Author's response to reviews

Title: Experiences of Employees with arm, neck and shoulder complaints: a Focus Group Study

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Author's response to reviews: see over
Dear Dr. Catia Cornacchia,

Thank you for giving us the opportunity to revise the manuscript, and we would also like to thank the reviewer for all the constructive comments to improve our manuscript.

The manuscript has been revised according to the Reviewer’s comments as follows:
1) our responses/explanations are presented in italics below the Reviewer’s comments.
2) we have added a "clean" copy of our revised manuscript, including line numbers.

Comments:

General:

In addition, could you please move the Competing Interest and Acknowledgment sections from the title page to the end of the manuscript and could you please also remove the additional files.

As requested, we have moved these sections.

Reviewer #1

Major Compulsory Revisions

Background:
- It is very useful, that a multifactorial analysis or perspective is introduced – my question is how this is used to systemize and structure the gathering data? Even though the authors emphasize that they get answers from a wide range of areas it is not clear how the method of data collection ensures this.

The multifactorial perspective is guaranteed by the question guide, which was based on a recent multidisciplinary guideline for nonspecific CANS and the original self-management program, see page 8 lines 21-24 (The selected … focus group sessions).

Data were analysed using conventional content analysis. Content analysis has a long history in research and is used to analyse text data and can be used in analysing focus groups. First, each transcript was read multiple times, then interviews were analysed using content analysis with an open-coding system. New codes were added when considered necessary. After this, the codes were sorted into categories based on how the different codes are related and linked. These emergent categories were used to organize group codes into meaningful clusters, expressing the experiences of employees with CANS, see page 9, line 20 - page 10 line 5 (Data were ... employees with CANS). Originally, we decided to classify the general themes and patterns identified during coding according to the International Classification of Functioning, Disability and Health (ICF); however, we decided to change this into the general themes derived from the data.

Methods:
Participants
I think it is needed, into further detail, to argue how the sampling of these 15 people was purposive. If only 15 people could be selected from the group and they come from a wide range of different e.g. age groups, jobs and educational backgrounds – how can this selection be purposive?

We agree with the reviewer that we did not make this clear enough in the manuscript. A purposive sample is one that is selected based on the knowledge of a population and the purpose of the study. The subjects are selected because of some specific characteristics. We were interested in employees from both the HAN University of Applied Sciences (UAS) and from the Radboud university medical centre (RUMC), with complaints of the arm, neck and/or shoulder persisting for longer than 12 weeks. Moreover, the complaints must be caused or worsened by their job and/or restricted their participation in work. Therefore, we purposively selected employees who met these criteria, using the described selection criteria.

In order to specify more clearly how we used purposive, homogeneous sampling, we have added some sentences, see page 8 line 1 (A purposive, homogeneous sampling technique) and page 29, lines 3-11 (Moreover ... this particular study).

In both these organizations, the employees work in different types of professions; ranging from nurses to teachers, from researchers to analyst, from security officer to administrative assistant.

Why were the respondent at a specific hospital selected as a target group? How do the situation of these employees especially contribute with relevant multifactorial knowledge for future CANS intervention in other settings? This methodological issue needs to be addressed to further detail in the discussion. Moreover, the selection bias in regards to the respondents needs to be addressed into further detail in the discussion.

This is an important point. Primarily, the intervention was designed only for employees of the HAN UAS and RUMC. Therefore, participants of the focus group meetings were recruited from these two institutions.

Therefore, it is possible that the results of this study are not fully generalizable to the whole population of employees with long-lasting CANS. However, the aim of (these) focus groups was not to infer but to understand, not to generalize but to determine the range, and not to make statements about the population itself but to provide insight into how people in the groups perceive a particular situation (Krueger and Casey, 2009). This understanding is a pre-condition to be able to fit the intervention to the needs of the potential users.

As mentioned in our manuscript, participants in our study experienced some problems similar to those of employees with other types of chronic diseases; therefore, it seems plausible that this can also be the case for employees with CANS working in similar settings. Moreover, we think that not (only) the work environment, but rather the personal characteristics of employees with CANS are (also) important when considering the causes of the complaints and when dealing with the complaints. These personal characteristics might be similar in all employees with CANS, irrespective of their specific work environment.

