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Item-level informant discrepancies between children and their parents on the PROMIS® pediatric scales

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Abstract

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Objective—The study objective was to describe the individual item-level discrepancies between children ages 8–17 years and their parents for the PROMIS® pediatric scales. Contextual effects on item-level informant discrepancies for the pediatric pain interference items were further analyzed conditional on whether the child, the parent, or anyone else in the household experienced chronic pain.

Methods—Parallel pediatric self-report and parent proxy-report items were completed by approximately 300 parent–child dyads depending on form assignment and individual nonresponse. Agreement between parent and child responses to individual items was measured using the polychoric correlation coefficient and weighted κ . The Chi-square test of symmetry was utilized for a comparison of the pattern of parent–child item discrepancies on the response scales, and the differences between the child and parent responses on the 1–5 item response scale are summarized.

Results—A continuum of higher item-level parent–child discrepancies was demonstrated starting with peer relationships, anger, anxiety, and depressive symptoms, followed by progressively lower parent–child discrepancies for energy, fatigue, asthma impact, pain interference, upper extremity, and mobility items. Parent–child discrepancies for pain interference items were lower in the context of chronic pain either in the child or in the parent.

Conclusions—Parent–child item-level discrepancies were lower for more objective or visible items than for items measuring internal states or less observable items measuring latent variables such as peer relationships and fatigue. Future research should focus on the child and parent characteristics that influence domain-specific item-level discrepancies, and under what conditions item-level parent–child discrepancies predict child health outcomes.

Keywords

PROMIS; Patient-reported outcomes; Pediatrics; Informant discrepancies; Item response theory; Pain

Introduction

The Patient-Reported Outcomes Measurement Information System (PROMIS®) is a National Institutes of Health (NIH) Initiative, created to advance the assessment of patient-reported outcomes (PROs) [1]. Items are evaluated using item response theory (IRT) to derive scales with scores that are theoretically maximally reliable and valid along the full spectrum of the latent trait [2]. During the past 10 years, the PROMIS Pediatric Group has developed pediatric self-report item banks for ages 8–17 years across five generic health domains (physical functioning, pain, fatigue, emotional health, and social health) [3–9], with computerized adaptive testing (CAT) and short-form administration options available [10]. An asthma-specific measure was also created utilizing IRT methods [11, 12].

While pediatric self-report should be considered the standard for measuring PROs [13], there may be circumstances when the child is too young, too cognitively impaired, or too ill to complete a PRO instrument, and parent proxy-report may be needed in such cases [14]. To address this need, we developed the PROMIS® parent proxy-report item banks for children ages 5–17 years to be directly parallel to the domains of the pediatric self-report

item banks utilizing IRT [15–17]. However, it has been well documented in both the adult and pediatric literature going back several decades that information provided by proxy-respondents is not equivalent to that reported by the patient [18–20]. In fact, more recent reviews indicate that informant discrepancies are ubiquitous and, rather than being considered simply measurement error or deviations from a true score may provide unique and invaluable information which may predict child health outcomes in clinical trials and health services research in ways that information from only one informant may not [21]. Accordingly, when we developed the PROMIS[®] parent proxy-report scales, we additionally used two-dimensional IRT models to estimate the correlations between the latent variables measured by the pediatric self-report scales for ages 8–17 and the parent proxy-report scales for ages 8–17 [16].

In these two-dimensional IRT models, one latent variable was used with the graded model to fit the pediatric self-report responses and a second latent variable was used to fit the parent proxy-report data; the correlation between the two latent variables was estimated simultaneously with the item parameters [16]. In terms used by traditional test theory, this correlation is an estimate of the “disattenuated” correlation between the two variables; that is, the correlation corrected for the presence of measurement error in scores. Thus, we tested whether the pediatric self-report and parent proxy-report scales measured the same constructs (latent variables), finding that parent proxy-report demonstrated moderate to low agreement with pediatric self-report, with differences across the domains measured [16], consistent with the extant literature [22, 23]. However, these prior findings tested parent–child discrepancies at the scale level. No prior study has investigated parent–child informant discrepancies with these PROMIS[®] pediatric scales at the individual item level.

There may be significant advantages in investigating informant discrepancies between children and their parents at the individual item level rather than at the scale level. Specifically, it has been proposed that analyzing parent–child discrepancies at the scale level obscures true differences between informants [24]. Rather, the pattern of informant discrepancies at the individual item level is hypothesized to be more accurate and informative since the direction of the differences at the individual item level is potentially averaged out at the scale level. Thus, analyzing informant discrepancies at the scale level may obfuscate important cross-informant differences in the direction of reporting on specific items and the response scales that accompany them, and may erroneously underestimate true informant discrepancies [24]. Further, as reviewed by Eiser and Varni [23], child characteristics, parent characteristics, and the domains (latent variables) being measured interact to form contextual effects on parent–child agreement at the scale level. To our knowledge, these contextual effects have not been simultaneously investigated at the item level.

Consequently, to address these significant gaps in the extant literature, the objective of the present study is to describe the individual item-level agreement (or its reverse, parent–child item discrepancies) between children ages 8–17 years and their parents for the PROMIS[®] pediatric scales. We hypothesized that parent–child item-level discrepancies would be lower for more objective or visible items measuring latent variables such as physical functioning than for items measuring internal states or less visible or readily observable items measuring

latent variables such as emotional distress, fatigue, pain, asthma symptoms, and peer relationships. Contextual effects on informant agreement at the item level for the PROMIS® pediatric pain interference items were further analyzed depending on whether the child, or the parent, or anyone else in the household experienced chronic pain.

