Author's response to reviews

Title: Patients with Shoulder Syndromes in General and Physiotherapy Practice: an observational study

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Author's response to reviews: see over
Dear Mr Pollard and Ms Sluiter,

Thank you for your extensive review of our article. In the point-to-point reply below, you can find our comments.

Kind regards,
on behalf of all authors,

Margit Kooijman

**Reviewer:** Editor

1. I don’t know if this will fly. It is my understanding that ethics approval is required for the use of the data in this study. Please confirm or deny.

No ethics approval is required for this study. According to the Dutch Medical Research Involving Human Subjects Act this study does not require ethics approval. What matters most in this context is the scope of the Act. That is as follows:

- The purpose is medical research;
- This purpose creates a situation for the subject where he or she will undergo a certain treatment or has to comply with certain procedures.

Medical research is as such not defined in the Act. An explanatory statement of the governmental agency overseeing compliance with the Act, defines medical research as (in short): research aimed at acquiring generalizable results about diseases and health (etiology, pathogenesis, symptoms, treatment regimes etc.).

Research without subjecting people to certain procedures or requiring them to act in a certain way, is not medical research in the sense of the Act. Hence, observational research does in general not fall under the ambit of the Act.

**Note:** the manuscript was seen by a native English writer.

**Reviewer:** Henry Pollard

**Abstract**

1. have

*OK*

2. awkward sentence

*Also because the second reviewer suggested stating the two questions, this sentence was changed into:*

“The first goal of this study is to document current health care use and the treatment process for patients with shoulder syndromes in both general practice and physiotherapy practice. The second goal is to detect whether there are differences between patients with shoulder syndromes who are treated by their GP, those who are treated by both GP and physiotherapist and those who access physiotherapy directly.”

3. awkward sentence

*Sentence removed*

4. return

*OK*
5. This conclusion needs to be rewritten with the key findings of the paper and their direct implications, not just that more research is required.

**Conclusion has been rewritten into:** “There is a fairly large group of patients with persistent symptoms. Early referral by a GP is not advised under current guidelines. However, many symptoms develop gradually, and a wait-and-see policy means valuable time may pass before physiotherapy intervention takes place. Meanwhile a long duration of complaints is a predictor for poor outcome. Therefore, future research into early referral is required. As physiotherapists, we should develop a way of educating patients to avoid lengthy waiting periods before seeking help. To prevent high costs, physiotherapists could consider a classification of pain and limitations and wait-and-see policy as used by GPs. With early detection, a once-off consultation might be sufficient.”.

**Introduction**

1. Percentage added: “Shoulder complaints are the most common complaints of the extremities in an average physiotherapy practice; 9.8% of all patients present with this type of problem.”.

2. Percentage added: “Low back pain and neck pain are the only complaints for which a general practitioner (GP) refers more patients to the physiotherapist; 7.3% of all referrals to a physiotherapist are made for shoulder complaints.”.

3. for both self referred and dr referred? State specifically

   This is a general introduction for all patients with shoulder complaints (all types of complaints, all types of referral), to make clear the burden on the individual and the society. Later on in the introduction, we elaborate on shoulder syndromes specifically and also on possible differences in use, treatment and outcome depending on the type of referral. These differences have been studied in general and for some neck and back problems, however, it is not known if this is true for shoulder syndromes as well. Therefore, this is one of the research questions. In the introduction, this is now stated more specifically: “In the Netherlands, patients can access physiotherapy professionals directly (known as direct access or self-referral) and it is known that use, treatment and outcome may differ depending on the mode of access [17]. However, it is not known whether this is also true for patients with shoulder syndromes specifically. By separating patients who were referred for physiotherapy from those who were not, an attempt was made to describe the care of the two groups and to determine if they were materially different.”.

4. Redundant referencing

   Several references have been removed.

5. Maybe for exercise. There is a large amount of epidemiological data on type of conditions and their frequency.

   According to Kelly et al (2010) in their review on the clinical outcomes of exercise in the management of subacromial impingement syndrome, “there are no accurate estimates of the incidence of prevalence of subacromial impingement syndrome.”. No changes made.

