

Estimating PROMIS Scores Using SAS

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SAS can use item calibration results from PROC IRT to score subjects using the OUTMODEL= option to save parameter estimates. But, like a lot of existing general software, it is not designed to estimate IRT scores using previously existing item parameters. To get scores for the existing PROMIS 4-item general health scale one needs to have administered some other items, as described below.

In the PROMIS developmental sample, PEG items and PROMIS items were administered to a subset of the sample. We specified a 7-item scale consisting of the PROMIS global health items and the 3 PEG items. The SAS code used is:

```
PROC IRT rorder=internal;
var global03 global06 global07 global08 bpi14 bpi23g bpi23a;
fixvalue global03/parm=[intercept[1 2 3 4]] value=[5.1342 2.3052 -0.4175 -
3.3201],global03/parm=[slope] value=[2.2257],
      global06/parm=[intercept[1 2 3 4]] value=[8.6853 5.6324 3.4424
1.5050],global06/parm=[slope] value=[2.8809],
      global07/parm=[intercept[1 2 3 4]] value=[6.9432 3.3378 1.3634 -
3.2299],global07/parm=[slope] value=[1.6799],
      global08/parm=[intercept[1 2 3 4]] value=[6.3653 3.7708 0.8846 -
2.0167],global08/parm=[slope] value=[1.8319];
run;
```

```
*****;
```

Note: SAS requires specification of item intercept parameters to fix thresholds: intercept = - (threshold *slope).

The PEG items were recoded to missing for the subgroup of people who were administered the PEG items while random integers between 1-5 were assigned to the remaining sample that was not administered the PEG items. This was necessary to get the model to run because PROC IRT requires estimating some item parameters. This gave estimated PROMIS global physical health scores for the subgroup administered the PEG items. For the remainder of the sample, we got

garbage estimates for the 7-item scale, but we didn't want estimated scores for those without PEG items.

The intercept parameters for the PROMIS global physical and mental health scales are provided below.

Intercept Parameters for PROMIS Global Physical Health Scale Items

Item	Intercept 1	Intercept 2	Intercept 3	Intercept 4	Slope
Global03	5.1342	2.3052	-0.4175	-3.3201	2.2257
Global06	8.6853	5.6324	3.4424	1.5050	2.8809
Global07	6.9432	3.3378	1.3634	-3.2299	1.6799
Global08	6.3653	3.7708	0.8846	-2.0167	1.8319

Intercept Parameters for PROMIS Global Mental Health Scale Items

Item	Intercept 1	Intercept 2	Intercept 3	Intercept 4	Slope
Global02	5.9440	3.2188	0.5061	-2.5354	2.3217
Global04	8.5274	4.6833	1.2844	-2.3817	3.5316
Global05	5.3635	2.7309	0.0719	-3.1341	2.8656
Global10	5.3741	2.9036	0.5185	-1.8478	1.8239