Methods

Participants

Participants were recruited between May 2008 through March 2009 in hospital-based outpatient general pediatrics and subspecialty clinics. Pediatric patients within the age range of 8–17 were recruited through a review of clinic appointment rosters or while waiting for their clinic appointments according to protocols approved by the institutional review boards (IRBs) of University of North Carolina (UNC), Duke University Medical Center, University of Washington (UW), Ann & Robert H. Lurie Children’s Hospital of Chicago (Lurie; formerly, Children’s Memorial Hospital, Chicago), and Children’s Hospital at Scott and White (S&W) in Texas. Parents/caregivers were recruited while waiting for their child’s clinic appointments. The UNC, Duke, UW, Lurie, and S&W general pediatric clinics were representative of health issues for which children have physician office visits (e.g., well-child visits, acute illnesses, and some chronic illnesses). The specialty clinics included Pulmonology, Allergy, Gastroenterology, Rheumatology, Nephrology, Obesity, Rehabilitation, Dermatology, and Endocrinology. Parents of children with asthma were over-sampled during recruitment because asthma-specific items were tested.

To be eligible to participate in the large-scale testing survey, all participants were required to meet the following inclusion criteria: able to speak and read English; and able to see and interact with a computer screen, keyboard, and mouse. Each participant received a \$10 gift card in return for their time and effort. Written parental informed consent and child assent (when age appropriate) were obtained for these data.

Item bank development

Item development has been described in detail previously [3–11, 15, 16]. Specifically, the PROMIS pediatric item banks were developed using a strategic item generation methodology adopted by the PROMIS Network [2]. Six phases of item development were implemented: identification of existing items, item classification and selection, item review and revision, focus group input on domain coverage, cognitive interviews with individual items, and final revision before field testing. The final pediatric self-report item banks included scales measuring quality of life in five generic health domains (physical functioning, pain, fatigue, emotional health, and social health) and Asthma. Because physical functioning includes both upper extremity and mobility item banks, emotional distress includes separate anger, anxiety, and depressive symptoms item banks, and fatigue includes both tired and lack of energy item banks, a total of 10 content domains are measured [3–9, 11].

The parent proxy-report items were developed from those used for the 10 existing pediatric self-report content domains [3–9, 11]. During the development of the parent proxy-report

scales, the items were revised to retain their meaning, while modifying the phrasing so that all items involved parents reporting on their child [15, 16]. For example, in the pediatric self-report pain interference domain, children responded to the item “I had trouble sleeping when I had pain,” while parents responded to the parent proxy-report equivalent of this item, “My child had trouble sleeping when he/she had pain.”

All items had a 7-day recall period and use one of two sets of standardized five-point response options: *never*, *almost never*, *sometimes*, *often*, and *almost always* for all scales except physical functioning; and *with no trouble*, *with a little trouble*, *with some trouble*, *with a lot of trouble*, and *not able to do* for the physical functioning scales.

In the data collection for the original standardization of the pediatric parent proxy scales, 293 proxy-report items from the 10 content domains were administered to 1,548 parents of the 8- to 17-year-old children [15, 16]. To reduce respondent burden, a multiform design was used in which the items were divided among nine test forms, and each parent was administered one of the nine forms; the details of the sampling design have been described previously [15, 16]; each child responded to approximately half the items on the corresponding parent form.

Of the 293 items administered, 165 were ultimately included in the proxy item banks for parents of children ages 8–17 years; these corresponded to the 166 items that were ultimately included in the pediatric self-report item banks, less one item that could not be reworded for parent proxy-report [16].

Statistical and psychometric methods

Agreement between parent and child responses to individual items was measured using the polychoric correlation coefficient [25] and weighted κ [26, 27]. Both statistics are computed using the SAS FREQ procedure [28] from the contingency tables that arise from cross-classifying the child’s response in one of five categories with the parent’s response in one of the same five categories, yielding frequencies in a five-by-five table.

The polychoric correlation (r) coefficient is an estimate of the correlation between two normally distributed latent variables hypothesized to underlie the categorical item responses. The model is that each question induces something like a continuous response value that is categorized in a second cognitive process involved in selecting one of the five response alternatives. The model that yields the polychoric r for two items is essentially the same as the IRT model upon which the PROMIS scales are based. The polychoric r has the advantage that has its full range (0–1 for positive relations) regardless of the marginal distributions of the two items. A potential disadvantage of the polychoric correlation is that it is based on a strong parametric distributional model for the unobserved item response tendencies.

In contrast, linearly weighted κ is a measure of agreement based solely on the observed response frequencies: Responses that agree perfectly (i.e., are in the same category) receive the highest weight; responses that differ, but are in adjacent categories use smaller weights, and responses that differ by more than one category receive progressively smaller weights.

While the nominal range of the statistic is 0–1, the scale of weighted κ is such that its values are generally smaller than those of the polychoric correlation.

The Chi-square test of *symmetry* [29] is another statistic that is of some interest, although it is not, strictly speaking, an index of agreement. This statistic compares the frequencies in corresponding cells in the lower triangle of the five-by-five contingency table with the corresponding frequencies in the upper triangle. For example, one component is the comparison between cell (2 = almost never for the parent, 1 = never for the child) with cell (1 = never for the parent, 2 = almost never for the child); to the extent the frequencies in those two cells are the same, neither parent nor child tends to endorse the response above or below the other. The symmetry statistic aggregates that comparison over all ten ways (for five alternatives) responses can disagree, producing a Chi-square statistic with ten degrees of freedom, so it is expected to be around 10 if child and parent responses are symmetrical.

