Author’s response to reviews

Title: Heart failure patients’ experiences with continuity of care and its relation to medication adherence: a cross-sectional study

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Response to reviewers

Editorial comments

1. We included full details of the ethical permission for the manuscript in the Methods.

2. As English is not our native language, we asked a native English speaker to hone the text.

Reviewer 1 (Kathleen Bennett)

1. We asked a native English speaker to hone the text.

2. The included practices are representative for Dutch practices regarding urbanization rate and type of practice. This increases the generalisability of the findings. We added this to our manuscript.

3. Reviewer 1 asks for clarification on how the health care system in the Netherlands works. In the Methods section we describe this better now. In the Introduction and Methods we now describe better which types of care providers could be involved in the care for heart failure patients. When we mention ‘Care providers’ in the manuscript we always describe whether we mean care providers from primary or secondary care.

4. We now more extensively described the Methods, as reviewer 1 notices that it was poorly written.

We measured continuity of care using a self-developed questionnaire. This questionnaire is based on qualitative interviews and underwent testing on content validity and construct
validity. We now better describe this in the Methods. No other questionnaire yet exists to measure continuity of care in this population.

In answer 16 we describe why we choose the measure of Morisky et al. to measure medication adherence.

Reviewer 1 notices that the description of the data collection and statistical methods was very vague. We better clarified the data collection and the statistical methods in the manuscript.

5. Reviewer 1 notices that we again present results in the Discussion where more discussion of the results was required. We indeed present our main results at the start of the Discussion, we now described our main findings instead of summing up the results again. We discuss these main findings in the subheading ‘Implications for practice and research’. We changed the order of subheadings in the Discussion to better streamline this section of the manuscript.

As we also describe in response 2, the generalisability is no limitation of our study.

6. Reviewer 1 notices that we do not explain the concept ‘continuity’ in the Abstract. We, however, included the following sentence in the Abstract: ‘Continuity of care was defined as a multidimensional concept including personal continuity (seeing the same doctor every time), team continuity (collaboration between care providers in general practice) and cross-boundary continuity (collaboration between general practice and hospital)’. We believe that we explained ‘continuity’ enough with this description.

7. In the Abstract, we now included the setting from which the heart failure patients were selected, as reviewer 1 suggests. We changed some of the wording in the Abstract to better clarify this section of the manuscript.
8. We changed the sentence ‘However, for patients with a chronic disease, reality drifts into another direction’ into ‘However, for patients with a chronic disease, recent developments in care can result in lack of continuity’.

Reviewer 1 asks for more reference to evidence on the relation between continuity and medication adherence. We refer to two studies examining this relation (reference 10 and 11). As far as we know, no other evidence exists. As evidence for this relation is still inconclusive despite these two studies, we aimed to examine this relation as well. We changed the sentence describing a possible relation between continuity and medication adherence, to better clarify it.

We now better clarified who are the providers that have to communicate and cooperate to guarantee continuity of care, as reviewer 1 suggests.

9. As reviewer 1 suggests, we clarified the aim of the manuscript.

10. We explained the data collection better. We also describe that the included practices are representative for Dutch practices regarding urbanization rate and type of practice, which increases the generalisability of the results.

11. As we describe in the Results, we sent the questionnaire measuring continuity of care to 461 patients. In total, 370 patients (80%) returned it.

12. Reviewer 1 notices that the questionnaire measuring continuity of care needs to be referenced properly. As we also describe in response 4, we measured continuity of care using a self-developed questionnaire. No reference of this questionnaire yet exists. This questionnaire is based on qualitative interviews and underwent testing on content validity and construct validity. We refer to the thesis describing the qualitative interviews. Reviewer 1 wants to have more information about validity testing of this questionnaire. We now better describe this in the Methods.
13. As reviewer 1 suggests, we better defined ‘care providers’ and we deleted the term ‘medical home’ which was the same as ‘general practice’.

14. We better explained the principal factor analysis in the Methods. We did not move this section to the Results as it is not a result of this study but an explanation of the validation of the questionnaire.

15. The questionnaire was indeed anonymised, we describe this now in our manuscript. We also describe the ethical permission for the study.

16. To our knowledge -at the time of the design of our study-, no particular questionnaire measuring self-reported medication adherence was considered to be the ‘gold-standard’. The Morisky measure was used because it was developed and validated in patients with cardiovascular disease in an outpatient setting, and demonstrated acceptable internal consistency (alpha .61). Also, we were searching for a very brief measure, as the pilot of our patient questionnaire pointed to the importance of brevity of the overall survey, and the acceptability of this measure proofed satisfying during our pilot. Although published after the onset of our study, more recent studies using the original 4-item Morisky instrument point to the relation of its questions with cardiovascular events and mortality (eg Nelson et al, 2006), and in testing the ARMS questionnaire for use in patients with chronic diseases, the authors determined Criterion-related validity by comparing scores with Morisky’s self-reported measure of adherence.

