Reviewer's report

Title: Development and evaluation of a tool for the clinical assessment of footwear characteristics

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Reviewer: anita williams

Reviewer's report:

Thank you for asking me to review this very interesting and detailed paper that deals with an important and timely issue.

The standard of writing is, overall, acceptable but would benefit from several minor amendments to structure and some aspects of the wording in order to achieve clarity for the reader. These are as follows:

This is a very long paper – I wonder if this is in line with the recommended length for this journal?

The title states a '...tool for clinical assessment' There appears to be more work needed in the development of this tool before it will be suitable for clinical assessment (see comments later) therefore I suggest that the word clinical is removed from the title

Abstract - Background line 2 – replace the word multiple by many as the use of multiple in the context of the sentence implies that it is the individual that has numerous MSK conditions

Background – second paragraph move the last sentence ‘If choosing to implement…[17]’ to follow on from the sentence concluding with ‘…should be addressed first’

The last two sentences in the background are more ‘method’ and ‘result’ respectively. The background should end with the aim.

Method – first paragraph – to reduce some of the words, after the first sentence add in brackets (see Additional Material File), remove the next sentence. After ‘An explanation of each (add of the six) items and (replace its with the) justification for inclusion is (now) outlined (add and measurement techniques described [see Additional Material file])

Method - Sub headings add item number i.e Item 1 Fit

Subheading under Fit rename Length, width and depth – saves repeating fit of shoe

Need a heading for Method and then Data collection procedure and statistical analysis become sub headings

Discussion

Line 6 replace ‘...able to be applied’ with applicable
The content is good and fairly well reasoned though there are some revisions that I recommend to ensure consistency of thought and clarity as to the purpose of the study.

Abstract- method – perhaps list the 6 items

Abstract and main body - You state that the aim of this study is to ‘develop …………..for use in a range of populations’. The outcome of the study is that you have developed a way of assessing footwear but that you now need to evaluate its use in a number of different populations. Perhaps say ‘potentially suitable for use in a range of populations’.

Abstract and generally – need to be clear as to the difference between a scale and a tool. A scale implies some sort of ranking or score that results in a meaning (particularly for clinicians)

In the abstract and main body (method) you mention clinical considerations/ clinical experience – what was this and how did it influence the items?

Method

Under theme 2 General features – age of shoe, have you considered the difference between the age of the shoe and levels of usage ie a patient might have one pair that is 6 months old and worn for the majority of the day whereas another may have several pairs of shoes with which they alternate. Additionally ‘occupation’ may have an impact on wear i.e an office worker sat down all day compared to a shop worker who may be actively walking all day.

Materials – have you considered linings? Some footwear may be leaheher but lined in synthetic material

Weight/ length ratio – evidence to support this ‘sub item’ as a factor influencing gait efficiency or is this one of the observations from clinical experience – please clarify.

Normalised Longitudinal profile is also known as shoe ‘pitch’ and this is a term commonly used in clinical practice by orthotists and footwear technicians – consider its use in this paper.

Rule of thumb uses the owners thumb – what if the patient cant bend down to reach the feet in order to carry this out?

With regards the fixation of the upper to the sole- can you explain the 3 terms in relation to this as clinicians may not understand this.

I am not clear about the scoring system and its meaning for the subscale for motion control properties and particularly its meaning in clinical practice. Ie what does a score of 8 mean? This needs an explanation within the text.

I am not sure that clinicians will have access to penetrometers so what are you recommending for evaluation of sole hardness?
Discussion – first paragraph last sentence – you state that consideration has been made on validity but I am not clear how this has been done (perhaps some recommendation for further work would be for clinicians in practice to use it and comment on its usefulness but in its entirety and for the specific items and sub items. Do you have any comment to make on the time it takes to complete the assessment? It may be too long for a clinician to carry out?

Can you provide more clarity as to whether toe palpation or the straw method should be included or should be excluded until validity is carried out?

Not sure if last shape is to be removed before further work / validation or included until this has been done? Likewise with midfoot stability

Under motion control properties - Not sure what you mean by ‘Therefore it is recommended that the scale be applied to at least 15-20…………research setting’ – does this mean training for the user.

Motion control properties subscale page 20 what do you mean by cut points? Should it just be arbitrary points?

Need consistency for the item Cushioning – there seems to be the use of shock absorbing and cushioning

Conclusion –
You conclude that there is high reliability for all categorical items, is this so as some of the sub category items such as mid foot stability and last shape were considered as having poor reliability. However, you do go on to mention this. Can you clarify this in the conclusion as it is slightly unclear. Do you intend to take thes items out?

Are you planning on carrying out the clinical significance of each item and weighting and if so how do you plan to do this?

Do you think carrying out say for instance focus group work or interviews with clinicians and researchers in this area may have informed the study further at the outset in the formation of the items and sub categories rather than initially basing it on two ‘clinicans’ clinical experience and the available literature? An issue may be the time it takes to complete the assessment – can you comment on this

General – I am not sure what the resultant score would mean for a clinician – what would define a good shoe? Is this a tool for recoding specific information on footwear or achieving a value score – can you clarify this throughout?

**Level of interest:** An article of importance in its field

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

**Statistical review:** Yes, and I have assessed the statistics in my report.