Author’s response to reviews

Title: Treatment of hip/knee osteoarthritis in Dutch general practice and physical therapy practice: an observational study

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Author’s response to reviews: see over
To the Editor of BMC Family Practice

May 19th, 2015

Dear Editor,

Thank you for the opportunity to revise and re-submit our manuscript, named ‘Treatment of hip/knee osteoarthritis in Dutch general practice and physical therapy practice: an observational study’. The next pages comprise point-to-point responses to the concerns explained by the reviewers.

Furthermore, each of the editorial requests are met:
1. Box 1 was added to the manuscript to clarify the accessibility of the database.
2. A conclusions section was included.
3. We added a section ‘Acknowledgements’ to indicate the funding of our database and contributions of non-authors.
4. We included a description of the additional data as per Instruction for Authors.

We hope you will reconsider our manuscript for publication in BMC Family Practice after reviewing the revised manuscript. We await your reply with interest.

Sincerely,

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MINOR ESSENTIAL REVISIONS

1. Is the question posed by the authors well defined?
The primary question is well defined. However regarding secondary outcome: I’m not sure if this study design can identify how self-referral to physical therapy influences the content of care. The change of the content in the self-referred group is not well defined as well.

Thank you for your precise reading. Indeed, we are not able to examine to what extent the introduction of self-referral influences the content of care in physical therapy practice. We only aimed to describe the content of care in physical therapy separately in GP-referred and self-referred patients. Therefore, the second research question is redefined to: “To describe the content of care in physical therapy practice in GP-referred versus self-referred patients” (line nr 102).

2. Are the methods appropriate and well described?
Descriptive analysis of the differences is important and in my view should be a primary discussion point, very informative in terms of % of patients requiring each steps and external referrals. I am concerned about several translations of existing database:

   a. Translations existing database

GP education and lifestyle advises were assumed – this will overestimating content of care delivered by GP content
Thank you for this comment. We partly agree with this point. It is true that we possibly overestimated the content of care delivered by GPs due to our interpretation of the content of ‘consults’. However, previous work by Noordman et al. indicated that lifestyle advises increasingly are part of a GP’s treatment. Unfortunately, such advices are not registered in a structural way in the Electronic Medical Record (EMR). When interventions like prescriptions and/or referrals are not registered within a consult, we could hardly imagine any other interventions conducted by the GP during a consult than providing information and advises.

‘Prescriptions were not necessarily directly linked to a specific diagnosis’ – this again will overestimate the content. Those medication will be often prescribed for common cold, back pain ect. Seasonal variation, exclusion of other ‘painful’ diagnosis is required to make this assumption more sound
We agree that the way of allocation of prescriptions to treatment episodes of OA needs additional explanation. As recommended by your colleague-reviewer, we adapted the text concerning the allocation of referrals similarly.

We chose to select medication prescribed within a treatment episode of OA rather than to select medication prescribed exclusively due to OA since medication is not always linked to a specific diagnosis in the EMR. This potentially leads to an overestimation of prescribed medication due to OA. However, prior to the analyses of medication prescribed within an episode of OA, we explored which medication had been prescribed especially due to hip/knee OA. This exploration revealed the same top-5 as the top-5 medication prescribed within a treatment episode due to OA. Therefore, we adopted the method to select medication prescribed within a treatment episode of hip/knee OA.
Additional explanation (concerning both prescriptions and referrals) was added to the method section (line nr 161): “Secondly, in the NPCD, prescriptions and referrals were not necessarily directly linked to a specific diagnosis but to treatment episodes in which prescriptions or referrals were performed. Therefore, in case of prescriptions, we first selected the four most common drugs (4-digit ATC) which were applied especially to a diagnosis of hip/knee OA and subsequently counted the application of these prescriptions (NSAIDs, opioids, other analgesics and corticosteroids) in treatment episodes due to hip/knee OA. When appropriate, secondary analyses were performed to analyse the application of these prescriptions in more detail (7-digit ATC). Analyses of referrals occurred similarly; referrals to exercise therapy, dietary therapy and orthopaedic surgeons were selected.”. Furthermore, we clarified the selection of prescriptions, referrals and consults belonging to a treatment episode in the discussion section (line nr 316): “As a consequence, applied interventions (consults, prescriptions and referrals) were related to a treatment episode due to OA, unless they were aimed at treating any comorbidity.”

Some of those drugs will be available over the counter without prescription and use of them might be underestimated.