17. As we describe in the Results, we excluded 43 patients in which 3 or more questions on team continuity or 2 or more questions on cross-boundary continuity were missing. These were mostly patients who did not contact a care provider in general practice in the last year, so we do not think that this causes any bias.
18. We changed the last sentence of the first paragraph of the Analysis, to better clarify what we did.

19. As reviewer 1 suggests, we described the medication adherence scale in the previous section.

20. We agree with reviewer 1 that the description of the statistics was inadequate. We better described the used statistics in the manuscript.

21. The study is powered on the primary study outcome ‘health related quality of life’. This article focuses on continuity of care and medication adherence as outcome measures. We now describe this in the Methods and add it as a limitation.

22. We better defined the word ‘care provider’

23. We better explained the 54% of patients.

24. We changed the part ‘…highest by 50% or more’ to better explain this.

25. As we also describe in response 5, we present our main findings at the start of the Discussion, as usual in the Discussion. We discuss these main findings in the subheading ‘Implications for practice and research’. We changed the order of subheadings in the Discussion to better streamline this section of the manuscript.

26. In the Discussion we now hypothesized why we found a relation between less personal continuity and less medication adherence.
27. We rewrote the Limitations in order to clarify and shorten it. We provided information on how the health care system in the Netherlands works for heart failure patients in the Methods section.

28. The studies described in the section ‘Comparison with previous studies’ are indeed the only comparable studies we found.

29. Reviewer 1 has doubt whether the first statement of the Implications section holds based on 42 practice. As the included practices are representative for Dutch practices regarding urbanization rate and type of practice, we believe this statement holds. We now describe the representativeness of the study in the Methods.

30. As reviewer 1 suggest, we can indeed expand further which interventions can be done to improve team- and cross-boundary continuity. However, as this is not part of our study, we decided not to expand this further, because we will then provide results from other studies while we believe we should focus on the results of the present study.

31. We explained the first sentence of the Conclusion better.

32. We clarified the Author information section.

33. As we mentioned before, we better described the used statistics in the manuscript.

Reviewer 2 (I Al-Zakwani)

1. Reviewer 2 also suggests to review the paper by an English-speaking person. We asked a native English speaker to hone the text.
2. We included the study design in the title.

3. In the Abstract, we now described the statistical test used.

4. We now also mention the association between team continuity and cross-boundary continuity with medication adherence in the abstract.

5. We added the p-value (p<0.01) in the statement ‘Higher scores on personal continuity were significantly related to better medication adherence’ in the Abstract.

6. We better streamlined the discussion of the Abstract now, to reflect the main findings of the study.

7. We referenced the statement ‘Heart failure is a chronic disease with a high prevalence, reaching 1-2% in western countries’ in the Introduction, as suggested by reviewer 2.

8. We provided more information about the data collection, e.g. the year that the study was conducted and the representativeness of the included GPs.

9. We moved the second paragraph of the Analysis, describing that the score of medication adherence varied between 4 and 20. Reviewer 2 also believes that we should move the first paragraph of the Analysis. However, this paragraph describes what we did with missing values and what we did with negatively keyed questions. We believe this should be mentioned in the Analysis, therefore we did not move this paragraph.

10. We agree with reviewer 1 and 2 that the description of the statistics was inadequate. We better described the used statistics in the manuscript.
11. Reviewer 2 notices that there are no power calculations performed. As we also describe in response 21 of Reviewer 1, the study is powered on the primary study outcome ‘health related quality of life’. This article focuses on continuity of care and medication adherence as outcome measures. We now describe this in the Methods and add it as a limitation.

12. We now presented a summary of the patient characteristics at the beginning of the Results section.

13. Reviewer 2 notices that the statement that we found no clear relation between experienced team continuity and medication adherence is contradictory because of the significant p-value. However, both high and low levels of team continuity were associated with maximum medication adherence (p=0.04), so the relation was unclear. We better explain this in the Results.

14. As reviewer 2 suggests, we provided more elaboration on the medication adherence section of the Results.

15. Reviewer 2 notices that there is a contradiction in the Discussion. We would like to refer to response 13, as this is about the same ‘contradiction’.

16. We agree with reviewer 2 that the Limitations section should be better placed at the end of the Discussion. We changed this in our manuscript.

17. We streamlined the Conclusion to reflect the main finding of the study.

18. We changed the References according to the format outlined in the ‘Instructions for Authors’
19. We changed the Tables according to the format outlined in the ‘Instructions for Authors’.