Author's response to reviews

Title: Evaluation of an online interactive Diabetes Needs Assessment Tool (DNAT) plus online learning resources compared with online learning resources alone for health professionals: Results of a randomised controlled trial

Authors:

Sara Schroter (sschroter@bmj.com)
Richard D Jenkins (djenkins@bmjgroup.com)
Rebecca A Playle (playlera@cardiff.ac.uk)
Kieran M Walsh (kwalsh@bmjgroup.com)
Courtenay Probert (courtenay@probert.me.uk)
Thomas Kellner (thomas_kellner@msd.com)
Gerhard Arnhofer (Gerhard_Arnhofer@merck.com)
David R Owens (OwensDR@cf.ac.uk)

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Author's response to reviews: see over
Response to reviewers’ comments

Additional comments from the Associate Editor:

‘Overall Comments
Data obtained were sound and analyses were described and adequate. Currently, the focus is on knowledge changing as the central point of the paper. This is weakened by the fact that knowledge improvement in intervention and control groups are not significant difference. Can the authors explore this further?

Thank you for these comments. I am sure you will agree that it is important to publish negative trials to avoid publication bias. As requested, we have made some suggestions in the Discussion section as to why we did not observe a group difference in knowledge scores.

Discretionary Revisions
1. Revise title to include comparison group (self directed online learning). The title implies the DNAT is being compared to a control method. If space allows in the title, it may be helpful to include the control method (self directed online learning).

As suggested, we have revised the title to:

Evaluation of an online interactive Diabetes Needs Assessment Tool (DNAT) plus online learning resources compared with online learning resources alone for health professionals: Results of a randomised controlled trial

2. Identify additional limitations to the study. Why did the study receive low response rate?

On reflection, we do not think the response rate is too low considering the requirements made of the participants (tests and self directed learning). We have commented on the drop out rate in the Discussion section.

Compulsory Revisions

Background:
1. Provide some description of the training/support that health professionals are already receiving.

In table 1, we include data showing the proportion in each group that were already registered users of some online learning resources and we balanced this across the groups during randomisation. Additional information would be difficult to collect and evaluate due to the inherent differences between the countries involved.

2. Explain more details about “gaps in knowledge and skills” mentioned in page 5.

We have now added more details which we hope better explains this phraseology.


These have now been described in much more detail as requested.

Methods:
1. Participant recruiting (n = 1286) and randomized steps, can you show how many Germany-speaking and English-speaking participants?

Table 1 indicates that there were n=265 German and n=789 English participants at baseline (n=1054). We have added this to the Methods section as well and included the language breakdown throughout Figure 1.
2. Can you reorganize the steps/ methods based on your figure 1?

We have moved the section on randomisation to immediately after recruitment of participants. We have renamed the section on assessments to Assessments and Administration, a subgroup of Methodology.

Where was the figure 1 in the manuscript?
The figure should have been included in the submission as a supplemental file. Our apologies, if it wasn’t. It is now included in the main manuscript.

You should also mention “Figure 1” somewhere else.
It is also mentioned in the first line of the Results section.

3. Explain how the stratification was performed, and what was used to randomize participants to condition.

Full details of the stratification are published in the protocol which is cited and provided. We have now included this additional information in the manuscript as well in the section on randomisation to make it easier and clearer for the reader.

Also, participants’ language was used to stratify the sample; should not participants be the unit of analysis? You also mentioned in the discussion (page 14, second paragraph) about bi-language aspect. This point might be useful to consider in future if other researchers would like to adapt this approach.

German and English participants were randomised to the two arms of the trial using a minimisation algorithm and their knowledge scores from Test 2.

4. Course process: explain how online materials were delivered/ disseminated? How often? Were all participants in the intervention group exposed to all aspects of the training and content, whether choice was involved, and how assurance of training criteria was achieved (i.e., how was this monitored?).

Participants were given access to learning materials (learning modules alone or modules plus DNAT) and just reminded 6 times to use the materials during the 4 month period. This is now stated in the Methods section. Participants in the intervention group were given access to all elements of the intervention. Participants in both groups were allowed to choose which learning modules they accessed.

Activity in terms of modules opened and completed was monitored. In the section called Unplanned Analysis, we report the average number of modules accessed by each group.

On page 7, did not follow the intervention section. Did all participants do the test in order to go next step for randomization or just introduce the online system?

Participants had to complete Test 1 before being randomised to a group. Test 1 scores were used to balance the groups on randomisation. As stated in the Methods section:
“Eligible registered participants on completion of Test 1 (described below) were randomised to either the control or intervention group.”

We have also made the following clarification in the section on Randomisation:
“Randomisation was balanced for language, ability (based on Test 1 score), doctor or nurse…..”

Results:
1. Table 2, can you explain effect within group?
Within group effects are that both the intervention group and control group improved by a similar amount.

2. Check page 12, secondary outcomes showed Table 2 or Table 3? I could not find the number, 76.8% (218/284) in the table. Please double check.

Sorry, it should have said Table 3 not Table 2. We have corrected this error – thank you for pointing this out to us.

The statement is not presented in Table 3, as implied by the words “In addition”.

“In addition, 76.8% (218/284) of the intervention group reported that it was “very useful”/”useful” to combine the recommendations from the needs assessment tool with the reading materials.”

3. Table 3: Clarify the findings (currently hard to follow), e.g., 3.1. What is (are) different and similar findings in both groups? 3.2. Did you analyze correlation between CCA score improving and some variables in table 3 (e.g., the learning materials have improved my overall understanding of the management of diabetes, etc. of both groups)?

As you are aware, there are few important differences between the groups for the secondary outcomes to meaningfully comment upon.

We do not think that an unplanned analysis would help answer the research question (correlate the self-reported data about perceived knowledge change with the change in knowledge test score).

