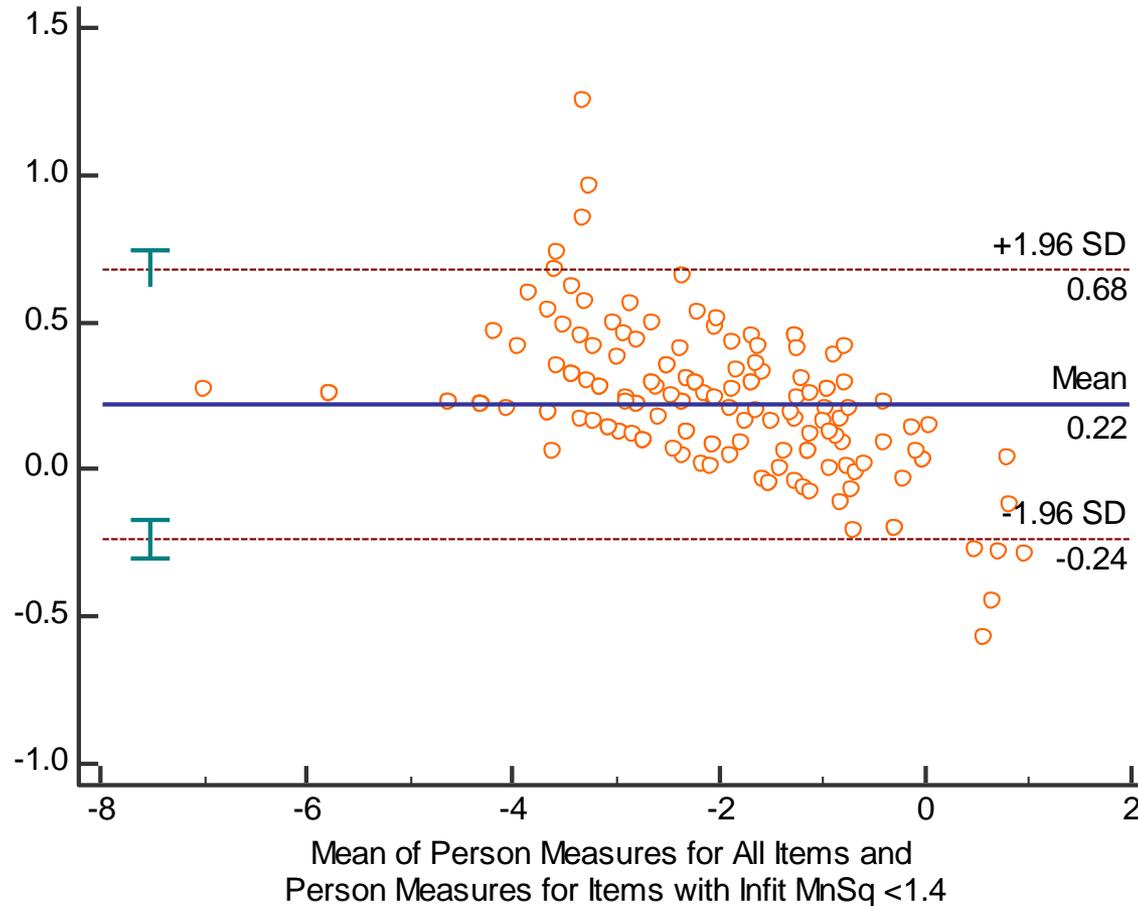


Supplementary Figure S1.