We also computed the difference on the 1–5 response scale between the child and parent responses for each item. We report the average of those differences as a measure of bias of the parent responses relative to the child responses and the standard deviation (SD) of those differences as a measure of variability of parent responses relative to the pediatric self-reports.

Tables presented in the Results section illustrate the relation between these statistics and the observed responses, and the average values of these agreement statistics for scales measuring the ten PROMIS® pediatric subdomains.

Among a block of questions designed to collect data on potential mediators of parent–child agreement in reporting health-related quality of life, the parents were asked whether (a) the child, or (b) the parent, or (c) anyone else in the household experienced chronic pain. Responses to those questions were used to divide the sample into two groups, and parent–child agreement for the PROMIS® pain interference items was computed separately within those two groups.

Results

The nine test forms were completed by a total of 1,548 respondents (parent–child dyads). Demographic information about the sample has been provided previously [16]. The total sample was 52 % female. The majority of care-givers were female (85 %), married (69 %), Caucasian (64 %), and had at least a high school education (94 %). Approximately 50 % had children with a chronic health condition [primarily asthma (23 %)] diagnosed or treated within 6 months prior to the interview.

Because of the structure of the multiple-form administration of items to parents and children, a little over 300 parent–child dyads responded to each individual item. The exact number varies slightly from item pair to item pair, due to the randomness of form assignment and individual nonresponse.

Patterns of parent–child agreement/discrepancies

Tables 1, 2, 3, and 4 illustrate various levels of agreement as measured by the polychoric correlation and weighted κ , and differing levels of symmetry. The upper panel of Table 1 tabulates parent and child responses for one of the items on the physical functioning mobility scale, “I could do sports and exercise that other kids my age could do” (child form)/“My child could do sports and exercise that other kids his/her age could do” (parent form). This item illustrates roughly average agreement for items from the physical functioning domain: polychoric $r = 0.63$ and weighted $\kappa = 0.39$. The value of the symmetry statistic is 5.4, which is very low, indicating that, when there is disagreement, there is no asymmetry: It is as likely that either the child or the parent selects the higher response.

The lower panel of Table 1, in contrast, shows very poor agreement between parent and child for the depressive symptoms item “I wanted to be by myself” (child form)/“My child wanted to be by himself/herself” (parent form): polychoric $r = 0.1$ and weighted $\kappa = 0.1$. The value of the symmetry statistic is 87.3, which is very high and highly significant, because there are many more responses of *often* and *almost always* from children than from parents—and some of those responses of *often* and *almost always* came from children whose parents selected “never.”

Table 2 illustrates the level of parent–child agreement for two items from the anxiety scale, “I worried about what could happen to me” (child form)/“My child worried about what could happen to him/her” (parent form) and “I worried when I went to bed at night” (child form)/“My child worried when he/she went to bed at night” (parent form). The item about “worried about what could happen” (top panel) exhibits a level of agreement near the average for the items of the anxiety scale: polychoric $r = 0.26$ and weighted $\kappa = 0.14$. The value of the symmetry statistic is 25.2, which is significant ($p = 0.005$). The item about when the child “went to bed at night” has the highest agreement among those on the anxiety scale: polychoric $r = 0.40$ and weighted $\kappa = 0.25$. The value of the symmetry statistic is 15.3, which is not significantly different from its expectation.

In contrast to the relatively low level of agreement observed with Emotional Distress items, Table 3 illustrates the higher general level of parent–child agreement for items from the physical functioning scales. The items shown are “I could run a mile” (child form)/“My child could run a mile” (parent form) and “I have been physically able to do the activities I enjoy most” (child form)/“My child has been physically able to do the activities he/she enjoys most” (parent form); these are the items with the lowest levels of agreement for the mobility scale. The item about running a mile (top panel) has polychoric $r = 0.52$ and weighted $\kappa = 0.36$. The value of the symmetry statistic is a nonsignificant 15.1. The item about activities the child enjoys has the lowest agreement among those on the mobility scale: polychoric $r = 0.46$ and weighted $\kappa = 0.26$. The value of the symmetry statistic is a nonsignificant 15.3. Thus, the lowest level of parent–child agreement for mobility items is higher than the highest level of agreement observed for anxiety items.

Table 4 illustrates the values of the agreement statistics for an item for which almost all responses are the same: “I used a walker, cane, or crutches to get around” (child form)/“My child used a walker, cane, or crutches to get around” (parent form). Almost all of the

responses from both parents and children are *never*. For this item, poly-choric $r = 0.99$ and weighted $\kappa = 0.85$. The value of the symmetry statistic is a nonsignificant 4.

Table 5 summarizes the agreement statistics for the scales for the ten domains. Parent–child item-level agreement is lowest for the social domain’s peer relationships scale and generally low for the Emotional Distress scales (depressive symptoms, anger, and anxiety) and the Fatigue scales (lack of energy and tired). Agreement is slightly higher for the Pain Interference and Asthma Impact scales and highest for the Physical Function scales (mobility and upper extremity). Item-level agreement statistics are tabulated for all of the items, by domain and subdomain scale, in the Appendix, with the child forms of the items.

The fourth column of Table 5 augments the average item-level agreement information with the correlations between the score on the parent proxy-report and child self-report measures, as reported in the article describing the development of the parent proxy-report scales [16]. The score correlations track closely with item-level agreement. Score correlations are generally higher than the item-level polychoric correlations, except for the mobility scale, for which it seems internal consistency across items is lower than parent–child item-level consistency.

