

Oral Health Pain/Inflammation – Technical Specifications

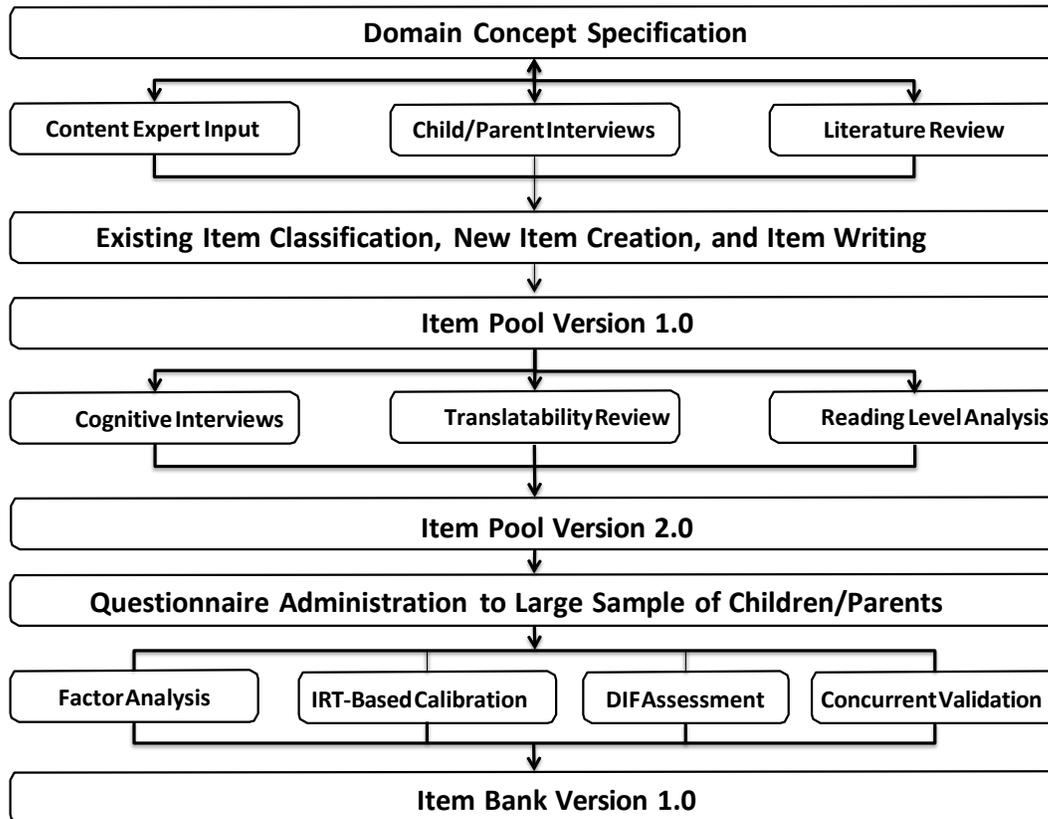


Figure 2. Methodological Approach for Developing the POHPI

The purpose of this project was to develop practical, efficient, reliable, and valid patient-reported outcome (PRO) measures of pediatric oral pain/inflammation by child- and parent-report. Oral pain/inflammation includes perceptions of pain quality, pain location, bleeding/swelling, and pain impact.

The Pediatric Oral Health Pain/Inflammation (POHPI) item bank (38 items) is listed in Tables 2-3.