Also, the focus group sessions with employees are a part of the first step of the intervention mapping process; we also reviewed a recent Dutch multidisciplinary guideline for nonspecific CANS and we conducted focus group sessions with experts as well. Therefore, we think that the results of the overall needs assessment provides valuable information about/for employees with CANS in other settings.

Selection bias may of course be present in our study. This study was conducted in a healthcare setting and in an educational setting, and participants were relatively highly educated. Therefore, our results do not necessarily reflect the experiences of workers in a different setting, such as workers in a factory. However, as mentioned before, in both of the study organizations, the employees work in very different types of professions; Table 2 shows that our participants have variable professions. Selection bias is reported to occur mainly in hidden populations (Valdez and Kaplan, 1999). In the present study this does not seem to be the case; therefore, the results represent the experiences of the participants who met the inclusion criteria.

We have already mentioned the potential selection bias in our manuscript (see page 28, line 12), but to make this even clearer we have added some sentences, see page 28, lines 14-24 (However, ... the factory workers).
Focus group meetings
I think a more theoretical discussion is needed to argue why the specific question categories are selected to be part of the interview. Why are these questions especially relevant? Why are the interviews based upon these predetermined themes and questions?

The content and the order of the different question categories were developed based on Chapter 3 of the 4th edition of ‘Focus Groups, a Practical Guide for Applied Research’, Krueger and Casey (2009).

We tried to follow a certain question route consisting of an opening question and introductory question, a transition question, some key questions and some ending questions. As mentioned in our manuscript, our aim is to adapt an existing self-management program for use among employees with CANS, and we wanted to add an e-health component to the existing program. Therefore, we wanted to investigate the experiences of employees with CANS. As mentioned, our question guide was based on a recent Dutch multidisciplinary guideline for nonspecific CANS and the questions on self-management aspects were based on the original self-management program (Detaille et al, 2012). The topics ‘use of facilities’, ‘social support’, ‘asking for help’ and ‘communication’ were all part of the original self-management program. In order to investigate the relevance of these topics for employees with CANS we included these topics in our question guide.

We have made this clearer in the revised manuscript see page 8, line 18 (Following … Krueger and Casey), page 8, lines 21-24 (The selected… focus group sessions) and page 29, lines 21 – page 30, line 6 (The question guide … facilitated).

Furthermore, I think the authors need to argue how these questions or themes encompass the multifactorial nature of unspecific CANS as argued in the background. Moreover, I think a more thorough discussion of why and how the focus group interviews were used is needed. As I read the interview guide the questions are formulated as individual questions and could therefore possibly provide individual answers. A discussion or clarification of how the focus group interviews were used methodologically to gain multifactorial knowledge is needed.

This paper focuses on the experiences of employees with CANS. We were interested in how employees experienced and perceived their situation. The etiology of nonspecific CANS is presumed to have a multifactorial origin: we have used this knowledge in the question guide.

We asked participants about their perceptions of known influencing factors. Of course, it is possible that employees themselves are not fully aware of this multifactorial origin. Therefore, one of the first questions in the question guide is to ask what employees think about the causes of their complaints, in order to gain insight into reasoning models and beliefs. After this general question we focused on some multifactorial aspects that we wanted to make sure were addressed in the focus group meetings, such as psychosocial characteristics (e.g. social support), the work environment (e.g. facilities) and some personal factors (e.g. asking for help). Other personal factors (such as stress management) and physical characteristics were expected to be mentioned by the participants in any case and were, therefore, not specifically addressed in the interview guide. As the results show, this assumption seems to be correct, because these topics were intensively discussed. Therefore, we think that the multifactorial nature of nonspecific CANS is facilitated by the interview guide. In most group discussions participants reacted with/to each other. However, in the case that the group discussion was not sufficiently facilitated by the question alone, the moderator could give some examples. This also contributes to the discussion of multifactorial items.

To make this clearer we have added some sentences to the revised manuscript, see page 9, lines 5-8 (When … the participants) and page 29, line 17-23 – page 30, line 6 (We assumed … facilitated).