6. This conclusion cannot be supported from the paper you cite. It does not cover all conditions managed by a physio, medical or other manual therapy practice, it is a paper on impingement only.

   Indeed this is a paper on impingement only but this is also the group we’re writing about. From your suggestion we understand this is not clear (enough) so we added this extra information to the sentence: “In addition, a recent systematic review of the literature indicates that many studies on the management of impingement syndrome are deficient in detailed demographic information, as well as information on previous medical treatment such as corticosteroid injections or (non-)steroidal anti-inflammatory drugs, previous physiotherapy and even the duration of the symptoms at the start of treatment.”.
7. Collocquial
Sentence changed into: “As referred to above, there is debate on the best treatment methods for patients with shoulder syndromes.”.

8. You will need to be much more specific. The choice of treatment depends entirely on the condition and many other variables not mentioned in this statement.
Especially as a physiotherapist I agree with you. However, your suggestion addresses the main problem; due to unclarity and (therefore) heterogeneity in conditions and treatment, in recent literature, the overall conclusion is that for the group of patients with impingement syndrome, there is evidence for an equal effectiveness of physiotherapy and surgery. As a researcher, I use this information as a starting point for my research. No changes made.

9. Analgesia. This is also consistent with many guidelines on management. Reference.
Analgetics changed to analgesia.
References for both guidelines have been added.

10. This is not a sentence.
Sentence change into: “There also is a short guideline available for physiotherapists. This is based partly on scientific evidence and partly on best practice because the content of physiotherapy treatment, as part of conservative treatment, is still under discussion. This results in a variable number of patients (20-79%) that respond well to physiotherapy.”.

11. …an attempt was made to describe the care of the two groups and to determine if they were materially different.
The sentence has been changed into your suggestion.

12. Put these into prose rather than bullet points.
Both questions were put into prose.

Methods

1. Provide a flowchart of patient recruitment, selection, allocation, exclusion and treatment completions.
Perhaps this is not clear enough, but no groups were made so there was no selection, allocation or exclusion. We included all patients in both networks with ICPC L92, no exceptions, and all treatment was completed. No flowchart provided.

2. How were GP’s and physio’s selected: sequential, random, convenience sample? Describe method.
A random sample has been drawn from the Dutch human resources registers for general practitioners and physiotherapists at the start of LINH and LiPZ. This information is added to the ‘registration’ paragraph in methods.

3. By whom? Blinded?
The list was made by the first author (Margit Kooijman) and the researcher working on LINH (Christel van Dijk). The procedure was not blinded since it is a list of frequencies. At LINH, it is standard procedure to identify the most common prescriptions for a certain diagnosis because not of every consult a diagnosis is known. This topic is addressed as a limitation in the discussion. No changes made.

4. Who set the codes. The practitioners or someone else. How were definitions standardised across practitioners? If they were not, this should be listed as a limitation of the study.
These are standardised codes set by the Dutch healthcare authority. This information is added to the text: “Interventions were registered using CTG codes, which are standardised codes set by the Dutch healthcare authority for health care claims to health insurers.”.
5. Don’t you mean shoulder “pain” not syndromes.  
*I do mean shoulder syndromes. It is about the occurrence of CTG codes in a care episode of ICPC L92 (shoulder syndromes). It is the same problem as with the prescriptions, not of every consult a diagnosis is known, so first the most common CTG codes are listed from consults of which the diagnosis is known to be L92. No changes made.*

6. …managed by the physiotherapists…”  
*This entire paragraph is about GP’s so it is about patients managed by the GP, not the physiotherapist. Because the sentence starts with “Based on the referral”, I can see this is confusing. Therefore, the sentence has been changed into: “Based on the information in the referral module”.*