Table 2a. Child Pediatric Oral Health Pain/Inflammation (POHPI) Item Bank

1	OH_PI_001	My mouth hurt.
2	OH_PI_002	I had pain in my mouth.
3	OH_PI_008	My mouth was sore.
4	OH_PI_009	My mouth felt tender.
5	OH_PI_015	It hurt my teeth to drink cold drinks.
6	OH_PI_016	It hurt my teeth to eat hot food.
7	OH_PI_018	It hurt to brush my teeth.
8	OH_PI_019	It hurt my teeth to chew.
9	OH_PI_020	It hurt my teeth to bite down.
10	OH_PI_021	It hurt my teeth to eat sweet food.
11	OH_PI_022	It hurt my teeth to drink soda or juice.
12	OH_PI_024	My gums hurt.
13	OH_PI_025	My jaw hurt.
14	OH_PI_026	My teeth hurt
15	OH_PI_028	I had a tooth that hurt.
16	OH_PI_030	It was hard for me to drink because of pain in my mouth.
17	OH_PI_031	It was hard for me to chew because of pain in my mouth.
18	OH_PI_032	It was hard for me to eat because of pain in my mouth.
19	OH_PI_033	It was hard for me to talk because of pain in my mouth.
20	OH_PI_037	It was hard for me to smile because of pain in my mouth.
21	OH_PI_038	It was hard for me to sleep because of pain in my mouth.
22	OH_PI_039	It was hard for me to exercise or play because of pain in my mouth.
23	OH_PI_040	It was hard for me to sit still because of pain in my mouth.
24	OH_PI_041	I felt sad because of pain in my mouth.
25	OH_PI_042	I felt worried because of pain in my mouth.
26	OH_PI_043	I felt afraid because of pain in my mouth.
27	OH_PI_044	I felt angry because of pain in my mouth.
28	OH_PI_045	I felt fed up with pain in my mouth.
29	OH_PI_046	I felt upset because of pain in my mouth.
30	OH_PI_047	I felt annoyed because of pain in my mouth.
31	OH_PI_048	I felt bothered because of pain in my mouth.
32	OH_PI_049	I felt stressed because of pain in my mouth.
33	OH_PI_050	It was hard for me to pay attention because of pain in my mouth.
34	OH_PI_053	It was hard for me to have fun because of pain in my mouth.
35	OH_PI_054	It was hard to have fun with my friends because of pain in my mouth.
36	OH_PI_055	It was hard to have fun with my family because of pain in my mouth.
37	OH_PI_057	I stayed away from my friends because of pain in my mouth.
38	OH_PI_062	My gums were swollen

Table 3. Parent Pediatric Oral Health Pain/Inflammation (POHPI) Item Bank

1	OH_PI_001_PX	My child's mouth hurt.
2	OH_PI_002_PX	My child had pain in his/her mouth.
3	OH_PI_008_PX	My child's mouth was sore.
4	OH_PI_009_PX	My child's mouth felt tender.
5	OH_PI_015_PX	It hurt my child's teeth to drink cold drinks.
6	OH_PI_016_PX	It hurt my child's teeth to eat hot food.
7	OH_PI_018_PX	It hurt for my child to brush his/her teeth.
8	OH_PI_019_PX	It hurt my child's teeth to chew.
9	OH_PI_020_PX	It hurt my child's teeth to bite down.
10	OH_PI_021_PX	It hurt my child's teeth to eat sweet food.
11	OH_PI_022_PX	It hurt my child's teeth to drink soda or juice.
12	OH_PI_024_PX	My child's gums hurt.
13	OH_PI_025_PX	My child's jaw hurt.
14	OH_PI_026_PX	My child's teeth hurt
15	OH_PI_028_PX	My child had a tooth that hurt.
16	OH_PI_030_PX	It was hard for my child to drink because of pain in his/her mouth.
17	OH_PI_031_PX	It was hard for my child to chew because of pain in his/her mouth.
18	OH_PI_032_PX	It was hard for my child to eat because of pain in his/her mouth.
19	OH_PI_033_PX	It was hard for my child to talk because of pain in his/her mouth.
20	OH_PI_037_PX	It was hard for my child to smile because of pain in his/her mouth.
21	OH_PI_038_PX	It was hard for my child to sleep because of pain in his/her mouth.
22	OH_PI_039_PX	It was hard for my child to exercise or play because of pain in his/her mouth.
23	OH_PI_040_PX	It was hard for my child to sit still because of pain in his/her mouth.
24	OH_PI_041_PX	My child felt sad because of pain in his/her mouth.
25	OH_PI_042_PX	My child felt worried because of pain in his/her mouth.
26	OH_PI_043_PX	My child felt afraid because of pain in his/her mouth.
27	OH_PI_044_PX	My child felt angry because of pain in his/her mouth.
28	OH_PI_045_PX	My child felt fed up with pain in his/her mouth.
29	OH_PI_046_PX	My child felt upset because of pain in his/her mouth.
30	OH_PI_047_PX	My child felt annoyed because of pain in his/her mouth.
31	OH_PI_048_PX	My child felt bothered because of pain in his/her mouth.
32	OH_PI_049_PX	My child felt stressed because of pain in his/her mouth.
33	OH_PI_050_PX	It was hard for my child to pay attention because of pain in his/her mouth.
34	OH_PI_053_PX	It was hard for my child to have fun because of pain in his/her mouth.
35	OH_PI_054_PX	It was hard for my child to have fun with his/her friends because of pain in his/her mouth.
36	OH_PI_055_PX	It was hard for my child to have fun with his/her family because of pain in his/her mouth.
37	OH_PI_057_PX	My child stayed away from his/her friends because of pain in his/her mouth.
38	OH_PI_062_PX	My child's gums were swollen

Instructions for raw score/scale score look-up tables

Each question has between two and five response options ranging in value from one to five. To find the total raw score for a form with all questions answered, sum the values of the response to each question. All questions must be answered in order to produce the most valid summed score.