Discussion and conclusions:
1. Identify the most important points of discussion and place in the context of what is known in the literature and the results. What are the advantages of Diabetes Needs Assessment Tools (DNAT) compared with Diabetes Learning Modules (DLM), and what are implications?

We have significantly revised the Discussion in light of the reviewers’ comments.

2. If the results show no difference of knowledge improvement between DNAT and DLM, why you want to use DNAT for next phase?
3. What are strengths of DNAT if the researchers want to use to change clinical practice?

We agree that our placement of a general sentence about future research in this area needing to focus on improvements in health status of the population was inappropriate and have now moved it to the limitations section.

We do not explicitly state that the DNAT should be used to change clinical practice. We present the results that show it did not lead to significantly more knowledge change or self-reported changes to clinical practice. However, responses to questions specifically about the DNAT revealed that it was a popular learning tool. Unplanned analysis suggested that it may be a more time efficient way of learning and we have indicated that further research specifically focussing on this aspect as an outcome measure needs to be conducted before reaching this conclusion. We trust that we have now presented this information clearly.

4. What further research is needed?

As the intervention group accessed fewer learning modules (and hence may have spent less time learning) while achieving a similar level of knowledge improvement as the control group, we have suggested that the DNAT may demonstrate a more efficient route of knowledge acquisition. However, this needs to be further researched as this is a result of unplanned analysis.
Other
1. Check punctuation

   We have checked the punctuation.

2. Check grammatical issues, e.g., write out a number if it begins a sentence. - page 12, the first sentence of second and third paragraph (Five hundred and eighty participants completed the Acceptability Survey.)

   We have corrected this.

3. Check references; 3.1. ref # 1, 4, 6, 8, 9, 11, 12, 15, 16, 19, 20, 23, 25 - consistency if the authors are more than three, you would like to use "et al."

   We have formatted the references.

3.2. ref # 12 - "A." should be bold or delete?

   We have deleted the “A”

3.3. ref #13, 23 - check page writing style'

   We have formatted the reference.

Response to comments from Reviewer 1

Discretionary Revisions
1. Revise title to include comparison group (self directed online learning).

   See response to editor’s comment above.

2. Identify additional limitations to the study.

   See response to editor’s comment above.

Response to comments from Reviewer 2

Background:
1. Provide some description of the training/support that health professionals are already receiving.

   See response to editor’s comment above.

2. Explain more details about “gaps in knowledge and skills” that you mentioned in page 5.

   See response to editor’s comment above.

3. Can you explain about background, theoretical basis for the learning program both programs, Diabetes Learning Modules and Diabetes Needs Assessment Tool? What differences and similarities?

   See response to editor’s comment above.

Methods:
1. Participant recruiting (n = 1286) and randomized steps, can you show how many Germany-speaking and English-speaking participants?

   See response to editor’s comment above.
2. Can you reorganize the steps/ methods based on your figure 1? Where was the figure 1 in the manuscript? You should also mention “Figure 1” somewhere else.

See response to editor’s comment above.

3. Explain how the stratification was performed, and what was used to randomize participants to condition. Also, participants’ language was used to stratify the sample; should not participants be the unit of analysis? You also mentioned in the discussion (page 14, second paragraph) about bi-language aspect. This point might be useful to concern in future if other researchers would like to adapt this approach.

See response to editor’s comment above.

4. Course process: explain how online materials were delivered/ disseminated? How often? How to support for learning? How to motivate both groups of participants to learn?

Participants were given an incentive to motivate them to take part. Details of this are in the published protocol. We have now added this to the Methods section. We also sent regular emails to remind participants to use the materials over the learning period (details already in Methods). We have reordered the paragraphs to make this clearer.

5. Course process: address whether every participant in the intervention group was exposed to all pieces of the training and content, whether there choice was involved, and how assurance of training criteria was achieved (i.e., how was this monitored)?

See response to editor’s comment above.

Results:

1. Table 2, can you explain effect within group?

See response to editor’s comment above.

2. Check page 12, secondary outcomes showed Table 2 or Table 3? I could not find the number, 76.8% (218/284) in the table. Please double check.

See response to editor’s comment above.

3. Table 3: Clarify the findings (currently hard to follow), e.g.,

3.1. What is (are) different and similar findings in both groups?

See response to editor’s comment above.

3.2. Did you analyze correlation between CCA score improving and some variables in table 3 (e.g., the learning materials have improved my overall understanding of the management of diabetes, etc) of both groups?

See response to editor’s comment above.

Discussion and conclusions:

In general, the discussion lacks of focus of an online interactive Diabetes Needs Assessment Tools (DNAT) when comparing with Diabetes Learning Modules (DLM) alone. Please identify the most important points of discussion and place in the context of what is known in the literature and the results.

See response to editor’s comment above.
2. If the results shown no difference of knowledge improvement between DNAT and DLM, why you want to use DNAT for next phase?

See response to editor’s comment above.

3. What are strengthening of DNAT if the researchers want to use to change clinical practice?

See response to editor’s comment above.

4. In your opinion, do you think 4-month of learning and DNAT can change clinical practice? Is it too long or too short? What kinds of approaches and/or activities needed to support for health professionals?

We now discuss the length of the learning period in the Discussion section.

5. Why did the study receive low response rate? Did you provide incentives? If not, how to motivate subjects to participate through the study in 4-month period?

See response to editor’s comment above. We now discuss the drop-out rate in the Discussion. As mentioned above, we have included information on the incentives used. This information was previously just in the published protocol.

6. Did you find any different results between two languages implementation?

We already report in the Results section that knowledge test scores were lower at baseline (Test 1) for German participants but improved by an equivalent amount during the study.