Reviewer’s report

Title: The impact of multimorbidity on foot health outcomes in podiatry patients with musculoskeletal foot pain: a prospective observational study

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Reviewer: Tom Walsh

Reviewer's report:

Thank you for the opportunity to review this manuscript, titled 'The impact of multimorbidity on foot health outcomes in podiatry patients with musculoskeletal foot pain: a prospective observational study'.

This paper is overall well written and it is an interesting topic for exploration. My main concerns are, however, around the reporting, the methodology, the data analysis, and the conclusions.

Major

* The response and attrition rates are troublesome. If I read your paper correctly, 1329 invitations were sent of which 193 responded (14.5% response rate), of the 154 who were eligible, 115 enrolled (74.7% response rate), of which 62 completed the FHSQ at three time-points (46.1% attrition rate). You report in your results an overall response rate of < 10%, therefore a 5% completion of all FHSQ domains. Therefore, how useful are these data? I see in the discussion that limitations are mentioned around this, but I think this could be made clearer that not only did you have a high attrition rate, but the original response rate was low, limiting your generalisability. Are you able to perform an analysis on whether the non-responders differed from the responders?

* Why haven't you performed a between-group analysis using regression? Furthermore, the analysis may be too rudimentary to accurately describe change data in this cohort. It may be more useful to see if multimorbidity predicts a change in pain, rather than how pain changes within groups over time (particularly given your small sample size). This type of analysis will also allow for the determination of the magnitude of the difference between groups. This would also enable you to adjust for other confounding variables.

* It is unclear if you adjusted for baseline score in the analysis reported in Table 5 - if not, why not? Baseline score are likely going to be significant. This may be clearer to only present
the change in FHSQ scores from baseline, rather than the actual scores at each time point. I would remove Table 5 - but this highlights another problem with the reporting, as you have FHSQ change data as a negative value in Table 6, where the opposite is true in Table 5. Moreover, how can change score not be significant in Table 6, but be significant in Table 5? Can you please check this?

* It is unusual to have four primary outcome measures. I appreciate that you used the FHSQ which reports four domains, but many authors pick one as their primary (usually pain). Are you able to justify using four, as it risks finding spurious results.

* Can you run an analysis on how the three groups differed at baseline for basic demographics?

* The non-standardised treatments or diagnoses make drawing conclusions about multimorbidity status and response to treatment quite hard to interpret. Perhaps those with multimorbidity had more significant foot diagnoses? or were older? Or had more obesity?

* In your results section, it would be more helpful to have reporting of descriptive data, rather than just the p values, which are in difficult to interpret in isolation.

* I'm not sure if your conclusions reflect your data. You didn't find significant between group differences in change data (Table 6), and in order to make firm conclusions on the significance of multimorbidity, I would expect more rigorous data analysis.

Minor

* You are reporting the IQR as a range, rather than as a single value throughout the paper. Have you used range instead of IQR? Furthermore, Line 196 reported 'inter-quartile ranges', consider changing to inter-quartile range'

* Tables and figures should be at the end of the paper.

* It would be useful to conclude the first paragraph with a sentence as to why this study is important.

* Line 154: self-reported height and weight?

* Line 168: suggest change from ' (>1 conditions)' to ' (>1 condition)'

* Table 2: Can you justify why you didn't consider obesity as a comorbidity?
* Line 373-376: Why didn't you look at these data in your cohort to determine if this was indeed the case?

* Fig 2 and Fig 3: I don't think both of these are necessary. Fig 3 graphics would need improving if you decide to keep it

* Table 2:
  o Incorrect spelling in the ankyloses spondylitis.
  o Should be 'Sjogran's syndrome
  o Should be 'Parkinson's disease'

Discretionary
* Consider numerating all values under 10 where possible

* Some of the values have no decimal places, some have one and some have two. It would be useful to standardise this.

* Line 95: 'For example, risk factors for musculoskeletal (MSK) disorders such as obesity' could be modified as 'risk factors' suggests more than one will be listed

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