Bland Altman Evaluating Item Fit Statistics



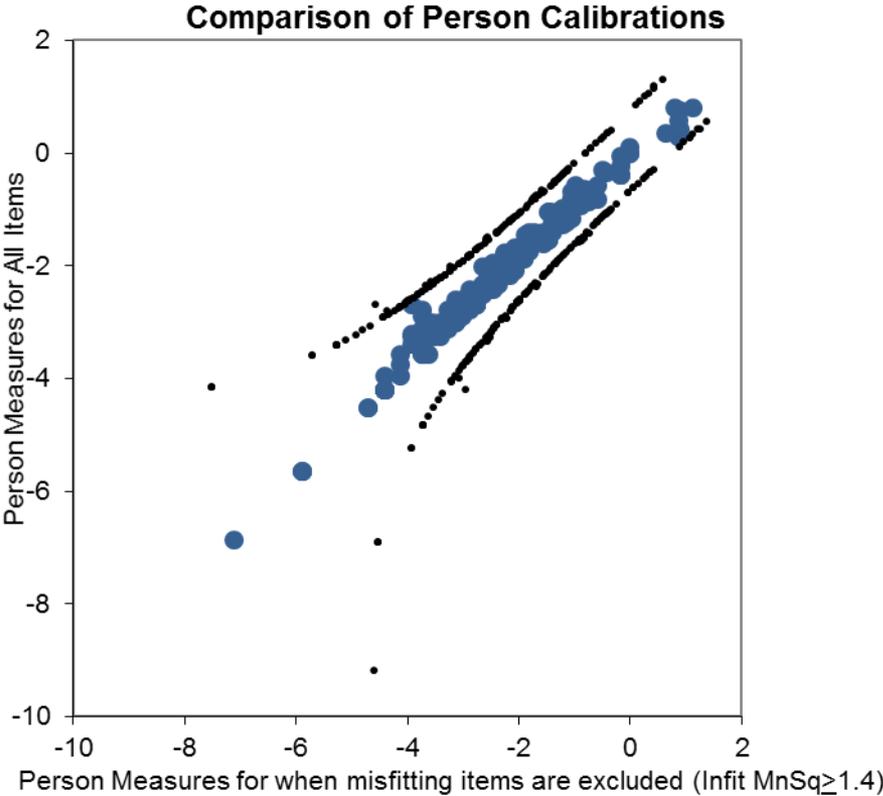
Supplementary Figure S1. The Bland Altman depicts the difference between the person measures when all items are included and the person measures when items that misfit ($\text{Infit MnSq} \geq 1.4$) were removed compared to the average person measure. Limits of Agreement (LOA) were used to evaluate the extent to which the person measures remained the same based on the items kept for analysis. The LOAs for the person measures were between -0.24 to 0.68. On analysis, 5.5% (9/162) fell outside of the LOAs. The average difference of 0.22 indicates that when items with an $\text{Infit MnSq} \geq 1.4$ are removed, the person measure is slightly less than it was when all items were included in the analysis.

Supplementary Figure S2.



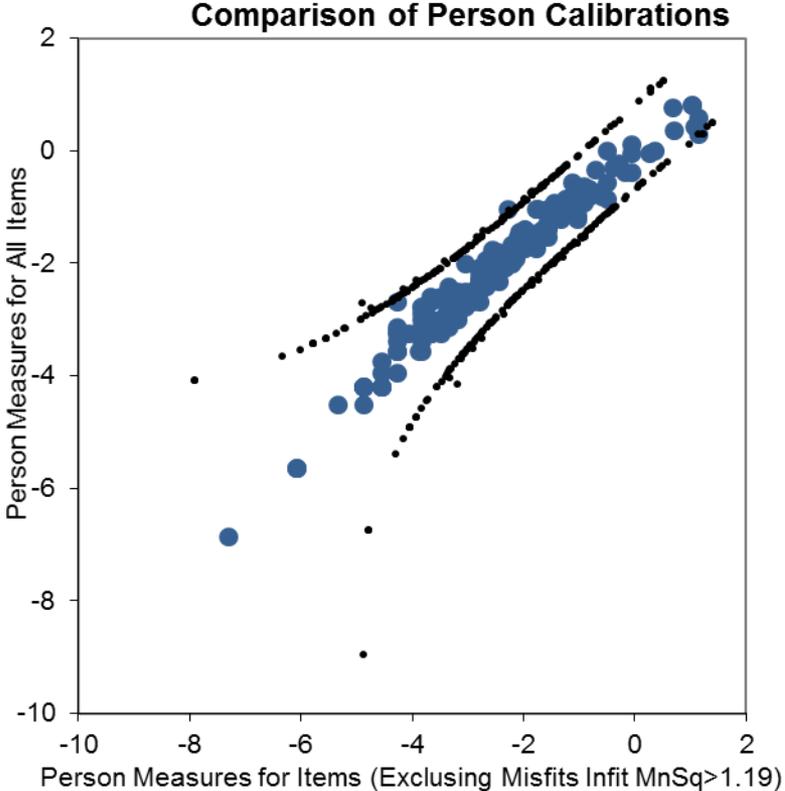
Supplementary Figure S2. The Bland Altman depicts the difference between the person measures when all items are included and the person measures when items that misfit ($\text{Infit MnSq} \geq 1.19$) were removed compared to the average person measure. Limits of Agreement (LOA) were used to evaluate the extent to which the person measures remained the same based on the items kept for analysis. The LOAs for the person measures were between -0.31 to 1.12. On analysis, 6.2% (10/162) fell outside of the LOAs. The average difference of 0.40 indicates that when items with an $\text{Infit MnSq} \geq 1.19$ are removed, the person measure is less than it was when all items were included in the analysis.