7. define? Why?  
*In the paragraph in the introduction on this topic we now elaborate more on the rationale to split the group based on whether a patient is referred or not: “In the Netherlands, patients can access physiotherapy professionals directly (known as direct access or self-referral) and it is known that use, treatment and outcome may differ depending on the mode of access [17]. However, it is not known whether this is also true for patients with shoulder syndromes specifically. By separating patients who were referred for physiotherapy from those who were not, an attempt was made to describe the care of the two groups and to determine if they were materially different.”.*

8. What subset of the total was this? You should include the percentage to determine who actually made this inclusion criteria. Describe all inclusion and exclusion criteria specifically here.  
*It is not about a subset, these are not inclusion or exclusion criteria. Of every patient with ICPC L92, information on demographics, the health problem, treatment and outcome was registered. No changes made.*

9. This sounds very subjective. Any objective measures taken?  
*You are right this is very subjective. Since 2010, we register the severity of the complaint at the beginning of the care episode and at the end. Unfortunately, when patients do not come back, this information (to be obtained from the patient) is not known. It means this outcome measure is only known for a subgroup of patients, not enough to study this reliably. Therefore, we also ask the physiotherapist to give an indication of the outcome, this way an outcome measure is known for every patient. This topic is now addressed in the limitations of the study: “To measure the outcome of physiotherapy treatment, an indication of the extent to which the treatment goals were met is registered in LIPZ by the physiotherapist. This is a subjective outcome measure. In 2010, an indication of symptom severity at the beginning of the care episode and at the end was introduced. When patients do not come back, this information, which has to be obtained from the patient, remains unknown. As a result, this outcome measure is only known for a subgroup of patients, which is insufficient for a reliable investigation. Therefore, physiotherapists give an indication of the result, so that an outcome measure is known for every patient. In the present study, referred patients and self-referrals achieved the treatment goals to the same extent. Since the outcome is measured in the same subjective manner, it is not expected that the results would be different. Nevertheless, ideally, patient-reported outcome measures should also be studied.”.*

*This information is mentioned in the paragraph above on GP treatment. This concerns the physiotherapy treatment. So in both groups (GP and physiotherapy) the group is split in two: referred versus not referred. No changes made.*

11. Any power test performed prior to the study?  
*Because LINH and LIPZ are large databases, it was known this group would consist of enough patients to perform the statistics on. No power test was performed.*

**Results**
1. You still have not defined what “shoulder syndromes” are and how they differ from “shoulder complaints”. Define early in manuscript.

In the second paragraph of the introduction, more information is given on shoulder syndromes: “Shoulder complaints can be roughly divided into problems with the glenohumeral joint (frozen shoulder, osteoarthritis), shoulder instability, acromioclavicular or sternoclavicular complaints, cervical or cervicothoracic dysfunction and problems with structures in the subacromial space. It has been estimated that approximately 44-80% of all shoulder complaints originate from these anomalies of structures in the subacromial space [9] [10]. This space contains the tendons of the rotator cuff muscles and two bursae. Entrapment or inflammation of these structures leads to a restricted range of motion and pain. Although these complaints are described as shoulder syndromes, there is lack of consensus on the diagnostic criteria and on the best approach to management.”.

“Last mentioned” changed into “self-referrals”.

3. Present the percentages here for all variables not just some of them.
To prevent double information, percentages are only given on results that cannot be found in the tables. Exact percentages on all variables of both groups in physiotherapy practice are shown in table 3. In the first part of the paragraph, in prose, the statistical significant differences are summarized to point out the major findings. In the second part, percentages are given for the entire group for variables that are not statistically different. Since table 3 presents percentages for the subgroups, these overall percentages cannot be found in table 3 and are therefore presented here. No changes made, however, if the editor insists, percentages can be given for all variables.

4. Of total patients or the subset of shoulder syndromes.
Our study is on patients with shoulder syndromes so all results concern patients with shoulder syndromes.

