 1 – Rebecca Lawton

1. The TPB is employed as a theoretical framework from which this research emerges and the authors argue that 'investigating the influence of performing multiple goal-directed behaviours may help to better understand the performance of a particular evidenced behaviour, thereby potentially improving the TPB's utility'. This statement lacks clarity and it might be clearer if they were to suggest how the model might change to accommodate these ideas.

We thank the reviewer for this point. Upon further consideration, we felt it inappropriate to speculate about improvement on the TPB’s utility in the background section given the qualitative nature of this study. As such, we have deleted and replaced this sentence with: *It seems unlikely that the performance of one goal-directed behaviour is isolated from the performance of another, particularly in busy clinical settings.*

We also appreciate the suggestion re: describing how the model might accommodate these ideas, but feel that such a description might be more appropriate as a discussion point after having considered the findings of the study. We substantially restructured and added to the discussion to address this point, particularly in the ‘unanswered questions’ section of the discussion (p.25)

2. The term goal conflict is introduced later (on page 10) without any explanation in the Introduction. This term seems to be used interchangeably with goal interference - are these the same?

At the moment, the literature uses goal conflict and goal interference interchangeably. However, to remain consistent in this manuscript, we replaced ‘goal conflict’ on page 10 with ‘goal interference’.

3. The authors describe two aims of the study and it is not clear that with a qualitative study of this kind they can adequately address the second of these aims: to assess whether this augments the information provided by single-behaviour approaches. The authors should explain how the study reported in this paper fits within the series of studies and be clear about separating the aims of this study from those of the programme of research as a whole.

We appreciate the reviewer having raised this point. We agree that quantitative data would provide a more appropriate means for pursuing the aim of assessing whether the perceived intergoal relationships augment single-behaviour models. We have recently submitted a manuscript for review which tests the effect of perceived goal interference and facilitation on physical activity health behaviour within the TPB. We have amended the current manuscript to include a description and implication of these findings in the introduction on page 6 as follows:

*This effect has subsequently been shown to be partially mediated by the TPB, indicating that perceived goal facilitation has both a direct and indirect effect on health behaviour [1]. The effect of perceived goal interference and facilitation may be increasingly relevant to more constrained settings such as clinical consultations.*

Accordingly, we also amended the study aims on page 5 to reflect only the following:
This study therefore aimed to identify whether and to what extent GPs attribute their performance of a particular evidence-based behaviour to being influenced by other goal-directed behaviours they perform in a consultation.

We appreciate the suggestion that the reviewer makes regarding situating the study within the wider program of research, however we feel that this is already covered in the manuscript on page 7 (see text reproduced below). Given the on-going and iterative nature of the research programme, we feel that at this time it would not be appropriate to explicitly situate this study within the wider programme, but we acknowledge and retain this point for the future. That said we are quite happy to consider revising this further if the reviewer feels strongly about this point.

Drawing upon existing theory and methods from the behavioural sciences, this study represents a preliminary stage in a series of studies aiming to investigate how competing goal-directed behaviours influence health professionals’ evidence-based motivation and action.

4. The authors should provide some further explanation of the following in the Methods section:

a) What is meant by a diversity sample?

We thank the reviewer for highlighting elements of the method section that were not clear. We replaced the term ‘diversity’ with ‘purposive heterogeneous’ which is a more commonly used term reflecting the same meaning as diversity sampling.

b) The interview topic guide should be included perhaps as appendix

We have included the topic guide as an additional file (Additional File 1).

c) What were GPs told about the nature of the study?

This information is provided as part of the included topic guide. Specifically, the interviews began with the interviewer stating the following:

With this study, I want to try to get inside your head to try to understand how you deal with all the things that characterise a clinical consultation with your patients who have diabetes (show patient characteristics). I’m not a medic so my goal isn’t to make judgements about whether what you do is clinically “correct”.

d) Reference is made on page 9 to random sets of transcripts - please clarify how many transcripts were provided in each case

We thank the reviewer for this suggestion. We have added these details in the method section for each coder.