The discussion section already comprised one sentence which refers to this phenomenon. However, this sentence was unclear formulated. We replaced the sentence by: “The lower use of acetaminophen and NSAIDs might be explained by the increasing availability of those drugs over the counter.” (line nr 251)

Many other care contents were not assessed: like TENS, Prescription of glucosamine sulphate
Thank you for your alertness. Indeed, we do not know whether GPs had performed TENS since this intervention could not be registered in the NPCD. However, in the Netherlands, TENS is mainly performed by physical therapists rather than by GPs. Therefore, we suppose that this lack has only minor consequences on the results of this study.

With respect to the prescription of glucosamine sulphate, the description in the original methods section it too concise. In the NIVEL Primary Care Database, it is possible to register glucosamine sulphate by ATC code M01AX05. However, during analyses, the original 7-digit ATC-code is abbreviated to a 4-digit ATC-code. In consequence, glucosamine sulphate could not be distinguished anymore from other anti-inflammatory and anti-rheumatic preparations for systemic use. We revised the operationalization of the glucosamine sulphate in table 1 to “Not separately assessed but included in anti-inflammatory and anti-rheumatic products, non-steroids (M01A)”. Of course, we checked the occurrence rate of M01AX05 in the original data as well: it is registered in only 2 of the 6708 treatment episodes.

‘Prescription of oral corticosteroid’ as a step 3 should be not be consider as there considering this is not directly linked to a specific diagnosis might represent treatment of other conditions like PMR.
This point concerns a comparable issue which you have already appointed. We agree that the allocation of prescriptions to treatment episodes of OA has occurred with a certain degree of interpretation and added additional explanation to the method section and a remark in the discussion section (see answer 2a paragraph 2).

b. Please consider including exclusion criteria. Are patient with hip/knee replacements included?
What about crystal arthropathies?
Thank you for this comment. We did not exclude patients with hip/knee replacements, because we simply do not know whether there has occurred replacement surgery. All patients in which a treatment episode due to hip/knee OA was present in the EMR were selected. Patients with crystal arthropathies could be present in this selection as well, but only in case of crystal arthropathies as comorbidty of hip/knee OA. Patients with crystal arthropathies as primary diagnosis were not included.
c. I think it would be beneficial to concentrate on description analysis within limitations of the data. I would like to see easily how many patient require each step and what are the risk factors associated with need for ‘step-up’ and secondary care referral.

Thank you for this advice. We struggled extensively how to present data of Table 3 and Table 4 as clear as possible. On reflection, we think it is better to show the data of Table 3 graphically (inserted as Figure 1). In that case, you easily see which part of the population is treated by which intervention in general practice.

To our opinion, the presentation of risk factors associated with need for ‘step-up’ and secondary care referral extends the scope of this article. This article only describes the content of current care and the current compliance to the SCS. Risk factors for SCS compliance in a population in which the SCS was implemented were described in a paper by Smink et al (Health care use of patients with osteoarthritis of the hip or knee after implementation of a stepped-care strategy: an observational study. Smink AJ et al. Arthritis Care Res (Hoboken) (2014)).

d. Considering that prescription data suggest low level of use of analgesics, in my opinion relative over prescription of NSAIDs and tramadol suggest that over the counter use of simple NSAID is popular and probably prescribed NSAID are these that require the prescription (diclofenac, naproxen). Analysis of prescribed NSAID should be performed before suggesting ‘that GPs could reconsider the frequent use of NSAIDs instead of other analgesics’.

We agree that analysis of the prescribed NSAIDs to this paper would be useful. Therefore, we determined which NSAIDs were prescribed in treatment episodes due to hip/knee OA. In 40% of the cases, the prescription concerned Diclofenac (ATC M01AB05) or Diclophenac combinations (M01AB55). Ibuprofen (M01AE01), Meloxicam (M01AC06) and Naproxen (M01AE02) were prescribed in respectively 12%, 12% and 11% of the cases. Since Diclofenac, Ibuprofen and Naproxen all three are available both over the counter and on prescription, we need additional information concerning the dosage to be able to do a review of the GP’s course of action. Unfortunately, in the NPCD we do not collect obvious information concerning prescribed doses. In conclusion, our suggestion to GPs is formulated more carefully and supported by data regarding analysis of prescribed NSAIDs.

The method section was extended by the sentence “When appropriate, secondary analyses were performed to analyse the application of these prescriptions in more detail (7-digit ATC).” (line nr 166).