5. So the average pain severity was 7/10 for the complaints. This is awkwardly worded. How does this compare to the shoulder syndromes? This section seems to be muddled. Focus on syndromes and then complaints (if they are different) and address them consistently so that the reader can quickly assimilate the information.
The entire results paragraph in on patients with shoulder syndromes. Between group comparisons concern (dr) referred patients versus self-referrals. In the text, comparisons between groups are now specifically described as differences between referred patients and self-referrals.

6. The results section needs to be re-written.
Between group comparisons are now specifically described as differences between referred patients and self-referrals. In addition, numbers (n) are given with the percentages so it is easier to link the text to the table.

Discussion

1. Rephrase, colloquial.
Rephrased into: “The present study sought to determine the characteristics of the patient population and the types of treatment for patients with shoulder syndromes in both general practice and in physiotherapy practice and secondly, whether there are differences between patients who are treated by their GP, those who are referred for physiotherapy and those who access physiotherapy directly.”.

2. Good. Why wasn’t this in the results? This is nice and clear. Then you can describe the finer points of the study after the major findings.
In the first paragraph of the results, it is now stated that GP’s treated 82% of the patients themselves and that 18% of patients were referred to another clinician.

Rephrased into: “Given the limited value of clinical shoulder tests, even when combined, this could be a helpful approach.”

4. So you are implying that more severe conditions go via the GP? If so say so.

No, that’s not what is meant so the text has been rephrased: “In previous research, it was demonstrated that patients with shoulder complaints make as much use of direct access as the general patient population when attending the physiotherapist [17]. However, the results of this study show that patients with shoulder syndromes make less use of direct access; only 13% came through direct access compared with 22-44% of the entire patient population attending the physiotherapist from 2006 to 2010.”

5. True of other studies?

Yes it is. Information thereof and reference are added to the discussion: “In addition, this study shows that many patients wait long before they visit a physiotherapist. Also Kennedy et al. found that almost half of the patients with soft tissue disorders of the shoulder waited more than three months before they contacted a physiotherapist.”

6. Yes.

OK

7. Range? Present the values for conditions vs syndromes too.

Point estimates and standard deviation are given in table 3 (NRS 7 ± 1.1-1.7).

The value for other conditions is not a result of this study. Kennedy et al found a mean NRS of 57.7 ± 22.0. This information is added to the text: “Pain severity might also explain the limited number of self-referrals among patients with shoulder syndromes. Pain is common in shoulder syndromes and the average score on the numeric rating scale for pain severity was seven for both referred patients and self-referrals. Kennedy et al. found a comparable level of pain severity in patients with soft tissue disorders[8]. Given the type of treatment offered in general practice, patients with severe pain might turn to a GP first.”

8. Physio’s do so much more than this. What about thoracic and cervical management (so called non local factors). Describe all interventions and provide percentages to illustrate frequency of use.

Interventions and their frequencies are presented in table 3. This paragraph only addresses the discussion points on these results. It suggests that the frequent usage of massage in patients with shoulder syndromes is odd since this there is no evidence for the effectiveness of massage.

9. Time frame?

2011 (see reference).

10. Resolved or not. Be clear.

What is known, is that patients come back to their GP for shoulder syndromes after being given a referral for physiotherapy. In fact, we don’t know if the complaint is resolved or not. However, return visits to the GP for the same complaint are highly unlikely when the complaint would be resolved. So it is an assumption, but the figures (% treatment goals met at physiotherapist and % return to GP) correspond with each other. No changes made; what we know is that patients come back not if complaints are resolved.

11. Did this incorporate all costs including imaging and other ancillary therapies and management?

Yes, it included direct health care cost relevant to treatment of shoulder complaints, such as visits to GP, physiotherapist, manual therapist, occupational therapist, complementary health therapists, consultant in orthopedic surgery, neurology, rheumatology, or rehabilitation medicine and hospitalization. It also included direct non-health care cost such as out of pocket expenses, costs of performing extra activities, homecare and cost for pain and unpaid help. And it included indirect costs including cost of loss of production due to shoulder complaints (sick leave) and inability to perform usual activities and hobbies.
Sentence removed.