5. The discussion does not reflect the qualitative nature of the study which, in fact, might be better framed as an investigation of the behaviours and factors that GPs report interfere or facilitate the performance of two key behaviours in diabetes consultations.
We thank the reviewer for this very helpful suggestion, and based on this and other reviewers’ comments, we have substantially revised and added to the discussion. Regarding this point in particular, we have reframed the opening sentence of the discussion on page 16 as follows:

*This study used TPB-based constructs supplemented by a multiple goals approach to investigate control beliefs and the facilitating and interfering goal-directed behaviours that GPs perceived as affecting their performance of two evidence-based behaviours in a diabetes consultation*

6. The authors need to be cautious about making claims about association and causation e.g. pages 15 and 16 when reporting qualitative findings.

While our aim was to speculate on the potential implications for the model, we take the reviewer’s point. We rephrased the discussion (p.16 to 24) to be cautious about claiming association or causation by highlighting the qualitative nature of the data and proposing ideas for future research juxtaposed against the existing literature as well as the findings from this study.

7. There seems to be an important point that is not made entirely clear here that prescribing behaviours might better reflect the perceived primary function of GPs to diagnose and treat rather than prevent disease. There is something important here to be said about prescribing fitting better within the culture (perhaps conceived as the pattern of behaviours or the way we do things) of GP consultations.

Based on the results of the study, it seems that for some GPs the reviewer’s interpretation of the way GPs do things may hold true (i.e. those with lower intention to provide PA advice, for example). However, some GPs described having strong intention to give PA advice. We added to the discussion on page 20 to address this point as follows:

*Differences in relative priority are not surprising as PA advice can often also be provided by other primary care staff (e.g. practice nurse), whereas prescribing to reduce blood pressure is primarily the GP’s role (though increasing dosage can be nurse-led). While some GPs may indeed prioritise diagnosing and treating diabetes, the variation in described strength of intention to give PA advice suggests that this is not true of all GPs. Future research should investigate whether perceptions about professional role influence the priority of a particular evidence-based clinical behaviour relative to other goal-directed behaviours performed in a consultation.*

We also added a reference in the background on page 7 which highlights a definition by the World Organization of Family Doctors of general/family practice role that include health promotion either personally or by other members of the team (see below). Whether this definition reflects professionals’ perceived professional role seems to vary (as discussed in the preceding paragraph).

*The role of the GP has been defined to include “promoting health, preventing disease and providing cure, care, or palliation. This is done either directly or through the services of others according to health needs and the resources available within the community they serve, assisting patients where necessary in accessing these services.”*
8. Is there evidence for the claim in the discussion that begins 'When discussing facilitating goal-directed behaviours....'(page 18)? If so, this evidence needs to be reported in the Results section.

The evidence for this claim is presented on page 15 under the subsection entitled ‘prospective facilitation’. We have tried to make this clearer in the discussion, by adding “(i.e. prospective facilitation)” to the end of the sentence to reflect the terminology used in the results section. This is considered under the new discussion heading of “Goal facilitation and interference along a temporal dimension” (pages 18-19)

9. The remainder of this paragraph would benefit from greater clarity.

The discussion has been substantially revised and restructured, and the particular paragraph has been clarified as part of the discussion heading “Goal facilitation and interference along a temporal dimension” (pages 18-19)

10. The term 'lost compliance on page 11' might not be immediately obvious to some readers.

A good point; thank you. We have replaced ‘lost compliance’ with ‘the patient no longer took the medication’ (page 12)

11. The authors might also want to consider the notion of goal conflict in the discussion. For example, there is a strong policy drive towards patient involvement in decision making and yet patient preference may sometimes conflict with the goal of prescribing.