Supplementary Figure S3.



Supplementary Figure S3. This plot compares person measure calibrations when the analysis includes all items and then when the misfitting items (n=5) are excluded.

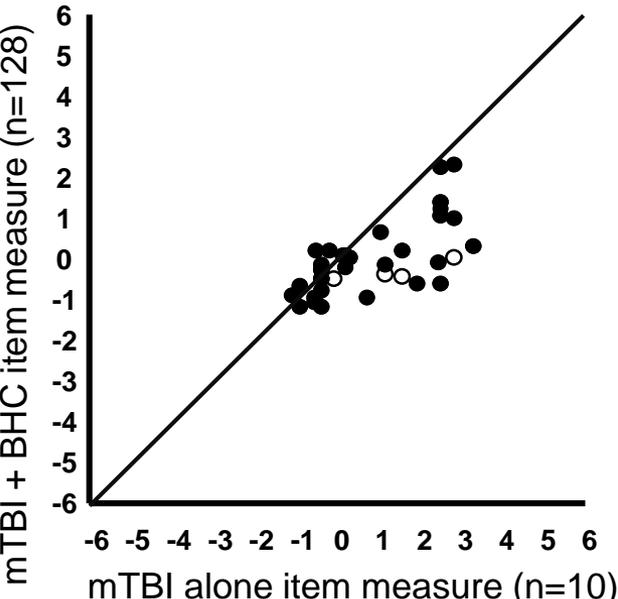
Supplementary Figure S4.



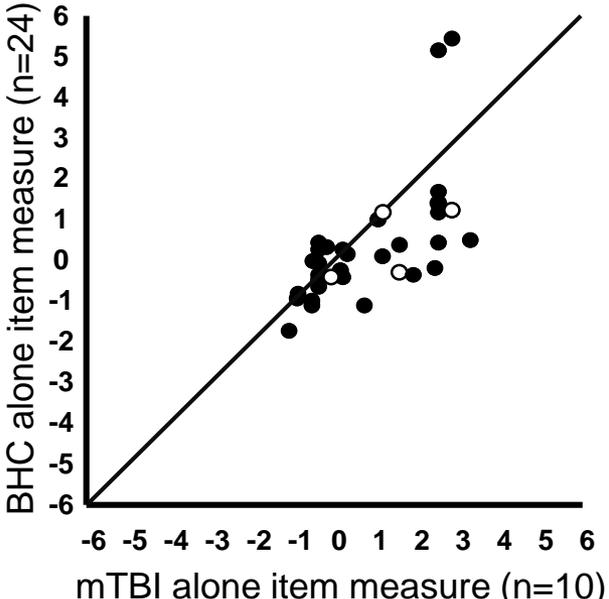
Supplementary Figure S4. This plot compares the person measure calibrations for when all items are included and when the misfits are excluded (Infit MnSq>1.19).

Supplementary Figure S5.

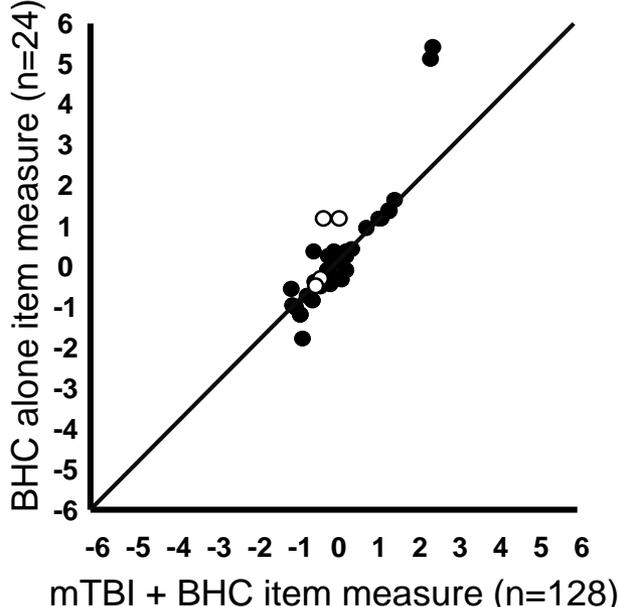
A.



