Author's response to reviews

Title: The paediatric flat foot proforma (p-FFP): improved and abridged following reliability analysis.

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Version: 2 Date: 4 July 2009

Author's response to reviews: see over
**Author’s response to reviewer’s reports**

**General**

Thank you for the arranging such helpful reviews of this paper.

I have heeded the main advice of the reviewers and removed the anthropometric data from the paper (and will write up separately as suggested). I agree that this enhances the clarity and better presents a main message regarding the p-FFP.

I have also added brief description of the use of both the p-FFP and the FPI-6 as suggested by the reviewers.

Below, within the body of the reports I have * the changes made in light of reviewer’s comments – which is nearly all those suggested. My comments appear as underlined text. The majority of comments have been addressed by removing the anthropometric data, as suggested. I agree that this makes for a clearer, tighter paper.

I would like to thank each of the reviewer’s for their very helpful and constructive reviews which have served to enhance the quality and I hope usefulness of this paper.

1. Reviewer’s report
   **Title:** The paediatric flat foot proforma (p-FFP): improved and abridged following reliability analysis.
   **Version:** 1  **Date:** 4 June 2009
   **Reviewer:** Jackie Campbell
   **Reviewer’s report:**
   Major compulsory revisions
   This paper conflates the findings from two seemingly separate studies. The main focus of the paper is, as the title suggests, concerned with the reliability analysis of and subsequent amendments to a tool for use in assessment and treatment of children with flat feet. However, anthropometric data was also collected and these data are also presented. The latter do not seem to contribute to the reliability study and their inclusion is puzzling. More seriously, insufficient detail is then given on the main study. It is suggested that the paper is revised, concentrating only on the reliability study, and the anthropometric study should *Agree, to be written up as a separate study.*
   The revised reliability study should give more detail on how the original FFP was used and scored which would enable better understanding of the type of data that is being subsequently analysed. In its current form, the figures are presented with no in-text explanation or reference. The use of 95% CIs in the selection of variables to retain in the tool need to be made clearer.
   * have added further comment under data analysis
   Should the anthropometric data analysis be subsequently resubmitted as a separate paper, more attention should be given to the data analysis. Assertions
are made with no statistical evidence (e.g. that basic measures were largely independent of foot posture across the groups, assertions of normality). Scatter plots to illustrate the stated correlations would assure the reader that the relationships were linear. Table 1 should be redrawn to make it easier for the reader to see which groups are being referred to and to compare the main descriptive statistics.

Thank you, this will be taken in to account for the second paper, as suggested.

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

Quality of written English: Acceptable

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

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

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2. Reviewer's report

Title: The paediatric flat foot proforma (p-FFP): improved and abridged following reliability analysis.

Version: 1  Date: 28 May 2009

Reviewer: Linda MG Lang

Reviewer's report:

I think that this is an interesting study and worthy of publication in JFAR. However in my opinion it does require some revision before it is published.

General Points

Essential Revisions

* 1. I strongly recommend that you remove the section concerning inference to anthropometric findings as they relate to foot posture etc. The main focus of the present paper is the reproducibility of the flat foot clinical care pathway (FFP) and as such should properly be confined to this topic. it is distracting to the reader to introduce a secondary clinical component to the paper. A short table with mean and range of anthropometric data could still be used to help provide an overall descriptor or the children in the study i.e. indicating that they were within the normal anthropometric range for their age. Whether or not you decide to do this please do put more demographic information in about your sample in addition to age it would assist future comparative studies if you add the sex of the children in your sample. I am not suggesting that this is critical but it is useful background information for your reader.

* (However, I do recommend that you write another short paper outlining your clinically interesting findings. Of course acknowledging that, as some of your anthropometric findings are in conflict with previous reports and that as these data were obtained with reference to a new tool the p-FFP, ...further studies are indicated etc....)

* 2. I appreciate that the FFP appears to have been written up in previous publications, but given that the reproducibility of the tool is the object, there is need for a short description of the FFP to assist readers and support any future replication work. The same advice applies to the FPI-6
3. The abstract will need some revision in light of recommendation 1.

Furthermore, please adhere to the convention of writing any terms in full before introducing an abbreviation e.g. Foot Posture Index-6 (FPI-6). Also you need to decide if you are going to use flat foot or flatfoot throughout the paper.

Discretionary Revision

1. If you revise the paper and abstract in line with the first general point (1) the title is acceptable. However, I feel the given method you describe a more appropriate title would be a ‘reproducibility study’ rather than a reliability analysis.

2. Finally, I may have missed it, but did you conduct a final reproducibility test using only the p-FFP? It occurs to me that this would have been useful to confirm the overall reproducibility of the newly modified tool. If you did great; if you did not I suggest that this is mentioned as a limitation in the discussion. (It would make a really nice follow up project for someone, perhaps a student, after all that’s one of the joys of research.)