In the results section, we expressed the results of the detailed analysis of NSAID-prescription: “In 40% of the cases, the prescription of NSAIDs concerned Diclofenac or Diclophenac combinations. Ibuprofen, Meloxicam and Naproxen were prescribed in respectively 12%, 12% and 11% of the cases.” (line nr 198).

In the discussion section, the suggestion to the GPs was reformulated: “...GPs could be advised to optimize the analgesics policy prior to consider NSAID prescription in patients with hip/knee OA.” (line nr 268).

In line, the conclusion was adapted with respect to this remark into: “To optimize the adherence to the SCS, GPs could reconsider their analgesics policy prior to NSAID prescription and the low referral rate to exercise therapy and/or dietary therapy compared to orthopaedic surgeons” (line nr 348).

e. Also there are so limitations regarding referrals: ‘only referrals to physical therapists, dieticians, and orthopaedic surgeons were collected’. It makes a statement of ‘the low referral rate to allied health care compared to referrals to secondary care’ difficult to justify in conclusions.

Thank your for your remark. We agree that the cited sentence falsely generalizes. Therefore, we adapted the general terms ‘allied health care’ and ‘secondary care’, by ‘exercise therapy’ and/or ‘dietary
therapy’ respectively ‘orthopaedic surgeon’: “To optimize the adherence to the SCS, GPs could reconsider their analgesics policy prior to NSAID prescription and the low referral rate to exercise therapy and/or dietary therapy compared to orthopaedic surgeons” (line nr 348).

**Level of interest:**
*An article whose findings are important to those with closely related research interests*

**Quality of written English:**
*Needs some language corrections before being published*

A concept of this paper has already been reviewed by a native speaker. As the second reviewer states that the quality of written English is sufficient, we propose to leave the decision whether or not to repeat this language review to the editor.

**Statistical review:**
*Yes, but I do not feel adequately qualified to assess the statistics.*

**Declaration of competing interests:**
*I declare that I have no competing interests*
This is an interesting manuscript describing real-world clinical practice patterns for patients with knee and hip OA. The paper nicely describes a Stepped Care Strategy (SCS) and examines how well practice patterns match up with this strategy. There are certainly limitations to this type of study involving large health administrative datasets, but for the most part I think the authors have dealt with and acknowledged these fairly. I have the following recommendations for strengthening the paper.

Thank you for your review, your positive feedback and your realistically thoughts concerning large health administrative datasets.

Major compulsory revisions

1. The limitations section of the discussion should describe potential implications of the voluntary nature of participation in NPCD.

   Thank you for this comment. We added some sentences concerning the voluntary nature of participation in the NPCD (line 332): “Finally, data were extracted from two voluntary-based, separate registrations, both part of the NPCD. Selection bias could be excluded, as the number of patients objecting to participate in the NPCD is negligible and participating practices reflects the reality of Dutch general practices.”

2. In the medical record data section, describe whether it was possible to determine that referrals to PT, dietician and orthopedic surgeons were specifically been for OA or could have been related to other health problems. If not, this should be addressed in the limitations section of the discussion.

   We agree that the way of allocation of referrals to treatment episodes of OA needs additional explanation. As recommended by your colleague-reviewer, we adapted the text concerning the allocation of prescriptions similarly.

   We chose to select referrals performed within a treatment episode of OA rather than to select referrals performed exclusively due to OA since referrals are only moderately linked to a specific diagnosis in the EMR. This potentially leads to an overestimation of referrals due to OA. However, prior to the analyses of referrals within an episode of OA, we explored which referrals had been performed especially due to hip/knee OA. This exploration revealed the same top-5 as the top-5 referrals performed within a treatment episode due to OA. Therefore, we adopted the method to select referrals prescribed within a treatment episode of hip/knee OA.

   Additional explanation (concerning both prescriptions and referrals) was added to the method section (line nr 161): “Secondly, in the NPCD, prescriptions and referrals were not necessarily directly linked to a specific diagnosis but to treatment episodes in which prescriptions or referrals were performed. Therefore, in case of prescriptions, we first selected the four most common drugs (4-digit ATC) which were applied especially to a diagnosis of hip/knee OA and subsequently counted the application of these prescriptions (NSAIDs, opioids, other analgesics and corticosteroids) in treatment episodes due to hip/knee OA. When appropriate, secondary analyses were performed to analyse the application of these prescriptions in more detail (7-digit ATC). Analyses of referrals occurred similarly; referrals to exercise therapy, dietary therapy and orthopaedic surgeons were selected.”. Furthermore, we clarified the selection of prescriptions, referrals and consults belonging to a treatment episode in the discussion.
As a consequence, applied interventions (consults, prescriptions and referrals) were related to a treatment episode due to OA, unless they were aimed at treating any comorbidity.