B.



C.



Supplementary Figure S5. Item construct comparison between clinical groups. (A) mTBI alone vs mTBI + behavioral health conditions, (B) mTBI alone vs behavioral health conditions alone and (C) mTBI + behavioral health conditions vs behavioral health conditions alone. Open circles represent the four misfitting items when all three group were assessed together for infit (n=162). If construct is similar between groups then items measures would align/overlap on the 45-degree line. Items measures that do not align indicate that the variance is greater between the two groups. In (A), mTBI alone reported misfitting items to be easier (i.e., higher logit) compared to mTBI+behavioural health conditions. In (B), mTBI alone reported 1 of the 4 misfitting items to be more difficult (i.e., lower logit) compared to behavioural health conditions alone (item “sexual activities” data point located on the angled line). In (C), behavioural health conditions alone reported 1 of the 4 misfitting items to be slightly more difficult (i.e., lower logit) compared to mTBI+behavioural health conditions (item “Making new friends” data point located on the angled line). Abbreviations: mTBI = mild traumatic brain injury, BHC = behavioral health conditions.

Supplementary Table S1: WHODAS 2.0 Items (36-Item Version, Self-Administered).

Item Number	Item Abbreviation	Item (past 30 days)
Understanding and communicating		
D1.1	Concentrating	Concentrating on doing something for ten minutes?
D1.2	Remembering	Remembering to do important things?
D1.3	Finding solutions	Analyzing and finding solutions to problems in day-to-day life?
D1.4	Learning new task	Learning a new task, for example, learning how to get to a new place?
D1.5	Understanding	Generally understanding what people say?
D1.6	Conversation	Starting and maintaining a conversation?
Getting around		
D2.1	Standing for long periods	Standing for long periods such as 30 minutes?
D2.2	Standing up	Standing up from sitting down?
D2.3	Moving around	Moving around inside your home?
D2.4	Getting out of home	Getting out of your home?
D2.5	Walking/wheeling long distance	Walking a long distance such as a kilometer [or equivalent]?
Self-care		
D3.1	Washing	Washing your whole body?
D3.2	Dressing	Getting dressed?
D3.3	Eating	Eating?
D3.4	Staying by oneself	Staying by yourself for a few days?
Getting along with people		
D4.1	Dealing with people unknown	Dealing with people you do not know?
D4.2	Maintaining friendship	Maintaining a friendship?
D4.3	Getting along with people close	Getting along with people who are close to you?
D4.4	Making new friends	Making new friends?
D4.5	Sexual activities	Sexual activities?
Life activities		
D5.1	Household responsibilities	Taking care of your household responsibilities?
D5.2	Doing household tasks well	Doing most important household tasks well?
D5.3	Doing housework needed	Getting all the household work done that you needed to do?
D5.4	Household work done quickly	Getting your household work done as quickly as needed?
D5.5	Day to day work/school	Your day-to-day work/school?
D5.6	Doing work/school tasks well	Doing your most important work/school tasks well?
D5.7	Getting work done as needed	Getting all the work done that you need to do?
D5.8	Getting work done quickly	Getting your work done as quickly as needed?
Participation in society (past 30 days)		
D6.1	Problems joining community activities	How much of a problem did you have in joining in community activities (for example, festivities, religious or other activities) in the same way as anyone else can?
D6.2	Problems because of barriers	How much of a problem did you have because of barriers or hindrances in the world around you?
D6.3	Living with dignity	How much of a problem did you have living with dignity because of the attitudes and actions of others?
D6.4	Time spent on health condition	How much time did you spend on your health condition, or its consequences?
D6.5	Being emotionally affected	How much have you been emotionally affected by your health condition?
D6.6	Drain on financial resources	How much has your health been a drain on the financial resources of you or your family?
D6.7	Problems for the family	How much of a problem did your family have because of your health problems?
D6.8	Problems doing things for relaxation	How much of a problem did you have in doing things by yourself for relaxation or pleasure?