The following is a list of suggested corrections/modifications to the way the paper is written which I hope are helpful.

Pg 2

* Line 6 I suggest should read: The intra and inter-rater/measurer reliability of the FFP was investigated in this study.

* Line 10 should read: Foot posture Index (FPI)

Remove all references to findings concerning the association between body measurements and flat foot.

Pg 3

* Line 2 should read: Findings indicate that the simplified p-FFP is a reproducible instrument for the clinical assessment of flat foot in children aged 7-10 years (alternatively could use: mid-childhood).

Pg 4

* Line 3 I suggest that ‘longevity’ is not the appropriate term here and instead suggest:

Although flat foot in childhood is a common diagnosis and well established clinical term, there is a lack of a reliable and reproducible tool for the assessment of this condition.

* Line 10 suggest: ....clinical measurements and imaging.....

* Line 5 from bottom

The reported prevalence of flat foot is varies in the literature and ranges from x to x (…). Views of treatment are contentious and there is little longitudinal data to provide evidence of the efficacy of different regimen.

Pg 5

* 1st Para

......, symptomatic, developmental). The flat foot clinical pathway or proforma (FFP) developed in previous work (28) offers an evidence based clinical tool for the evaluation of this common childhood condition. The present study was undertaken to assess the reproducibility of this tool, when used by the same
observer and between different observers evaluating the same subject.

* 3rd Para
All 140 child subjects were initially assessed......
Of these 31 children returned an FPI-6 score of > 6 for both feet, indicating bilateral flat foot and these subjects were selected for the flat foot proforma reproducibility study.

* Discussion pg 9-11
In line with previous comments I suggest removing discussion about the clinical implications of the anthropometric data. Instead I advise a paragraph acknowledging the limitations of the study. I also suggest inserting a comment at the end of the discussion, stressing that any clinical pathway, no matter how rigorously evaluated should always be used in conjunction with good clinical judgement.

Pg 11

* Conclusions
Suggest should read:
The findings of this study suggest that the modified p-FFP is a more reproducible and reliable tool for the assessment of flat foot in children, than the previously developed version: the paediatric flat foot clinical pathway (FFP). The modified tool, which requires approximately half the number of items is both simpler and less time consuming to use and most importantly demonstrated satisfactory inter-rater/measurer reliability. Within the limitations of the study, these findings support the use of the p-FFP as a clinical tool for the assessment and evaluation of this common childhood condition. However it is recommended that if this instrument were to be used in future research studies of flat foot in childhood, the intra-rater and or if appropriate inter-rater reproducibility of the tool should be tested and recorded prior to data collection to demonstrate and ensure scientific rigor.

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

3. Reviewer's report
Title: The paediatric flat foot proforma (p-FFP): improved and abridged following reliability analysis.
Version: 1 Date: 12 June 2009
Reviewer: Meredith Wilkinson
Reviewer's report:
Thank you for inviting me to review this article on The Paediatric Flatfoot Proforma (p-FFP): improved and abridged following reliability analysis. This
revised guideline will be well received and acknowledged by many health professionals exposed to the conundrum of the flat footed child.

Major essential revisions
This submission is not very clear and therefore it is difficult to understand how the paper arrives at its conclusions. Therefore, below I have identified areas for consideration (numbered). Further discussion and thoughts on these areas are provided throughout the review.

* 1. A clear explanation of the age group (ie 7-10 year olds).

* 2. The significance and relevance of the inclusion of the anthropometric data.

3. Is the sample size of 31 children aged between 7 and 10 years enough to draw such definitive conclusions about the abridged Proforma?

* Portney and Watkins state that 30 – 50 subjects are usual for reliability trials (1). This sample size compares with earlier an reliability study(2).

* 4. The need to include of a list of features/items and how they were assessed in the reliability component of this study and discarded as they were found to be unreliable.

* 5. The relevance of figure 2 in the results section and to the overall development of the FFP. Table 2 and 3 provide no explanation of the disparate results between the left and right foot (eversion and RCSP) and between raters (eg. heel inversion with tip toe).

* 6. Discussion needs to be expanded.

ABSTRACT
Under the results section change the wording of ‘unacceptably reliable’ to poorly reliable or similar, a description that an item/feature is unacceptably consistent is not proper English.

* beg to differ

BACKGROUND
Include in the background the purpose of including anthropometric measures, although interesting information, it is not clear to the reader why or how these measures are going to contribute to the main aim of the paper which is testing the reliability of items and therefore abridging/refining the FFP. Contrary to what the authors have stated at the end of the background section, the article in its current format, has not assessed the value of the abridged version of the FFP. The aim of the paper needs to be re written, the aim is about identifying reliable items to refine the instrument and needs to include the purpose of anthropometric measures.

* having removed the anthropometric data as advised, this issue is resolved throughout

RELIABILITY STUDY

* There needs to be a clear explanation of why the 7 to 10 year old age group were selected. This age group maybe considered by many to be passed the developmental age group and is a differing age group to a number of studies in the reference list.
METHOD
The protocol for the method overall is sound. However, throughout the paper it is not clear all the features/items that were assessed and therefore included or discarded in the final FFP. From the initial clinical pathway (Figure 1) physical assessment of ankle joint and forefoot to rear foot relationships, muscle tone etc would have been part of the reliability study, however, the method does not mention a non weight bearing assessment. Further to this point and importantly, Table 4 highlights that most of the features discarded were from observations/assessments, however, to the reader it is difficult to work out what those items were and how they were assessed in this current study. To improve understanding, in my opinion all features/joints/muscles tested in the reliability component (n=31) should be listed and a brief explanation of how they were tested.

* brief description of method now included and original FFP paper referenced, which provides more background detail

DATA ANALYSIS and RESULTS
Suggestions:
* 1. Delete most of Table 1. Most of the information is superfluous and not discussed in the body of the paper.
* 2. The relevance of Figure 2 is questionable, although this histogram illustrates the frequency of waist measurements it does not illustrate or explain the reported correlations (as reported in the results section, paragraph 2, page 8).

DISCUSSION
Broadly I think the discussion should be expanded to include debate on other areas. This would enhance its interest and usefulness to clinicians. Although the findings that there is a strong correlation between girth measures, weight and height is of interest, (as previously mentioned) the usefulness of this information in relation to the Proforma is not discussed. Of concern is that this current study found that there was an inverse correlation between body weight and flat feet, which are contrary to the results of Pfeiffer (page 10 2nd sentence) and the meaning of this result is not analysed. We are left with the apparent knowledge that flat feet are related to a heavier body weight in preschool children and more related to leaner children between the ages of 7 and 10. Some debate on these different findings would be helpful. Is it just a difference between age groups? Which study is the more reliable study? Is the sample of 31 children enough?

* Agree, and will write a separate account as advised by reviewers

Further on the feature of obesity, is it beneficial for clinicians to measure the girth of the child (as this is a reliable measure of obesity)? And therefore, clinically is this measure important to the Proforma as an indicator of ensuing poor health or an indicator that any flat foot posture is not related to body weight and size in 7 to 10 year olds. In Table 2 and 3 obesity is listed under the observed items, however, wasn’t it measured?
Again, this is dealt with by removing the anthropometric data and planning a second report.

Discussion, paragraph 2, (page 10). This paragraph tells us why many items are discarded (neither results Tables display the ICC results, for the poorly reliable features) however, given that the Proforma has been developed as a clinical guideline, surely there is value in including some debate as to why such significant clinical assessments such as ankle joint range of movement were found not to be reliable. From a clinician’s perspective, ankle joint range of movement is an important assessment as it is pertinent to the stability of the child and frequently contributes to the foot posture. The deletion of items such as Ankle joint range, without explanation may be disconcerting to clinicians.

The reliability of ankle joint assessment in the standard clinical non-weightbearing manner is well known to be unreliable (3-6).

Also other items such as ligamentous laxity and muscle tone (without underlying diagnoses) are included in the revised Proforma however, the inclusion of their assessment in this reliability study is not indicated in Table 2 nor 3.

Only included as a ‘consideration’

Would it be useful to reassess the reliability of certain items and again revise the Proforma?

As previously indicated above in this review, the sample size was 31 children of a specific age and although the results are really interesting and have potential, they are not definitive as promoted in the discussion. The paediatric population spans a much larger age group.

This study is only testing the reliability of the FFP. It is not looking at population norms and the age group limitation is now included within the discussion.

As indicated in Table 2 could the authors comment on the different scores between left and right on clinical signs such as heel eversion and RCSP. In Table 3 discussion on the variability of scores on items such as heel inversion on tiptoe, navicular height and knee position.

Finally is my interpretation correct, that of the sample of 31 children (flat footed children aged between 7 and 10) without symptoms or underlying diagnosis, would result in the ‘amber’ light plan of action which is to monitor?

Correct, but this paper does not report how many children had pain, it just looks at the reliability of pain being reported within the FFP (some children did have pain, and would thus be ‘red’ lights..)

Discretionary revisions

Discussion (page 9) third sentence, commence with ‘This is contrary to previous....

Discussion (page 10) line 7 delete the word ‘I’

Reference 41. Typing error in the word ‘based’.
**Level of interest:** An article of importance in its field  
**Quality of written English:** Needs some language corrections before being published  
**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

Reference List


J. Burns, Keystone Education meeting, Sydney, 2008