The rightmost two columns of Table 5 summarize the average difference between the pediatric self-report and parent proxy-report item scores, and the average standard deviation of those differences, for each scale. The average differences are small, reaching a maximum of 0.26 points (on the five-point response scale) for the tired scale. The standard deviations are larger, over one point for all scales except those for physical functioning.

Chronic pain contextual effects on parent–child agreement/discrepancies

Table 6 displays agreement statistics for the PROMIS® pain interference items, for parent–child dyads in which the parent reports the child has chronic pain (Y) or not (N). For 12 of the 13 items, the polychoric r is higher for the group in which the parent reports that the child experiences chronic pain than for the group without child pain (binomial $p = 0.002$). Due to unused response categories for the parent or child, or both, weighted κ cannot be computed for both groups for two of the 13 items; however, for the 11 items for which it is computed, it is always higher for the group with child chronic pain than without. This pattern suggests that chronic pain in the child may serve to sensitize the parent to the child’s symptoms, with the result that parent proxy-report is more accurate or congruent, in the sense that it more closely approximates child self-report of pain interference.

Table 7 tabulates agreement statistics for same pain interference items, for parent–child dyads in which the parent reports the parent (himself or herself) has chronic pain (Y) or not (N). For 10 of the 13 items, the poly-choric r is higher for the group in which the parent reports chronic pain than for the group without (binomial $p = 0.035$). Again, due to unused response categories for the parent or child, weighted κ cannot be computed for both groups for two of the 13 items. For the 11 items for which it is computed, it is higher for the group with parental chronic pain than without for eight pairs. This pattern, while not as strong as is the case for chronic pain in the child, suggests that parental chronic pain may also serve to sensitize the parent to the child’s symptoms.

Table 8 shows parallel results, agreement statistics for the pain interference items, for parent–child dyads in which the parent reports someone else in the household (neither the child nor the parent) has chronic pain. In this case, there is no apparent difference in level of agreement between the groups in which it is reported that someone else in the household suffers from chronic pain.

Discussion

The findings demonstrate a continuum of higher item-level parent–child discrepancies starting with peer relationships, anger, anxiety, and depressive symptoms, followed by progressively lower parent–child discrepancies for energy, fatigue, pain interference, asthma impact, upper extremity, and mobility items. These parent–child discrepancies at the item-level are generally consistent with the extant literature on parent–child discrepancies at the scale level, in which higher discrepancies have been demonstrated for internalizing or less readily observable measures of emotional distress, fatigue, pain, and peer relationships in comparison with externalizing or more easily observed measures of physical functioning [19, 22, 23, 30]. However, these item-level analyses are unique both in the statistical methods utilized to determine item-level discrepancies and in the number of constructs (latent variables) investigated in detail.

We found that item-level parent–child discrepancies for the pain interference items were lower in the context of chronic pain either in the child or in the parent, furthering our understanding of the contextual factors that potentially influence informant discrepancies in pediatric chronic pain. These findings on the contextual effects of child and parent chronic health condition on the PROMIS[®] pain interference items are unique and make a significant contribution by delineating the importance of studying the potential interaction of child and parent characteristics with the domain (latent variable) being measured, consistent with the broader literature on domain-specific parent–child informant discrepancies [23]. For example, it has been previously found that both child depressive symptoms and parent depressive symptoms were related to scale-level informant discrepancies in domains measuring parental monitoring behaviors [31].

Understanding parent–child informant discrepancies at the individual item level is important for a number of reasons. Our finding that parent proxy-report demonstrated moderate to low item-level agreement with pediatric self-report indicates that information provided by proxy-respondents is not equivalent to that reported by the patient, not only at the scale level, but also at the individual item level (i.e., individual symptoms or problems). These parent–child informant discrepancies have important clinical ramifications. It is typically parents' perceptions of their children's health and well-being that influences healthcare utilization [32–34]. A misalignment in the perceptions of children and their parents on the child's symptoms at the individual item level may result in under-treatment if the parent does not recognize the presence or severity of the child's symptoms, or over-treatment if the parent perceives the symptoms to be worse than experienced by the child. Thus, measurement instruments should be developed that measure the perspectives of both the child and parent since these perspectives may be independently related to healthcare utilization, risk factors, and quality of care [35]. Further, it is important that child self-report and parent proxy-report

measures contain parallel items, so that direct comparisons at the individual item level are feasible and meaningful, that is, the items are measuring the same constructs (latent variables) [23].

As previously reported, we recruited participants from clinics across five sites to achieve a sample with diverse experiences in terms of health outcomes, but also cultural and ethnic influences [16]. This study does not report on using the items in languages other than English or in children living in other countries, as such, we cannot assume that the item-level informant discrepancies would be similar in those other populations. We combined the age groups 8–12 and 13–17 for our analyses. There may be differences between these age groups in terms of item-level discrepancies. Our previous findings with the PROMIS[®] pediatric scales demonstrated virtually no differential item functioning (DIF) between these age groups for self-report and proxy-report [3–9, 11, 16, 17] and support our use of the 8- to 17-year-old group to serve as a monolithic age comparison group for the parent–child item-level agreement analyses.