The individual questions do have coherence and some questions are related to a previous question. However, as mentioned before, we wanted to make sure that some specific topics would be discussed and we wanted to know about the participants’ perceptions of these factors. Therefore, although some topics seem to be individual questions, they do reflect the main question (experiences and needs; more specifically, potential causes of complaints and potential targets of the intervention). Participants reacted and interacted with each other, many times with recognition
and confirmation. Therefore, the questions did facilitate group discussion and the sharing of experiences.

Focus groups can be used in program developing and have proven to be helpful in the needs assessment, mainly because they provide an interactive environment (Krueger and Casey, 2009). Moreover, focus groups can be used if one is exploring the range of ideas that people have about something, and can uncover factors that influence opinions, behaviour or motivation (Krueger and Casey, 2009). Also, a group possesses the capacity to become more than the sum of its parts, and to exhibit a synergy that individuals alone do not possess (Krueger and Casey, 2009). Therefore, focus groups were considered to be the most suitable method for the aim of this study, i.e. to identify the problems as experienced by employees with CANS.

We have added this information to make this point clearer; see page 7, lines 15-22 (We used ... employees with CANS).

Results:

Generally

I think it would be very helpful for the reader to have a further elaboration of how the different categories of results emerged from the data. This should be explained in greater detail in the method section.

Thank you for this suggestion. We have made this clearer in the Method section, see page 8 lines 21-24 (The selected ... focus group sessions).

Originally, we decided to classify the general themes and patterns identified according to the International Classification of Functioning, Disability and Health (ICF); however, as mentioned above, we decided to change this. Therefore, we have rearranged the Results section. Moreover, we have included the ‘Advices for development of interventions’ in the main results under the several sections. The results are now classified as general themes as derived during the data analysis.

I think a clear relationship between the gathered data and the intervention mapping process is missing. A clear argumentation of how these data are to be used in future interventions and how these issues relate to the aim of this study should be elaborated. Since the categories presented in the result section is not thorough accounted for in the method section I find it difficult to see why the results presented are specifically relevant.

Thank you for this very important question, because the aim of this focus group study was to use the gathered information in the development of a self-management intervention using Intervention Mapping. Intervention Mapping is an additional tool for the planning and development of health promotion interventions. It maps the path from recognition of a need or problem to the identification of a solution. The first step in the intervention mapping protocol is the needs assessment, in which the planner assesses the health problem, its related behaviour and environmental conditions, and their associated determinants for the at-risk populations.

The needs assessment of our intervention mapping process consists of three parts; 1) review of the Dutch multidisciplinary guideline for nonspecific CANS, 2) focus groups with employees with CANS, and 3) focus groups with experts. Thus, the results of this study are one part of our intervention mapping process; the results of the focus groups with experts will be published elsewhere.

The results of the development of the intervention using the intervention mapping protocol, including the above-mentioned needs assessment and including implications for the development of interventions, will also be published in a separate article, which will extensively describe all six parts of the intervention mapping protocol.

We have made this clearer in the revised manuscript, see page 31, line 19 (can contribute to the adaptation of an) and page 31, line 22 – page 32, line 6 (As part ... forthcoming articles).

We have also made clearer which topics should be addressed in future interventions, see page 25, line 15 – page 26 line 8 (Generally ... be provided) and page 28, lines 4-11 (Insight in ... self-management intervention).

One of my major concerns related to the results is that subjects in the result section only seem to be presented in a superficial way not getting into depth with data. The reader is given an overview of a huge amount of possible influential factors but none of the factors are elaborated as especially important. For
example I find it problematic for the understanding of data that an area as "culture within the organization" is not investigated in greater detail. It is a very huge area and could easily have been the only target for the study. Since “in depth data” is one of the primary strengths of qualitative interviewing it is difficult to see why this method was chosen.