We thank the reviewer for highlighting this interesting point. The literature currently considers the terms goal ‘conflict’ and ‘interference’ as synonymous. In this study, we considered the concept of goal interference exclusively from the GP’s perspective. Some GPs mentioned ‘patient preference for not wanting more tablets’ as making it difficult to prescribe to reduce blood pressure to <140/80. From a GP’s perspective, our interpretation is that this is based on the GP’s belief of the patient’s preference, and was coded as a control belief that affected their opportunity to prescribe. Furthermore, some GPs described not only the control belief about the patient’s preference, but also described their own goal of respecting the patient’s choice as interfering with prescribing. Respecting patient’s choice seems to underscore the higher-order goal that GPs may have concerning providing patient-centred care (as the reviewer describes), which may interfere with the evidence-based prescribing goal. We clarified this point in the discussion in the section that details the implications of the research for implementation science (page 23):

The value of a multiple goal-directed behaviour approach to implementation science may be as a means of a) assessing how higher-level policy driven goals such as ‘provide patient centred care’ and ‘provide evidence-based care’ are pursued (i.e. goal-directed behaviours) and how these pursuits may facilitate or interfere with one another

12. My reading of the section on Intention (page 12) was that the notion of an intention that one enacts during a consultation might not sit very comfortably with the responses of the GPs. Most appear to indicate that they are responding directly to the situation e.g. the needs of patients, the drugs that they are already on and that the uncertainty
surrounding a consultation means that they cannot specify their plans in advance. The authors might want to discuss these findings in the context of the TPB.

We completely agree with the reviewer’s interpretation of this. This speaks to a broader point regarding current operationalisations of the TPB in this population. We feel that this is a discussion that extends beyond the main findings of this paper and therefore we decided not to elaborate on it, though we mention it in the unanswered questions section on page 25:

Another unanswered question involves GPs’ reports of high intention to prescribe to reduce BP, but expressing conditions related to the situational demands of the consultation that affect that high intention; future research should consider the implications of these ‘conditionalities’.

Nevertheless, we feel that this is an important point, and we are currently writing a separate paper that explores this notion more directly.

13. There are, of course, a variety of explanations as to why offering PA advice may not be a priority amongst GPs other than that there are no financial incentives. These include issues of competence and skill in the area of primary prevention as well as the possibility that offering PA advice can feel uncomfortable for both GP and patient.

We thank the reviewer for making this point. We agree that the determinants of priority of PA advice are likely to extend beyond the lack of financial incentives, which is one amongst other potential beliefs. We have added this point to the text on page 21 as follows:

Relative priority is likely to be influenced by a number of behavioural, normative and other control beliefs and future research focusing on those influences of priority seems justified.

14. It might be useful on page 21 to discuss whether data saturation was achieved with 12 participants.

Thank you for this suggestion. We have added to the sentence on page 24 as follows:

It became evident in the later interviews that the research questions had been sufficiently answered, i.e. that GPs did perceive their goal-directed behaviours as facilitating and influencing performing the two focal behaviours. Though the study was not designed to necessarily achieve data saturation, evidence from the literature suggesting that a sample size of 12 can provide as much information as a much larger sample in qualitative studies [39].
Response to Reviewer 2 - Michael Parchman

1. Overlay of "goal facilitation" on top of TPB is of interest. However, your interviews actually seem to address the TPB concept of "control belief: an individual's beliefs about the presence of factors that may facilitate or impede performance of the behavior (Ajzen, 2001)." You need to make a more convincing argument that goal facilitation is a distinct construct.