13. So do these limitations cloudy that data to the point that it is not representative of the population they are trying to describe.
This discussion point has been re-written a bit: “Furthermore, diagnoses are based on referral letters, which can be ambiguous or imprecise. For example, terms such as ‘shoulder complaints’ are used, without giving further information. The procedure for diagnosing specific shoulder disorders is further complicated by a lack of consensus on the diagnostic criteria. Where diagnosis is difficult, complaints may be described as general shoulder complaints in the first instance, perhaps more so by less experienced clinicians. In this study, these general shoulder complaints are not included as shoulder syndromes in order to prevent heterogeneity as much as possible. Therefore, the results are based on a more homogeneous group of patients, but this may have led to an underestimation of the number of people attending the physiotherapist with shoulder syndromes.”.

14. Other limitations of the work. Selection bias. Population representative. Definitions variable and sometimes ambiguous. Add section of further research. Be specific where such research should proceed and what limitations in this research and the literature you have identified.
Other limitations of the work. Could you be more specific, please?
The topic of selection bias is not addressed because both groups, notwithstanding limitations of the procedure, are selected the same way.
Population representative. Representativeness of the groups of physiotherapists is addressed in the methods section.

Further research. Our main advise on further research concerns the time-frame for referral to a physiotherapist. This is now addressed in the discussion in more detail and incorporates current limitations of research: “Most patients who received a referral for physiotherapy, were referred early on and were prescribed less medication. The guideline for shoulder complaints from the Dutch College of General Practitioners recommend a stepwise approach in which the patient is referred for physiotherapy when there is no improvement with rest and advice (‘wait and see’) and pain medication for one or two weeks (preferably paracetamol) [9]. When pain is the main problem, extended treatment with analgesia is indicated. Physiotherapy is mainly indicated in the presence of a limited range of motion or other functional limitations. Although the duration of the complaints does not appear on GP records, the high number of first visit referrals indicates a discrepancy between the guidelines and practice regarding the time frame for referral to physiotherapy. Further experimental research into the long-term effectiveness of early versus later referral is required to determine the preferred procedure. Duration of the complaints, level of pain, presence of functional limitations and concomitant cervical or cervicothoracic dysfunction will need to be taken into account.”.

Conclusion
1. Is this why the syndromes are more painful? Less analgesia? Or less severe? Can’t tell based on these data.
I don’t understand what you mean exactly. Syndromes are more painful than what? Severity of syndromes versus other complaints is not addressed here. From the results of this study, we can tell that patients with shoulder syndromes that were referred for physiotherapy were prescribed less medication than patients treated solely by the GP. Since this is a observational study, we can’t comment on causality (less analgesia implies less severe complaints or vice versa). Less medication for referred patients together with earlier referral does trigger the question why GPs decide on different treatment strategies and if this is effective. That’s why we suggest further research on this topic, incorporating limitations of current study, for example lack of knowledge on duration of complaints or severity of pain.

2. Yes. Discuss this concept further in discussion. The wait and see approach is good in theory but it may also foster chronicity which is known to have poorer outcomes and be associated with physchosocial issues as well.
Indeed, this topic was not addressed sufficiently but is now discussed further in the discussion. Therefore see the answer on point 14.