Future research should focus on the child and parent characteristics that influence item-level discrepancies, and under what contexts parent–child discrepancies predict treatment outcomes. Perhaps, as suggested by De Los Reyes [21], some treatments may demonstrate better child outcomes when assessed by child self-report (e.g., cognitive behavior therapy for anxiety [internalizing symptoms] disorders in which the child is the focus of the intervention), and some treatments may demonstrate better child outcomes when assessed by parent proxy-report (e.g., behavioral parent training for conduct disorders (externalizing symptoms) in which the parent is the focus of the intervention). Finally, some treatments may demonstrate better child health outcomes when both the child and parent agree on the presence and severity of the symptoms (e.g., gastrointestinal symptoms in which both the child and parent agree [36], and concur that the symptoms warrant pharmaceutical and/or dietary intervention which may potentially enhance their joint adherence to the treatment regimen). Notably, prior research in children with emotional and behavioral problems referred to mental health clinics found that only 63 % of parent–child dyads agreed on the presence of even a single symptom or problem, with higher agreement on externalizing rather than internalizing symptoms or problems [37]. The investigators speculated that the low parent–child agreement on the child’s symptoms requiring intervention may explain in part the poor outcomes for outpatient mental health clinic treatments [37]. In a subsequent study, these investigators demonstrated that parent–child informant discrepancies lead to the “therapist’s dilemma” in determining the target symptom(s) for treatment intervention, potentially further compromising child treatment outcomes [38]. Clearly, understanding the factors that predict item-level parent–child discrepancies as more than measurement error, but rather, as vital information in clinical decision-making and in the evaluation of health outcomes for clinical trials and health services research, has just begun.

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Abbreviations

PROMIS	Patient-Reported Outcomes Measurement Information System
HRQOL	Health-related quality of life
PROs	Patient-reported outcomes
NIH	National Institutes of Health
IRT	Item response theory
CAT	Computerized adaptive testing

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Appendix

Tables 9, 10, 11, 12, 13, 14, 15, 16, 17, and 18 display the indices of inter-rater agreement (polychoric correlations, weighted κ , and Bowker's test of symmetry) for all items, as well as the average and standard deviation (SD) of the difference between the child and parent responses on the 1–5 response scale. Items are sorted by degree of polychoric correlation within domain.

Parent-child agreement for mobility items “I could do sports and exercise that other kids my age could do” (child form)/“My child could do sports and exercise that other kids his/her age could do” (parent form) [upper panel]^a and “I wanted to be by myself” (child form)/“My child wanted to be by himself/herself” (parent form) [lower panel]^b

Table 1

Parent response	Child response					Total
	With no trouble	With a little trouble	With some trouble	With a lot of trouble	Not able to do	
With no trouble	178	33	14	3	3	231
With a little trouble	22	18	4	6	4	54
With some trouble	12	5	3	2	3	25
With a lot of trouble	1	5	1	1	2	10
Not able to do	3	2	2	4	9	20
Total	216	63	24	16	21	340

Parent response	Child response				Total	
	Never	Almost never	Sometimes	Often		
Never	29	12	15	8	20	84
Almost never	29	13	26	22	20	110
Sometimes	16	16	49	23	17	121
Often	4	2	12	6	5	29
Almost always	1	1	0	0	1	3
Total	79	44	102	59	63	347

^aPolychoric $r = 0.63$; weighted $\kappa = 0.39$; test of symmetry = 5.4, $p = 0.86$

^bPolychoric $r = 0.10$; weighted $\kappa = 0.10$; test of symmetry = 87.3, $p < 0.0001$

Parent-child agreement for Anxiety items “I worried about what could happen to me” (child form)/“My child worried about what could happen to him/her” (parent form) [upper panel]^a and “I worried when I went to bed at night” (child form)/“My child worried when he/she went to bed at night” (parent form) [lower panel]^b

Table 2

Parent response	Child response				Total
	Never	Almost never	Sometimes	Often	
Never	82	32	28	8	155
Almost never	38	23	26	8	99
Sometimes	24	15	16	11	74
Often	4	3	4	2	14
Almost always	0	1	0	0	1
Total	148	77	71	29	343

Parent response	Child response				Total
	Never	Almost never	Sometimes	Often	
Never	145	33	15	10	205
Almost never	34	14	10	4	64
Sometimes	19	6	14	7	47
Often	2	2	1	3	9
Almost always	1	0	0	1	2
Total	201	55	40	25	327

^aPolychoric $r = 0.26$; weighted $\kappa = 0.14$; test of symmetry = 25.2 $p = 0.005$

^bPolychoric $r = 0.40$; weighted $\kappa = 0.25$; test of symmetry = 15.3, $p = 0.12$

Parent-child agreement for mobility items “I could run a mile” (child form)/“My child could run a mile” (parent form) and “I have been physically able to do the activities I enjoy most” (child form) [upper panel]^a and “My child has been physically able to do the activities he/she enjoys most” (parent form) [lower panel]^b

Table 3

Parent response	Child response				Total
	With no trouble	With a little trouble	With some trouble	With a lot of trouble	
With no trouble	52	31	23	4	6
With a little trouble	24	34	16	10	1
With some trouble	9	13	17	7	2
With a lot of trouble	3	8	9	4	4
Not able to do	4	5	7	8	23
Total	92	91	72	33	36

Parent response	Child response				Total
	With no trouble	With a little trouble	With some trouble	With a lot of trouble	
With no trouble	190	46	15	2	3
With a little trouble	23	14	4	3	0
With some trouble	19	10	2	2	2
With a lot of trouble	2	2	1	3	1
Not able to do	3	2	2	0	1
Total	227	74	24	10	7