Thank you for this remark. We explained before why focus groups were chosen as the research method. We agree with the reviewer that some topics could have been investigated in greater detail. However, the aim of the present study is to identify the problems as experienced by employees with CANS. With this information, the existing self-management program of Detaille et al. can be adapted to specifically fit the experiences of employees with CANS. Culture within the organisation was not part of our interview guide, but was identified in the focus group sessions. The target group of the intervention was the employees, therefore we did not focus on organizational issues. We focused on topics that could be influenced by the participants themselves, because self-management interventions focus on self-management and coping with the health problem. Because the etiology of CANS is multifactorial, we were unable to address all factors extensively in this study. Many of the identified factors can be investigated in further detail in future studies. However, as mentioned before, we decided to focus on topics that could be influenced by the participants themselves.

Indeed, there are many possible influential factors. Moreover, in theory, the presence of all these factors may vary between employees. Therefore, it does not seem possible to indicate some specific factors as being specifically important. Our intention was to provide an overview of the experiences of the participants, specifically focused on the factors which could be influenced by the people themselves as part of self-management.

We have added this limitation to the Discussion section, see page 30, lines 9-13 (Another limitation … this aim).

Moreover, we have tried to list the important derived topics in the Discussion section and have re-arranged parts of this section, see page 25, line 15 – page 26 line 8 (Generally … be provided).

Discussion:
The authors’ state: “This also implies that they might be a source of useful information relevant for other employees with CANS, because they have experience in working with and finding solutions for their complaints”. I do not think this generalization is possible since the respondents are selected from a specific environment. Even though their reflections are interesting I find them very hard to compare to other environments. This issue should be elaborated in to further detail in the discussion section.

We agree with the reviewer and have added this point to the manuscript. However, although participants were included from 2 different organizations, they worked in varying professions, indicating that the topics are relevant in different professions and settings within the organizations. Therefore, the information gathered in this study will be used to select the important topics for the self-management intervention; employees with CANS must be empowered to take control over their complaints in their work environment. The exact content of the topics identified may vary between different work settings. Please see page 28, lines 14-24 (However, … the factory workers).

I think it is not correct to state that the protocol “only has a few limitations”. All the limitations of the study should be taken in to account and be addressed and discussed thoroughly in detail.

We apologize for this misunderstanding. In our manuscript we stated: “Our study protocol has a few limitations.” We did not intend to state that our protocol only has a few limitations. We agree that all the limitations should be discussed.

To make our statement clearer we have changed ‘a few limitations’ to read ‘several limitations’, see page 27, line 12.

Moreover, we have tried to better describe all the limitations: see page 27, line 12 – page 31, line 3 (This study … competing explanations).

Minor Essential Revisions

Background:
The concepts of "Self-efficacy" and "wellness behaviour" are introduced but no definitions of the two concepts are presented. I think this is needed. 

As requested, we have added the definitions, see page 5, lines 14-16 (described ... living).

I find that the link between ordinary interventions for CANS at the workplace and interventions of self-management is not well established. I find that the article could benefit from elaborating this issue.

We have mentioned the intervention of Bernaards et al. 2007 and 2008 (page 5 lines 4-8) and have provided the characteristics of the self-management interventions (page 5, lines 13-24). Moreover, we have tried to clarify the link between ordinary interventions and self-management interventions by adding some differences between the intervention of Bernaards et al. and the self-management programs (Detaille et al, 2012), see page 6, lines 3-8 (In their ... are made). The reason we focused on the intervention of Bernaards et al. was that the recently published Cochrane review on conservative interventions for treating work-related complaints of the arm, neck or shoulder in adults (Verhagen et al. 2013) found a decrease in pain at long-term follow-up for ergonomic interventions, and they included the study of Bernaards et al. For behavioural and other interventions, there was no evidence of a consistent effect on any of the outcomes.

It would be interesting if the authors to a greater extent could unfold the e-health component and maybe relate it to the self-management process.

The ehealth component has been added because of the multifactorial origin and diversity of the symptoms of CANS: by adding an ehealth component, part of the subgroup-specific related information can be provided in a tailored way (in which participants can make their own choices). In this way, the time during the meetings can be used more effectively and the information is available at every moment.

We have added this information to the revised manuscript, see page 6, lines 15-19 (The ehealth ... every moment).