3. When testing, it is never good practice to rely on a single test. One always performs several tests to rule in and out various conditions. The sensitivity and specificity of individual tests are often not great but are improved when combined. Discuss. To some extent I agree with you. Single test are indeed never good practice. However, the latest systematic review on diagnostic accuracy of clinical tests for shoulder complaints shows that a combination of several tests does not improve sensitivity and specificity much (Hegedus, 2012). As a clinician, I find it strange to abandon the clinical tests all together but at least we should consider other approaches. Text in discussion has been re-written: “In three quarters of the patients with shoulder syndromes, the symptoms developed gradually; a much higher proportion than seen in the general patient population (60%)” [1]. Van der Windt et al. [20] showed that a relatively large proportion of patients with shoulder syndromes considered strain or overuse in usual activities to be the precipitating cause of their problems. This study also shows that many patients wait a long time before they visit a physiotherapist. Kennedy et al also found that almost half of patients with soft tissue disorders of the shoulder wait more than three months before contacting a physiotherapist[8]. It seems worthwhile to bring this information to the attention of patients since both a gradual onset and long-lasting complaints might contribute to an unfavourable prognosis [21]. However, earlier physiotherapy intervention for more patients is more expensive. It is the responsibility of the profession to act on this. The new guideline on shoulder syndromes advises physiotherapists to use the classification of pain and functional limitations, as practised by GPs. Given the limited value of clinical shoulder tests, even when combined [22], this could be a helpful approach. Perhaps with early detection, a once-off consultation during which advice is given will be sufficient. Regarding the use of such a wait-and-see policy by physiotherapists, the profession will need to determine the conditions under which this is possible as well as its impact on prognosis and cost-effectiveness.”.

4. No basis for this statement in your results. Remove otherwise provide direct supporting evidence from your data. This part of the conclusion has been re-written and the suggestion on adopting the classification on pain and functions put less strong: “As clinicians, we should also develop a way of educating patients about shoulder syndromes to prevent them waiting too long before they seek help. However, this can only be cost-effective when the profession sets clear guidelines on indications for physiotherapy, especially since there is debate on the value of clinical diagnostic tests. The classification of pain and functional limitations and adoption of the wait and see policy as used by GPs could be an example or starting point. Perhaps with early detection, a once-off consultation in which advice is given will be sufficient, especially when pain is severe. The consequences of such initiatives for the prognosis of the individual patient as well as cost-effectiveness should be investigated first.”.


Reviewer: Judith K Sluiter

1. the question posed by the authors is well defined but could be more consistent used as anchor for the readers in the abstract The two questions are now stated separately in the introduction part of the abstract: “The first goal of this study is to document current health care use and the treatment process for patients with shoulder syndromes in both general practice and physiotherapy practice. The second goal is to detect whether there are differences between patients with shoulder syndromes who are treated by their GP, those who are treated by both GP and physiotherapist and those who access physiotherapy directly.”.

2. the methods are appropriate and well described OK
3. the data seems sound
   OK

4. the manuscript adhere to the relevant standards for reporting and data
   Deposition
   OK

5. the discussion and conclusions are well balanced and adequately supported
   by the data
   OK

6. the limitations of the work are stated, although not in extension
   We elaborated on the limitations of the work and their implications for future research.

7. the authors clearly acknowledge any work upon which they are building, both
   published and unpublished
   OK

8. the title and abstract convey what has been found but the abstract needs more
   structure with the two questions clearly stated and results structured per question
   The two questions are now stated separately in the introduction part of the abstract. Results are
   structured per question, in the same order they appear in the introduction: “Many patients develop
   symptoms gradually and 35% of patients with shoulder syndromes waited more than three months
   before visiting a physiotherapist. In 64% of all patients, treatment goals are fully reached at the end of
   physiotherapy treatment. In general practice, around one third of the patients return after the referral
   for physiotherapy. Patients with shoulder syndromes who are referred for physiotherapy have more
   consultations with their GP and are prescribed less medication than patients without a referral. Often,
   this referral is made at the first consultation. In physiotherapy practice, referred patients differ from
   self-referrals. Self-referrals are younger, they more often have recurrent complaints and their
   complaints are more often related to sports and leisure activities.”.

9. the writing is acceptable
   OK

Discretionary revisions:
- p.7 line 4: the definition of an episode of shoulder problems is actually a
  definition of a care episode of shoulder problems: use this description throughout
  the manuscript
  Throughout the manuscript, episodes are described as care episodes.