Thank you for highlighting this important and interesting conceptual clarification, which was also mentioned by reviewer No.3. Conceptually, as reviewer 3 mentions, whether goal facilitation overlaps with control beliefs depends upon whether one defines the term ‘factor’ as also including other goal-directed behaviours that an individual is performing in a given context. A degree of overlap would be expected with such constructs. Indeed, quantitative TPB studies usually find that component constructs in the model correlate with each other, and thus we would expect to find the same with the intergoal constructs. Conceptual and empirical data suggest that goal facilitation may inform control beliefs but are not beliefs about control in themselves. We included a critical discussion point which directly addresses the reviewer’s point regarding the potential overlap and distinctions between control beliefs and perceived goal relationships, under the new heading of “Comparing control beliefs and perceived intergoal relationships” (see pages 20-21 of revised manuscript). We also added a reference to our recently submitted paper which quantitatively addresses the overlap between intergoal perceptions and control-related factors. In a non-clinical sample, we found that perceived facilitation of personal goals on a health behaviour was partially mediated by attitude and perceived behavioural control, and also had an independent effect on behaviour. These results speak to the reviewers point regarding the potential overlap between control-related factors and perceived goal facilitation, but also argue for its distinctiveness beyond control factors. More research is needed to tease apart these effects. To address this in the manuscript, we added the following text to the introduction on page 6: 

*This effect has been shown to be partially mediated by the TPB, which suggests that perceived goal facilitation has both a direct and indirect effect on health behaviour [1].*

We are happy to further revise this point if the reviewer feels strongly about this.

2. Discussion is mostly a review of findings, and does not inform us about the implications of these findings for implementation science. There needs to be less review of findings and a new sub-heading with a section that discusses this issue.

We have substantially revised and restructured the discussion to lessen the review of findings and increase the discussion of implications, including ‘implications to implementation science’ under a new subheading as suggested (pages 16-24 of the revised manuscript).

3. Seems like the results about the MD reporting that patient expectations influence their behavior would fall under subjective norms within the TPB?

We added the following sentences to the method section on page 13-14 to address the reviewer’s comments:

*We coded these as control beliefs because GPs believed that the patients’ behaviour during the consultation affected their opportunity to perform their consistently strongly intended prescribing behaviour. This decision was made on the basis of Ajzen’s definition of control
beliefs which suggests that it is a belief that “deals with the presence or absence of requisite resources and opportunities” [4]. Had this been a subjective norm influence, the observed strong intention would not be expected. Thus, we viewed GPs’ report of ‘patient preference for not wanting a prescription’ as a belief that the patient performs during the consultation which the GP believes affects their opportunity to prescribe in the consultation – i.e., a control belief.

4. Competing demands as described in the background do not include the contribution of what issues the patient brings to the encounter. The current language suggests that it is all about competing demands on the agenda of the physician.

We thank the reviewer for raising this distinction and completely agree that competing demands can be viewed from a variety of perspectives including the patient, the physician and the context. The current study focused on attributions at the physician level only, and thus the perceived influence of the patient’s issues on the GP’s behaviour were based on what the physician perceived. We have clarified this in the introduction by describing how the patient’s agenda might affect the health professional’s behaviour, namely that the patient’s agenda is perceived by the GP and then generates additional goal-directed behaviours for the GP to perform, on pages 5 and 6.

5. Examples of questions from the interview guide would be helpful in the Methods section.

We thank the reviewer for this suggestion, and have included the interview guide as an additional file (see Additional File 1).

6. Need to explain "QOFs" for the non-UK audience.

We appreciate this comment, and have supplemented the existing explanation on page 7 with an example of a diabetes-related target from the QOF as follows:

In the UK, an incentive structure is built into the contract of GPs, which remunerates for achieving predefined quality targets [32], known as Quality and Outcomes Framework (QOF) points. For example, for management of diabetes, one of the targets (DM12) remunerates GPs when up to 18 QOF points when 60% of their patients with diabetes achieve a blood pressure of ≤ 145/85mmHg at their last reading.

We also changed the use of ‘QOF’ in the tables to ‘GP contract’.
Response to Reviewer 3 – Florian Vogt

1. While the authors conclude that quantitative work is needed to assess whether considering multiple goals can predict behaviour over and above well measured current theories, considering individual behaviours, this question is not really addressed in the manuscript. In other words the authors may have been able to focus more on highlighting the differences between multiple goals and constructs in the existing theory used (i.e., TPB). For example by searching for qualitative differences in ‘beliefs about factors or circumstances that make it easier or more difficult to perform a behaviour’ (i.e. control beliefs) and ‘goals and behaviours that facilitate and interfere with performing a behaviour’. Because this issue was not addressed head-on, at least that was my impression, the reader is left with the feeling that the latter is simply a sub-construct of the former and therefore already addressed in existing theories of health behaviour; at least if they are well measured. I would like to this issue to be addressed somewhat more critically if possible.

