Title: Non-Invasive assessment of vibration perception and protective sensation in people with Diabetes Mellitus: Inter- and Intra-rater reliability

Version: 0 Date: 19 Dec 2019

Reviewer: Ryan Scott Causby

Reviewer's report:

Thank you for the opportunity to review your article. This was well-written and useful body of work. I feel this is of a standard suitable for publication. I have some minor comments below.

General comments:

Possibly the biggest weakness in the study is that participants are considered as having DPN or not based on a written diagnosis in the medical records. The validity of this is questionable. If this diagnosis could have been confirmed via nerve conduction studies or another valid technique this would have added more depth to the study and enabled sensitivities and specificities to be calculated (and provided greater understanding the role practitioner experience may have had). However, this of course does not detract from the ability of the study to determine inter and intra-rater reliability.

In an ideal world, greater numbers with a broader representation of type of diabetes would have also been good.

Considering you comment a number of times that multiple tests should be used (rather than relying on one test to diagnose DPN), is it worth looking at this? I.e. make a diagnosis (for those which had multiple tests) and compare between raters. Does this increase the reliability?

Background:

Page 3, Line 37 - It would be good to update this reference (and associated detail) to reflect the most recent guidelines released by IWGDF.
Page 3, Line 40 - Specify 10g monofilament

Methods:

Page 4, Line 36 onwards - More information about how the flyers were distributed, or the exact setting of the recruiting clinic could be provided (i.e in a hospital, university-based, GP centre)
Page 5, Line 37 - Given the varied experience of the assessors it would be good to clarify the technique of monofilament application (i.e. applied until the monofilament bent, held for X seconds and removed) or at least confirm that consistency between examiners was ensured.

Results
Page 8, Line 4 - 'substantial'
Page 8, Line 14 - 20 - Given that the results for intra-rater reliability is presented in the format of the ranges for all raters, it would be good to specify that this data (i.e. K=0.61 etc.) relates specifically to the reliability between all three raters (rather than the ranges calculated when comparing individuals).
Page 8, Line 24 - Would it be better to describe it as a 'pooling' of the data for experienced podiatrists rather than pairing (sorry maybe a bit pedantic).

Discussion

Page 9, Line 29 - 32 - 'Four and 10-siet monofilament tests did not appear to be related to level of
clinician experienced and overall appears to be reliable - I tend to agree, but wonder if you should state this since your results do show that there is greater reliability between raters with more experience (i.e. R2 and R3 K = 0.72, compared with K = 0.55) for the 4-site method.

Page 10, Line 5 - 8 - I think this may be overstating greater reliability of the four-site test over the 10 site test. This only applied when comparing 3 raters. When you are comparing pairs of raters you report a range from 0.55 - 0.72 which was not substantially different to figures for the 10-site method (only comparing raters 2 and 3 was substantially higher).

Page 10, Line 7 - 10 - 'The higher intra-rater reliability previously described was not supported by our research' - can you please specify to which test/s you are referring. It comes on the end of talking about both the 4 and 10 site monofilament testing (but is also a paper focussing on the tuning fork?)

Page 11, Line 34 - 'Generalisable', to be consistent with other use of English (UK)

References

There is inconsistent capitalisation with journal names. i.e. 'Archives of Internal Medicine' and 'The New England Journal of Medicine' 
Reference 17 - JAMA has been abbreviated rather than written in full

Tables
Table 1 - State n=44, but report for all 50

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