- results section: beware of using percentages when actually proportions of
  percentages of group of patients are meant.
  You are right that this can be confusing. Therefore, throughout the text, the number of patients is
  added to the percentage. Furthermore, on page 8, line 19 (revised manuscript) the sum of percentage
  is explained: “GPs treated 82% (n = 1983) of patients themselves and referred 18% (n = 445) to one
  or more other clinicians, mainly to a physiotherapist (13%, n = 306) or a medical specialist (7%, n =
  165) (total is more than 18% because there may have been more than one referral per patient).”.

- results: change wordings in line 8 when reporting about GP: It is 42% of patients
  and not on average 42%.
  Indeed, changed to ‘42%’ instead of ‘on average 42%’

- results: how long on average is the care episode in GP?
Duration of care episode in GP is now specified in table 2. It is 46 days for non-referred patients and 60 days for patients referred for physiotherapy (statistically significant difference).

Results: what proportion of all shoulder problems were the shoulder syndromes in the GP registry?
In the first line of the results section, the proportion of all shoulder problems is now stated: “Incidence of shoulder syndromes in general practice in 2008 was 8.5 patients per 1000 patients, or 38% of all shoulder complaints. Prevalence was 14.2/1000 patients/year, or 42% of all shoulder complaints.”.

Results: check wordings on percentages of percentages of what... when describing results for physiotherapy practices.
Throughout the text, the number of patients is added to the percentage. I hope this adds to the understanding of the percentage, especially of the first line of the results for physiotherapy practices: “In physiotherapy practice, 2.6% (n = 1182) of all patients presented with shoulder syndromes, accounting for 27% (n = 1182) of all shoulder complaints. Of these, 76% (n = 895) were referred by a GP, 12% (n = 139) by a medical specialist and 12% (n = 148) accessed the service directly.”.

- what kind of treatment goals were set in the physiotherapy practices?
Table 3 specifies the treatment goals in physiotherapy practice. In the results section, the difference between the groups is mentioned. Do you require more information on treatment goals?

Discussion:

- discuss possible pitfalls of having different time periods in the different registries used and large differences in numbers that you like to compare
The text below is added to the discussion: “Finally, data is based on two different patient populations. The physiotherapy database is much smaller and, therefore, a longer time period was selected. However, there were no policy changes in the area or indications that the group of patients consulting their GP changed over the period of the study. Nevertheless, it would be interesting to investigate the care process in a multidisciplinary network incorporating the activities of various health care professionals.”.

- what kind of shoulder complaints were missed in physiotherapy practices because only 27% of shoulder complaints treated were the shoulder syndromes
In the text on the limitation of diagnosing shoulder syndromes, extra information is added on which patients might be missed: “In LIPZ, information is collected on all diagnoses. This means detailed information specific to shoulder syndromes is not available; e.g. the existence of neck or back problems or repetitive or provocative movements in work or sport. Furthermore, diagnoses are based on referral letters, which can be ambiguous or imprecise. For example, terms such as ‘shoulder complaints’ are used, without giving further information. The procedure for diagnosing specific shoulder disorders is further complicated by a lack of consensus on the diagnostic criteria. Where diagnosis is difficult, complaints may be described as general shoulder complaints in the first instance, perhaps more so by less experienced clinicians. In this study, these general shoulder complaints are not included as shoulder syndromes in order to prevent heterogeneity as much as possible. Therefore, the results are based on a more homogeneous group of patients, but this may have led to an underestimation of the number of people attending the physiotherapist with shoulder syndromes.”.

- what do the outcomes learn us now?
Perhaps I don’t understand the question properly. You mean other outcomes than the ones described in the conclusion, for GP’s (early referral when restricted range of motion), physiotherapists (consider pain and limitations model and wait-and-see policy), clinicians in general (educating patients) and recommendations for future research (long term cost-effectiveness of early referral)?
- Table 3: Numbers per group are more informative than total in topics origination and cause.

*Numbers per group are given instead of the total number.*

In general:

- Check language and typo errors throughout the manuscript.

*The manuscript is seen by a native English writer.*

- Check ways of describing percentages of subgroups.

*Throughout the text, the number of patients is added to the percentage. I hope this adds to the understanding of the percentages of subgroups.*