3. The discussion section describes NSAID use as being “lower than previous studies” and also as being potentially too high. Is this a contradiction? It is also not clear whether “NSAIDs” in the text of the results refers just to topicals shown in the tables. This should be clarified.

Thank you for this remark. We agree that just ‘NSAID’ do not provide sufficient information concerning the prescribed drug. Therefore, we added an additional analysis showing that the prescription of NSAIDs concerns Diclophenac or Diclophenac combinations in 40% of the cases. Ibuprofen, Meloxicam and Naproxen are prescribed respectively in 12%, 12% and 11% of the cases.

Indeed, the overall prescription rate of both NSAIDs and acetaminophen presented in our study was lower than prescription rates presented in several previous work. However, comparing the proportion of prescribed analgesics with the proportion prescribed NSAIDs, the prescription rate of NSAIDs exceeds our expectations on the basis of the Stepped-Care-Strategy. This strategy describes analgesics as first choice pain medication, but in our study NSAIDs seems to be most important pain medication.

We adapted the text at several places. Line nr 249: “A remarkable result of our study comprised a lower prescription rate of pain medication (NSAIDs and acetaminophen) in patients with hip/knee OA in comparison to previous studies” (to indicate that this result comprises all kind of pain medication). In paragraph 3, line nr 259, we clarified the remarkable results with respect to the proportion prescribed NSAIDs versus prescribed analgesics: “With respect to GPs’ prescribed pain medication, our results show that NSAIDs (especially Diclophenac (combinations), Ibuprofen, Meloxicam and Naproxen) and tramadol (step-2 interventions) are more often prescribed than analgesics (step-1 intervention)”.

4. Discussion sentence starting “Since both the recurrent rate...” seems like a little bit of a leap. Consider revising or justifying the statement a bit ore.

We agree with your remark and revised the complete paragraph (up to line nr 305): “Commonly, treatment starts with improving impairments of body functions and gradually shifts to diminishing limitations in activities of daily life. At the same time, the role of the physical therapist changes from ‘hands-on therapist’ to ‘coach’ and the frequency of treatment sessions decreases. Possibly, this gradual phase out is less often used in patients who refer themselves. Physical therapists might focus on improving impairments, leaving the translation to activities of daily life to patients themselves. This situation stands to reason since a sizeable proportion of the self-referred patients has already gained some experience in the translation to daily life: recurrence rates are high. Furthermore, the lower amount of care in self-referred patients seems to support this rationale.”

5. Describe whether some patients’ OA-related treatments could have been “censored” by the time frame of the data set. Could some patients have had an evaluation by a GP late in the timing of the data set, and no time to have other treatments document in the period in which these data were collected registered?

Thank you for this important remark. Indeed, we are dealing with the situation which you describes and agree that this should be mentioned in the paper. We added two sentences to the discussion section (line nr 256): “However, only a small minority of patients is treated by a combination of different interventions belonging to one step before turning to the next step, within the time frame of our study” and line nr 292: “These patients might have been treated by a step-1 intervention by a physical therapist or their GP, prior to the timeframe of this study”.

section (line nr 316): “As a consequence, applied interventions (consults, prescriptions and referrals) were related to a treatment episode due to OA, unless they were aimed at treating any comorbidity.”
6. There is a fair bit of repetition of results/discussion in the concluding paragraph. Consider removing some of this.
We have removed some repeating sentences and reformulated some other sentences in the concluding paragraph (up to line nr 346).

Minor Essential Revisions
- Last sentence of background in the abstract doesn’t seem to be a complete sentence
  We merged to last two sentences into one sentence (line nr 32): “Therefore, the main purpose of this study is to describe the content of primary care in patients with hip/knee OA, including the compliance to the SCS and taking into account the introduction of patient self-referral to physical therapy”.

- Methods section of abstract, last sentence, clarify that these referrals are to PT. Same comment for 4th sentence of results section of the abstract
  We added twice that referrals concerned referral to physical therapy (line nr 36 and 40).

- Results section of abstract, describe what is included in referrals to “allied health”
  Referrals to ‘allied health care’ were operationalized by “referrals to physical therapy respectively dietary therapy” (line nr 40).

- Do not include citations for submitted but not accepted manuscripts
  These citations were removed.

Level of interest:
An article of importance in its field

Quality of written English:
Acceptable

Statistical review:
No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests