Reviewer's report

Title: Is the Timed Up and Go test a useful predictor of risk of falls in community dwelling older adults: A systematic review and meta-analysis

Version: 1  Date: 28 November 2013

Reviewer: Doungkamol Sindhusake

Reviewer’s report:

Minor Essential Revisions

1). Abstract on page 3, last paragraph, line 4: “The cut-point of >=13.5 seconds had little impact on identifying those at high risk of falls.” A statistics to support this claim is required, to be in line with other previous claims, all of which have their supporting statistics.

2). Abstract on page 3, last paragraph, line 5-6: The result of logistic regression analysis was reported although it was not mentioned in the aim of the study. In addition, the analysis was not mentioned in the Methods.

3). Methods on page 10, last paragraph, Statistical methods: There are 2 versions of a Bivariate model (Reistma’s and Chu’s versions). Why the Bivariate model in this study was fitted using normal approximation for within-study distributions (Reistma’s approach, reference 38) instead of the binomial distribution (Chu’s approach), providing that the Chu’s version has been documented to perform better.

4). Methods on page 10, paragraph 1, Quality assessment: What are the criteria to judge if a study has low or high or unclear risk of bias? What are the criteria to judge if a study has low or high or unclear concerns regarding applicability? This needs to be specified in the method.

5). Results on page 12, paragraph 1, line 6: “…leaving 25 twenty-five articles.”. The number of articles is not consistent, it is 24 articles in the Abstract, Methods and in Figure 1.

6). Results on page 14, paragraph 2, line 1: The finding of logistic regression analysis was reported although it was neither included in the aim of the study nor mentioned in the Methods.

7). Why were the 10 studies selected instead of 24? What criteria were applied to include these 10 studies in the meta-analysis, for example between risk of bias or applicability, which one carries more weight in selection of the studies?

8). Figure 1, The PRISMA flow diagram was presented without a definition of ‘PRISMA’. PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) was not mentioned in the Methods. The authors only stated that the current review was performed according to the principles outlined by the Cochrane diagnostic test accuracy working group. The use of PRISMA Statement as a reporting guideline should be stated in the Methods, if applicable.
The title of the Figure 1 should be self-explanatory.

9). Figure 2, The title of the figure should be self-explanatory. A label for X-axis such as “Proportion of studies with low, high or unclear RISK of BIAS” or “Proportion of studies with low, high, or unclear CONCERNS regarding APPLICABLITY” will increase readability of the manuscript. In addition, the graphic presentation could be neater and tidier without the vertical grid lines sticking out as in the current graphs.

10). Figure 3, The size of 10 points (one point represents sensitivity and specificity of each study) is scaled. Please specify in the footnote if the size is based on the inverse of the standard error of the logit(sensitivity) and logit(specificity) OR based on sample sizes. The HSROC is abbreviated for Hierarchical summary receiver-operator curves and should be spelt out, its definition should be provided in Methods. The same is applied for the 95% confidence regions and 95% prediction region, they are for the summary sensitivity and specificity points, and that should be spelt out. The title of the figure should be modified to reflect what is actually shown in the graph.

11). Background on page 5, paragraph 1, line 10: A definition of “…performance orientated mobility assessment tools” will help readers link these task-oriented tools with an assessment of gait and balance and thus will improve readability of the manuscript. The way the tools were described in this section leads readers to understand that these task-oriented tools were used in patients only, this should be clarified.

12). Background on page 5, paragraph 1, line 13: The ‘STRATIFY rule’ was mentioned without a definition or background information, the provision of a brief definition and/or its application will enhance readers’ understanding.

13). Background on page 5, paragraph 2, line 2: TUG was defined in full, the first time it was used. It was unnecessarily defined again.

14). Background on page 5, paragraph 2, line 4: What is the ‘….original derivation study?…’ , a reference is required.

15). Background on page 6, paragraph 2, line 2: A definition or background information of ‘NICE’ is required.

16). Background on page 6, paragraph 2, line 6: The ‘…pooled mean difference’ refers to mean difference in time to perform specific tasks and this needs to be clarified.

17). Background on page 7, paragraph 1: The study does not aim to identify factors associated with fall, however the finding was reported, it was also mentioned in the Abstract.

18). Methods on page 10, paragraph 2, line 1 in Statistical methods: What are mentandi commands? Did you mean a Stata ado programme “metandi” that fits the bivariate model. If they mean the same thing, please correct the spelling.

19). Methods on page 11, the last paragraph, line3: The cut-off points for area under the curve in which 0.5=no discrimination, 0.7-0.9=moderate accuracy…etc, a reference will be useful for readers.
20). Results on page 12, paragraph 1, line 2: The total number of articles is 1,154 but the way it was described can potentially confuse readers.

Discretionary Revisions

1). This is a suggestion only, a tabulation of the results of the individual QUADAS items for each single study as shown in QUADAS-2 background document (http://www.bris.ac.uk/quadas/resources/background-doc.pdf) will reduce the length of Results as well as increase readability of the manuscript.

Comments, no revisions are required

1). Methods, the search strategy, study selection & data extraction and quality assessment were clearly described. The QUADAS-2 tool was appropriately used to assess the quality of the studies.

2). Methods on page 10, paragraph 2, Statistical methods: The bivariate random effects model was appropriately chosen to estimate pooled sensitivity and specificity at 13.5 cut-off point. The ROC curve of sensitivity and (1-specificity), together with area under the curve were employed to assess the discriminative power of the 13.5 cut-off point. The evaluation of heterogeneity is appropriate and so is the post-test probability using Bayes’ theorem.

Statistical techniques were appropriately applied however the clearer Methods description will benefit readers with little statistical background. I have suggested some modification to improve readability of the manuscript.

This is the end of the document

Level of interest: An article of importance in its field

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.