We thank the reviewer for his detailed consideration of the theoretical issues in our paper. This point relates closely to the reviewer’s third point, and thus we have addressed them together. We added a critical discussion point which directly addresses the reviewer’s point regarding the potential overlap and distinctions between control beliefs and perceived goal relationships, under the new heading of “Comparing control beliefs and perceived intergoal relationships” (see pages 21-22 of revised manuscript).

We also added a reference to our recently submitted paper which quantitatively addresses the overlap between intergoal perceptions and control-related factors. In a non-clinical sample, we found that perceived facilitation of personal goals on a health behaviour was partially mediated by attitude and perceived behavioural control, and also had an independent effect on behaviour. These results speak to the reviewers point regarding the potential overlap between control-related factors and perceived goal facilitation, but also argue for its distinctiveness beyond control beliefs. More research is needed to tease apart these effects. To address this in the manuscript, we added the following text to the introduction: This effect has been shown to be partially mediated by the TPB, which suggests that perceived goal facilitation has both a direct and indirect effect on health behaviour [1].

2. Thematic analysis. The results section regarding ‘goal interference’ presents a deeper level of analysis that does not appear to be reflected in the content coding style described in the methods section. For example goal-directed behaviours are described as relating to ‘consultation in general’, ‘pervasive quality’, ‘transient’ in nature. These themes which are interesting seem to run across the themes chosen to represent the data (i.e. Table 1 = consultation, diabetes, GP factors). There appear thus to be two competing thematic analysis going on. This could be shaped up and may make the analysis more concise.

We thank the reviewer for this careful interpretation of the thematic analyses. We feel that the two thematic analyses complement each other by providing insight into the content and the duration of the perceived intergoal facilitation and interference. We nevertheless take the point that the method section is not clear on this distinction, and have added the following text to the description of the analysis in the methods section on page 9:
Coded content for perceived intergoal facilitation and interference were further analysed along a temporal dimension to investigate the relative duration of perceived intergoal relationships.

We also have considerably revised the discussion to address the thematic analysis of both the content (see discussion heading “Content of perceived goal interference and facilitation between focal behaviours” pages 17-18) and the duration (see discussion heading “Goal facilitation and interference along a temporal dimension” page 18-19) aspects separately. We also added ‘during a consultation’ to the titles of Tables 1 and 2.

3. Separation between control beliefs and goal facilitation/interference. The authors describe in their methods section that control beliefs were identified as “any belief about factors or circumstances reported to make it easier or difficult … ”. Goal facilitation and goal interference on the other hands was described as “goals and behaviours that GPs reported as facilitating and/or interfering with performing. I guess the big question for me reading the manuscript was are these two concepts different in a way that justifies them being considered as separate concepts. The question is whether one considers a goal or behaviour as a factor or circumstance. If one does, than one is just a more detailed description of the other. So for example, I have the “goal” of ‘treating acute illness’ and this would be reflected in the “factor” that I am not ‘having time’ enough to provide physical advice. While clearly one of these is a more detailed version of the other it probably does not mean that control beliefs do not include interfering goals. One could say that by asking questions about conflicting and facilitating goals one is able to construct a better measure of control beliefs however. The statement in the discussion “This study builds on this research by providing evidence that the perceived relationships between performing multiple goal-directed behaviours in a clinical consultation can usefully augment single-behaviour models such as the TPB to reflect the competing demands in clinical practice. (p15)” appears not to be fully supported at this time. Indeed the authors seem to state a bit later in the discussion that asking about multiple goals may allow us to better measure control beliefs of existing theories better “this study demonstrates that the goal interference construct allows us to identify a potential source of the identified difficulty of performing the target behaviour”. That is if one swaps the word ‘source’ with ‘factor/circumstance’.