(The content of the ehealth and the topics of the self-management settings are presented in our recently published research protocol (Hutting et al. 2013).

As the authors state that “intervention mapping will guarantee that strategies will be adopted”, I think it would be relevant for the authors to argue why this is guaranteed. Otherwise, to tone down this argument. We agree with the reviewer that this conclusion was too strong and have now ‘softened’ this statement, see page 6, line 22 (and to increase the likelihood).

**Methods:**
Participants
The authors use a pain period of 12 weeks as a cut off point for selection of respondents. An argumentation of why this time limit is chosen is needed.

The inclusion criteria used in the present study will also be used in the adapted self-management intervention. The period of 12 weeks was chosen because we wanted to include employees with chronic non-specific CANS (Multidisciplinary guideline on CANS, 2012), because self-management interventions mainly focus on chronic conditions.

We have added this information to the revised manuscript, see page 8, lines 5-10 (Generally ... non-specific CANS).

Data analysis
Please argue why “no member checks” were performed to ensure validity of the discussion.

We agree that member checks contribute to the validity of the data. After contacting an expert on qualitative research methods, we decided to contact all the participants again to perform member checks. Although the focus groups were conducted one year ago, we found all of the participants, and member checking can still be valuable.

We have added this information to the revised manuscript, see page 9, lines 17-19 (Member checks ... by email) and page 30, lines 14-19 (Although ... was correct).
All participants were successfully reached for the member checks. None of the participants indicated that our interpretation was not correct. No changes were made after the member checks, see page 10, lines 20-22 (All participants ... member checks).

It would be helpful for the reader to receive more knowledge and arguments of how the relationship between codes were established

First, each transcript was read multiple times, after which the interviews were analysed using content analysis with an open-coding system. New codes were added when considered necessary. After this, the codes were sorted into categories based on how different codes are related and linked. These emergent categories were used to organize group codes into meaningful clusters, expressing the experiences of employees with CANS. As mentioned before, we have made this clearer in the revised Method section, see page 9, line 20 – page 10 line 5 (Data were ... employees with CANS).

Results:

Generally
I find it is necessary for the authors to argue how the combination of single and focus group interviews are combined and in the discussion section to discuss how this could possibly affect the results.

We agree that this issue needs more discussion. In our manuscript, we described why focus groups were chosen as a research method. Indeed, three participants were interviewed individually as they were unable to attend one of the focus group meetings. This implies that these participants were not part of a group process and that, for these participants, ideas did not emerge from the group. However, because these three participants wanted to participate and they fulfilled the inclusion criteria and all information about the experiences of employees with CANS was needed, we decided to perform interviews and analyse them together with the focus group results. This could have influenced the results of this study; however, because no major differences in perceptions and experiences between participants of the focus group and of the interviews were identified, this seems not to be the case.

We have added this information to the discussion of limitations, see page 29, lines 12-20 (Moreover, ... the case).

Bodily functions and structures: Stress and coping are mentioned in different sections during the presentation of results. I think it would be helpful for the overview if these results were put together in a specific section. Furthermore, I was wondering why stress is categorized in the section “bodily functions and structures”?

As mentioned above, we have rearranged the Results section and the classification of the themes, thereby diminishing the overlap.

Discussion:

In the starting section the authors state that the study investigate both experiences and need of employees suffering from CANS. I think the primary focus is concentrated upon experiences and not needs. Maybe this could be elaborated?

Thank you for this remark - we agree that the primary focus is concentrated on the experiences, even though this study identified several needs of employees with CANS. Therefore, we have deleted the needs in the title and aim of the study. We have retained the identified needs of the participants throughout the manuscript.

Discretionary Revisions

Results:

Activities, participation and personal factors. This is a very broad headline which encompass many different factors - is it possible to divide it into smaller headlines?

As mentioned above, we have rearranged the Results section and classified the results according to the topics derived from the data.
Table 1:
In “Mean hours of work per week” the range is set to 18-5, is that correct?
Our apologies, this was an error and has been corrected to read 18-50.

Quality of written English: Needs some language corrections before being published
The entire revised manuscript has been corrected by a native speaker.