A score can be approximated if a participant skips a question. If items are missing, first check how many items were answered. Confirm that 50% of items were answered. After confirming that enough responses were provided, sum the response scores from the items that were answered (not including any screening question). Multiply this sum by the total number of items in the form. Finally, divide by the number of items that were answered. For example, if a respondent answered 7 of 14 questions and answered all items with the second lowest response option (2), you would sum all responses (14), multiply by the number of items in the form (14) and divide by the number of items that were answered (7). Here $(14 \times 14) / 7 = 28$. If the result is a fraction, round up to the nearest whole number. This is a pro-rated raw score.

The formula is:

$$\frac{(\text{Raw sum} \times \text{number of items})}{\text{Number of items that were actually answered}}$$

Locate the applicable score conversion table and use this table to translate the total raw score or pro-rated score into a T-score for each participant. The T-score rescales the raw score into a standardized score with a mean of 50 and a standard deviation (SD) of 10. Therefore a person with a T-score of 40 is one SD below the mean.

For pro-rated scores, this calculation assumes that responses are missing at random. However, as this is not always the case, use caution when interpreting the final pro-rated T-score.

Important: *A higher PROMIS T-score represents more of the concept being measured.* For negatively-worded concepts like Pain, a T-score of 60 is one SD worse than average. By comparison, a Pain T-score of 40 is one SD better than average.

The sum-score to T-score conversion table for child and parent are shown in Tables 4 and 5.

Table 4. Child POHPI Look-Up Table**Full Bank**

Raw Score	T Score	T Score SE	Theta Score
38	40.9	6.2	-0.91
39	47	4	-0.3
40	49.8	2.9	-0.02
41	51.4	2.4	0.14
42	52.5	2	0.25
43	53.4	1.7	0.34
44	54.1	1.6	0.41
45	54.7	1.4	0.47
46	55.2	1.3	0.52
47	55.7	1.3	0.57
48	56.1	1.2	0.61
49	56.5	1.1	0.65
50	56.9	1.1	0.69
51	57.2	1.1	0.72
52	57.5	1	0.75
53	57.8	1	0.78
54	58.1	1	0.81
55	58.3	0.9	0.83
56	58.6	0.9	0.86
57	58.8	0.9	0.88
58	59	0.9	0.9
59	59.3	0.9	0.93
60	59.5	0.9	0.95
61	59.7	0.8	0.97
62	59.9	0.8	0.99
63	60.1	0.8	1.01
64	60.3	0.8	1.03
65	60.5	0.8	1.05
66	60.7	0.8	1.07
67	60.9	0.8	1.09
68	61	0.8	1.1
69	61.2	0.8	1.12
70	61.4	0.8	1.14
71	61.6	0.8	1.16
72	61.7	0.8	1.17
73	61.9	0.8	1.19
74	62.1	0.8	1.21
75	62.3	0.8	1.23
76	62.4	0.8	1.24
77	62.6	0.7	1.26
78	62.8	0.7	1.28
79	62.9	0.7	1.29
80	63.1	0.7	1.31
81	63.2	0.7	1.32
82	63.4	0.7	1.34
83	63.6	0.7	1.36
84	63.7	0.7	1.37

85	63.9	0.8	1.39
86	64.1	0.8	1.41
87	64.2	0.8	1.42
88	64.4	0.8	1.44
89	64.6	0.8	1.46
90	64.7	0.8	1.47
91	64.9	0.8	1.49
92	65.1	0.8	1.51
93	65.2	0.8	1.52
94	65.4	0.8	1.54
95	65.6	0.8	1.56
96	65.7	0.8	1.57
97	65.9	0.8	1.59
98	66.1	0.8	1.61
99	66.3	0.8	1.63
100	66.4	0.8	1.64
101	66.6	0.8	1.66
102	66.8	0.8	1.68
103	67	0.8	1.7
104	67.2	0.8	1.72
105	67.4	0.8	1.74
106	67.5	0.8	1.75
107	67.7	0.8	1.77
108	67.9	0.8	1.79
109	68.1	0.8	1.81
110	68.3	0.8	1.83
111	68.5	0.8	1.85
112	68.7	0.8	1.87
113	68.9	0.8	1.89
114	69.1	0.8	1.91
115	69.3	0.8	1.93
116	69.5	0.8	1.95
117	69.7	0.8	1.97
118	69.9	0.8	1.99
119	70.1	0.8	2.01
120	70.3	0.8	2.03
121	70.5	0.8	2.05
122	70.8	0.8	2.08
123	71	0.8	2.1
124	71.2	0.8	2.12
125	71.4	0.9	2.14
126	71.7	0.9	2.17
127	71.9	0.9	2.19
128	72.2	0.9	2.22
129	72.4	0.9	2.24
130	72.7	0.9	2.27
131	73	0.9	2.3
132	73.3	0.9	2.33
133	73.6	1	2.36
134	73.9	1	2.39
135	74.2	1	2.42
136	74.6	1.1	2.46