^aPolychoric $r = 0.52$; weighted $\kappa = 0.36$; test of symmetry = 15.1, $p = 0.13$

^bPolychoric $r = 0.46$; weighted $\kappa = 0.26$; test of symmetry = 15.3, $p = 0.12$

Parent-child agreement for mobility items “I used a walker, cane or crutches to get around” (child form) / “My child used a walker, cane or crutches to get around” (parent form)

Table 4

Parent response	Child response				Total
	Never	Almost never	Sometimes	Often	
Never	283	1	3	0	287
Almost never	1	1	0	0	2
Sometimes	0	1	0	0	1
Often	0	0	0	0	0
Almost always	0	0	0	6	6
Total	284	3	3	6	296

Polychoric $r = 0.99$; weighted $\kappa = 0.85$; test of symmetry = 4, $p = 0.67$

Table 5

Average agreement statistics for the scales for the ten PROMIS® pediatric subdomain scales and the scale-level parent-child score correlations

Subdomain	Average polychoric <i>r</i>	Average weighted κ	Average symmetry statistic	Correlation between child and parent scores	Average difference between child and parent scores	SD of the difference between child and parent scores
Peer relationships (15 items)	0.25	0.14	18.34	0.35	-0.09	1.25
Depressive symptoms (14 items)	0.28	0.16	23.69	0.37	0.13	1.21
Anger (5 items)	0.26	0.14	27.71	0.40	-0.01	1.19
Anxiety (15 items)	0.28	0.15	19.82	0.41	0.15	1.15
Lack of energy (11 items)	0.31	0.20	10.83	0.41	-0.06	1.32
Tired (23 items)	0.30	0.19	25.24	0.43	0.26	1.26
Pain interference (13 items)	0.40	0.24	18.74	0.49	0.21	1.29
Mobility (23 items)	0.68	0.42	10.15	0.63	0.04	0.78
Upper extremity (29 items)	0.59	0.34	11.08	0.69	0.03	0.61
Asthma impact (17 items)	0.42	0.26	24.82	0.53	0.18	1.32

Agreement statistics for the PROMIS® pain interference items, for parent-child dyads in which the parent reports the child has chronic pain (Y) or not (N)

Table 6

Child item stem	Polychoric <i>r</i>		Weighted κ		Sample <i>N</i>	
	N	Y	N	Y	N	Y
Child chronic pain						
It was hard for me to run when I had pain	0.24	0.60	0.11	0.38	226	88
I had trouble doing schoolwork when I had pain	0.27	0.60	0.15	0.41	221	83
I had trouble sleeping when I had pain	0.42	0.57	0.21	0.39	224	88
It was hard to have fun when I had pain	0.29	0.55	0.15	0.36	232	61
It was hard for me to pay attention when I had pain	0.24	0.54	0.14	0.28	232	60
It was hard to stay standing when I had pain	0.29	0.53	0.13	0.38	159	59
I hurt a lot	0.39	0.52	0.23	0.31	163	61
I felt angry when I had pain	0.35	0.50	0.21	0.31	232	61
I missed school when I had pain	0.40	0.49	0.22	0.30	161	60
I hurt all over my body	0.41	0.43	0.20	0.26	233	62
It was hard for me to walk one block when I had pain	0.27	0.38	0.13	0.26	261	67
It was hard for me to remember things when I had pain	0.21	0.32	0.12	0.25	162	60
It was hard to get along with other people when I had pain	0.31	0.28	0.16	0.23	162	61

Values are bold if agreement is higher for dyads with child chronic pain. The items are sorted by polychoric *r* for dyads reporting child chronic pain

Table 7
 Agreement statistics for the PROMIS® pain interference items, for parent-child dyads in which the parent reports the parent has chronic pain (Y) or not (N)

Child item stem	Polychoric <i>r</i>		Weighted κ		Sample <i>N</i>	
	N	Y	N	Y	N	Y
Parent chronic pain						
I had trouble doing schoolwork when I had pain	0.34	0.65	0.20	0.44	242	56
I missed school when I had pain	0.42	0.65	0.22	0.41	175	44
It was hard for me to run when I had pain	0.36	0.62	0.18	0.40	250	57
It was hard to stay standing when I had pain	0.42	0.55	0.24	0.36	173	44
I hurt all over my body	0.44	0.55	0.23	0.31	232	59
I had trouble sleeping when I had pain	0.45	0.55	0.24	0.38	247	58
I hurt a lot	0.48	0.53	0.28	0.38	178	44
It was hard to have fun when I had pain	0.36	0.51	0.21	0.29	230	59
It was hard for me to remember things when I had pain	0.20	0.48	0.12	0.30	176	44
It was hard to get along with other people when I had pain	0.30	0.45	0.18	0.30	178	43
It was hard for me to walk one block when I had pain	0.35	0.29	0.20	0.20	265	58
I felt angry when I had pain	0.43	0.28	0.26	0.20	229	59
It was hard for me to pay attention when I had pain	0.43	-0.02	0.25	-0.02	230	58

Values are bold if agreement is higher for dyads with parent chronic pain. The items are sorted by polychoric *r* for dyads reporting parent chronic pain

Agreement statistics for the PROMIS® pain interference items, for parent–child dyads in which the parent reports someone else in the household (neither the child nor the parent) has chronic pain (Y) or not (N)