We again thank the reviewer for his detailed consideration of the theoretical issues in our paper. As described in response to the reviewer’s first point, we added a section to the discussion to directly address these points (p.21-22). In relation to the additional points made above by the reviewer, the separation between control beliefs and goal facilitation and interference seems to be both a conceptual and an empirical question. Swapping ‘source’ with ‘factor/circumstance’, as the reviewer describes, has conceptual implications and we agree that ‘the question is whether one considers a goal or behaviour as a factor or circumstance’ as the reviewer noted. Our interpretation of the literature and the data from this study is that perceived intergoal facilitation and interference may contribute towards control-related beliefs, but are nevertheless distinct. Using the example above, we interpret the interfering goal of ‘treating an acute illness’ not so much as ‘reflecting’ the belief of not having enough time as much as ‘contributing’ to this belief. We have addressed these conceptual issues by providing qualitative examples in the text to support our interpretation of the distinction between these constructs (pages 21-22). Furthermore, we added some data to the results section which shows that the majority of the content of coded goal facilitation and interference was identified beyond the control belief elicitation in the interviews. The
following text was added to the results section, and then further discussed in the added section comparing control beliefs to intergoal constructs (on page 21-22).

*The majority of coded goal interference was elicited beyond control belief-related questions (92% of codes for BP prescribing and 82% for PA advice).* P.15

*Most coded goal facilitation was elicited beyond control belief related questions (71% of codes for BP prescribing and 79% of codes for PA advice).* P.16

4. Separation between a good measure of intention and the need for multiple goals. The authors touch upon the difference between different types of intentions those that are priority and those that are not. Bandura talks about proximal and distal goals in his theory even though it would still be considered a theory looking at an individual behaviour. Perhaps assessing multiple goals in a measure of intention will explain additional variance. The question that remains somewhat is whether this means that the individual behaviour theories are no good or whether we haven’t yet found the best way of assessing intentions. Maybe one needs to measure intentions for an individual behaviour including prompting individuals about potentially conflicting behaviours.

We agree with the reviewer. We are aware of alternative approaches to measuring intention and had cited such an approach in the introduction (e.g. intention choice, Cruickshank & Francis, 2008) or indeed a type of ‘relative intention’ as described by the reviewer. We feel that all these perspectives could usefully be pursued in order to advance the science. One would hope that these multiple approaches should eventually help to determine the answer to the reviewer’s question of whether ‘the individual behaviour theories are no good or whether we haven’t yet found the best way of assessing intentions’. We added the following text to the ‘unanswered questions section’ on page 24:

*Also, alternative comparative measures such as intention-choice [2] or relative intention may contribute to understanding the effect that multiple goal-directed behaviours have on performing a focal behaviour.*

5. Recruitment. The authors describe that they used ‘diversity sampling’ without specifying more detail what that involved in practice. Could authors specify how the GPs were actually targeted? That is, presumably there are more than 14 GP that work in the Grampian NHS that would have fit the gender, age, practice setting mix. Was that done by randomisation? The response rate of 86% in the study is higher than anything I have seen for a study among health professionals, particularly interviews among GPs. There may be something to learn from the authors with regards to recruitment.

We thank the reviewer for this clarification, and have modified the text on page 8 as follows:

*We targeted clinical colleagues of one of the authors (NC)*

6. Interviewee IDs. The authors describe that 12 GP were interviewed. Could it be explained why the numbering of the individual GPs (as seen from the representation of quotes) include JP005 but also the likes of JP019 and JP020. The later identifiers suggest that there were more than 12 interviewees.

The numbering of individual GPs represents the file names generated by the device used to record the interviews. The extension of file names beyond the sample size is due to testing
and familiarisation of the device. For clarity’s sake, interview IDs have been modified to reflect consecutive numbering from ID1 to ID12.

References