137	74.9	1.1	2.49
138	75.4	1.2	2.54
139	75.8	1.2	2.58
140	76.3	1.3	2.63
141	76.9	1.4	2.69
142	77.6	1.6	2.76
143	78.4	1.8	2.84
144	79.5	2	2.95
145	80.9	2.4	3.09
146	83.1	2.8	3.31

Table 5. Parent POHPI Look-Up Table

Full Bank

Raw Score	T Score	T Score SE	Theta Score
38	41.3	6.3	-0.87
39	48	3.7	-0.2
40	50.3	3	0.03
41	51.9	2.4	0.19
42	53.1	2	0.31
43	54	1.7	0.4
44	54.7	1.6	0.47
45	55.3	1.4	0.53
46	55.8	1.4	0.58
47	56.3	1.3	0.63
48	56.7	1.2	0.67
49	57.1	1.2	0.71
50	57.5	1.1	0.75
51	57.8	1.1	0.78
52	58.1	1.1	0.81
53	58.4	1	0.84
54	58.7	1	0.87
55	59	1	0.9
56	59.3	1	0.93
57	59.5	0.9	0.95
58	59.8	0.9	0.98
59	60	0.9	1
60	60.2	0.9	1.02
61	60.5	0.9	1.05
62	60.7	0.9	1.07
63	60.9	0.9	1.09
64	61.1	0.9	1.11
65	61.3	0.8	1.13
66	61.5	0.8	1.15
67	61.7	0.8	1.17
68	61.9	0.8	1.19
69	62.1	0.8	1.21
70	62.3	0.8	1.23
71	62.5	0.8	1.25
72	62.7	0.8	1.27

73	62.9	0.8	1.29
74	63	0.8	1.3
75	63.2	0.8	1.32
76	63.4	0.8	1.34
77	63.6	0.8	1.36
78	63.8	0.8	1.38
79	63.9	0.8	1.39
80	64.1	0.8	1.41
81	64.3	0.8	1.43
82	64.5	0.8	1.45
83	64.6	0.8	1.46
84	64.8	0.8	1.48
85	65	0.8	1.5
86	65.2	0.8	1.52
87	65.3	0.8	1.53
88	65.5	0.8	1.55
89	65.7	0.8	1.57
90	65.9	0.8	1.59
91	66	0.8	1.6
92	66.2	0.8	1.62
93	66.4	0.8	1.64
94	66.6	0.8	1.66
95	66.8	0.8	1.68
96	66.9	0.8	1.69
97	67.1	0.8	1.71
98	67.3	0.8	1.73
99	67.5	0.8	1.75
100	67.6	0.8	1.76
101	67.8	0.8	1.78
102	68	0.8	1.8
103	68.2	0.8	1.82
104	68.4	0.8	1.84
105	68.5	0.8	1.85
106	68.7	0.8	1.87
107	68.9	0.8	1.89
108	69.1	0.8	1.91
109	69.3	0.8	1.93
110	69.5	0.8	1.95
111	69.6	0.8	1.96
112	69.8	0.8	1.98
113	70	0.8	2
114	70.2	0.8	2.02
115	70.4	0.8	2.04
116	70.6	0.8	2.06
117	70.8	0.8	2.08
118	71	0.8	2.1
119	71.2	0.8	2.12
120	71.4	0.8	2.14
121	71.6	0.8	2.16
122	71.8	0.8	2.18
123	72	0.9	2.2
124	72.2	0.9	2.22

125	72.4	0.9	2.24
126	72.7	0.9	2.27
127	72.9	0.9	2.29
128	73.1	0.9	2.31
129	73.3	0.9	2.33
130	73.6	0.9	2.36
131	73.8	0.9	2.38
132	74.1	1	2.41
133	74.4	1	2.44
134	74.6	1	2.46
135	74.9	1	2.49
136	75.2	1	2.52
137	75.5	1.1	2.55
138	75.9	1.1	2.59
139	76.2	1.1	2.62
140	76.6	1.2	2.66
141	77	1.2	2.7
142	77.5	1.3	2.75
143	77.9	1.3	2.79
144	78.5	1.4	2.85
145	79.1	1.5	2.91
146	79.8	1.7	2.98
147	80.7	1.9	3.07
148	81.7	2.1	3.17
149	83.1	2.3	3.31
150	84.9	2.5	3.49