Table 8

Child item stem	Polychoric <i>r</i>		Weighted κ		Sample <i>N</i>	
	N	Y	N	Y	N	Y
Other household person chronic pain						
It was hard to have fun when I had pain	0.35	0.64	0.19	0.37	259	30
I hurt all over my body	0.43	0.54	0.22	0.36	260	31
I hurt a lot	0.51	0.46	0.30	0.35	184	38
It was hard for me to walk one block when I had pain	0.34	0.43	0.18	0.29	272	54
I had trouble sleeping when I had pain	0.49	0.42	0.28	0.27	243	68
It was hard to get along with other people when I had pain	0.32	0.41	0.20	0.22	184	37
I had trouble doing schoolwork when I had pain	0.41	0.41	0.24	0.28	237	65
I missed school when I had pain	0.47	0.40	0.27	0.17	181	38
It was hard for me to run when I had pain	0.42	0.38	0.23	0.19	244	68
I felt angry when I had pain	0.35	0.31	0.22	0.19	259	30
It was hard to stay standing when I had pain	0.52	0.25	0.30	0.17	178	38
It was hard for me to remember things when I had pain	0.32	0.15	0.21	0.10	184	37
It was hard for me to pay attention when I had pain	0.36	-0.06	0.19	0.06	258	30

Values are bold if agreement is higher for dyads with chronic pain reported for some other person in the household. The items are sorted by polychoric *r* for dyads reporting someone else has chronic pain

Table 9

Agreement statistics for the PROMIS® pediatric anger items

Child item—PROMIS® Pediatric Anger Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I felt mad	0.30	0.06	0.15	0.04	18.18	0.052	-0.09	1.02
I was so angry I felt like throwing something	0.30	0.07	0.16	0.04	25.47	0.005	0.05	1.22
I was so angry I felt like yelling at somebody	0.26	0.06	0.13	0.03	46.05	0.000	-0.14	1.32
When I got mad, I stayed mad	0.23	0.06	0.12	0.04	31.71	0.000	0.14	1.21
I felt upset	0.20	0.06	0.13	0.04	21.16	0.020	-0.01	1.17
Anger averages	0.26	0.06	0.14	0.04	28.51		-0.01	1.19

Table 10

Agreement statistics for the PROMIS® pediatric anxiety items

Child item—PROMIS® Pediatric Anxiety Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I worried when I went to bed at night	0.40	0.07	0.25	0.05	15.52	0.121	0.13	1.14
I woke up at night scared	0.40	0.07	0.21	0.05	28.94	0.001	0.20	0.99
I worried when I was away from home	0.38	0.07	0.19	0.04	17.40	0.066	0.12	0.99
I got scared really easy	0.34	0.06	0.17	0.04	29.59	0.001	0.14	1.15
I felt like something awful might happen	0.32	0.06	0.18	0.04	36.42	0.000	0.39	1.17
I felt scared	0.30	0.07	0.17	0.04	9.82	0.456	0.04	1.11
I was afraid of going to school	0.29	0.09	0.15	0.05	16.51	0.086	0.10	1.02
I worried about what could happen to me	0.26	0.06	0.14	0.04	25.18	0.005	0.25	1.35
I felt worried	0.24	0.06	0.13	0.04	13.44	0.200	-0.02	1.23
I thought about scary things	0.24	0.06	0.13	0.04	28.43	0.002	0.29	1.24
I was afraid that I would make mistakes	0.23	0.06	0.13	0.04	19.22	0.038	0.15	1.28
I was worried I might die	0.22	0.10	0.08	0.04	17.46	0.065	0.12	0.96
It was hard for me to relax	0.21	0.06	0.12	0.04	20.81	0.022	0.15	1.27
I felt nervous	0.20	0.06	0.10	0.04	21.67	0.017	0.23	1.29
I worried when I was at home	0.19	0.07	0.12	0.05	11.21	0.342	-0.01	1.10
Anxiety averages	0.28	0.07	0.15	0.04	20.76		0.15	1.15

Table 11

Agreement statistics for the PROMIS® pediatric depressive symptoms items

Child item—PROMIS® Pediatric Depressive Symptoms Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I could not stop feeling sad	0.40	0.07	0.22	0.05	14.47	0.152	0.13	1.15
I felt stressed	0.39	0.05	0.23	0.04	26.87	0.003	0.04	1.30
I felt too sad to eat	0.35	0.09	0.17	0.05	17.71	0.060	0.15	0.88
I felt everything in my life went wrong	0.35	0.07	0.18	0.04	16.04	0.099	0.16	1.21
I felt sad	0.33	0.06	0.21	0.04	20.95	0.021	0.05	1.17
I did not care about anything	0.33	0.07	0.18	0.04	21.63	0.017	0.28	1.21
I felt unhappy	0.31	0.06	0.15	0.04	25.12	0.005	-0.21	1.18
I felt lonely	0.26	0.06	0.15	0.04	9.13	0.519	0.04	1.24
It was hard for me to have fun	0.24	0.07	0.13	0.04	17.66	0.061	0.04	1.22
I felt like I could not do anything right	0.24	0.06	0.15	0.04	16.46	0.087	0.06	1.23
I thought that my life was bad	0.22	0.07	0.15	0.05	9.21	0.512	-0.05	1.24
I felt alone	0.19	0.08	0.09	0.04	18.99	0.040	0.19	1.12
Being sad made it hard for me to do things with my friends	0.18	0.08	0.10	0.04	24.19	0.007	0.25	1.14
I wanted to be by myself	0.10	0.06	0.10	0.03	87.30	0.000	0.65	1.61
Depressive symptoms averages	0.28	0.07	0.16	0.04	23.27		0.13	1.21

Table 12

Agreement statistics for the PROMIS® pediatric pain interference items

Child item—PROMIS® Pediatric Pain Interference Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I hurt a lot	0.49	0.06	0.31	0.05	20.15	0.028	0.27	1.25
I had trouble sleeping when I had pain	0.48	0.06	0.28	0.04	24.80	0.006	0.35	1.30
I hurt all over my body	0.46	0.08	0.25	0.06	13.72	0.186	0.15	1.03
I missed school when I had pain	0.45	0.08	0.25	0.05	16.70	0.081	0.17	1.25
It was hard to stay standing when I had pain	0.43	0.07	0.26	0.05	18.87	0.042	0.19	1.34
I had trouble doing schoolwork when I had pain	0.41	0.06	0.26	0.05	10.04	0.437	0.11	1.24
It was hard for me to run when I had pain	0.40	0.06	0.22	0.04	32.41	0.000	0.46	1.53
It was hard to have fun when I had pain	0.39	0.06	0.22	0.04	19.16	0.038	0.27	1.39
I felt angry when I had pain	0.38	0.07	0.23	0.04	15.07	0.130	0.22	1.32
It was hard for me to walk one block when I had pain	0.36	0.07	0.21	0.04	26.09	0.004	0.28	1.36
It was hard for me to pay attention when I had pain	0.35	0.07	0.20	0.04	19.64	0.033	0.13	1.32
It was hard to get along with other people when I had pain	0.33	0.08	0.20	0.05	8.25	0.604	0.10	1.39
It was hard for me to remember things when I had pain	0.29	0.09	0.19	0.06	6.65	0.76	0.03	1.10
Pain interference averages	0.40	0.07	0.24	0.05	17.81		0.21	1.29

Table 13

Agreement statistics for the PROMIS® pediatric peer relationships items

Child item—PROMIS® Pediatric Peer Relations Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
Other kids wanted to be with me	0.38	0.07	0.21	0.04	15.78	0.106	-0.19	1.15
I liked being around other kids my age	0.36	0.09	0.22	0.06	4.25	0.935	-0.06	1.10
I felt good about my friendships	0.32	0.07	0.19	0.04	17.16	0.071	-0.02	1.14
Other kids wanted to be my friend	0.32	0.06	0.18	0.04	47.57	0.000	-0.46	1.33
I was good at making friends	0.31	0.07	0.18	0.04	9.67	0.470	-0.12	1.23
I played alone and kept to myself	0.31	0.07	0.17	0.05	23.45	0.009	-0.19	1.43
I was able to count on my friends	0.29	0.08	0.18	0.05	23.94	0.008	0.06	1.31
I felt accepted by other kids my age	0.25	0.07	0.16	0.04	18.47	0.048	-0.19	1.42
I was a good friend	0.21	0.09	0.10	0.05	9.65	0.471	0.03	0.88
Other kids wanted to talk to me	0.21	0.07	0.12	0.04	17.31	0.068	-0.17	1.16
I was able to have fun with my friends	0.21	0.08	0.11	0.04	5.08	0.886	0.04	1.26
I spent time with my friends	0.20	0.08	0.11	0.05	29.42	0.001	0.32	1.33
My friends and I helped each other out	0.20	0.07	0.10	0.04	14.85	0.137	0.12	1.20
I shared with other kids (food, games, pens, etc.)	0.15	0.07	0.07	0.04	24.05	0.007	-0.35	1.26
I was able to talk about everything with my friends	0.09	0.08	0.07	0.05	14.43	0.154	-0.24	1.59
Peer relations averages	0.25	0.07	0.14	0.05	18.34		-0.09	1.25

Table 14

Agreement statistics for the PROMIS® pediatric lack of energy items

Child Item—PROMIS® Pediatric Lack of Energy Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I had enough energy to go out with my family	0.42	0.08	0.29	0.05	8.58	0.572	0.08	1.33
I had energy	0.42	0.07	0.30	0.05	5.07	0.886	0.00	1.06
I felt full of energy	0.41	0.06	0.25	0.04	18.68	0.045	-0.19	1.21
I had enough energy to do the things I like to do	0.37	0.07	0.22	0.05	11.15	0.346	-0.07	1.05
I had enough energy to take a bath or shower	0.36	0.09	0.19	0.05	14.04	0.171	0.12	1.21
I had enough energy to do things outside	0.30	0.07	0.18	0.04	8.38	0.592	-0.11	1.33
I had enough energy to play or go out with my friends	0.29	0.07	0.17	0.05	7.09	0.717	-0.05	1.52
I had enough energy to read	0.26	0.07	0.13	0.04	16.32	0.091	-0.21	1.49
I had enough energy to do sports or exercise	0.21	0.08	0.16	0.05	9.87	0.452	0.10	1.56
I felt strong (not weak)	0.19	0.07	0.12	0.04	12.41	0.259	-0.16	1.24
I had enough energy to focus on my work	0.18	0.08	0.15	0.05	7.50	0.678	-0.14	1.46
Lack of energy averages	0.31	0.07	0.20	0.05	10.83		-0.06	1.32

Table 15

Agreement statistics for the PROMIS® pediatric fatigue items

Child item—PROMIS® Pediatric Fatigue Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I needed to sleep during the day	0.47	0.05	0.28	0.04	34.01	0.000	0.34	1.22
Being tired made it hard for me to play or go out with my friends as much as I'd like	0.43	0.07	0.29	0.06	17.01	0.074	0.14	1.13
I was too tired to enjoy the things I like to do	0.43	0.07	0.25	0.05	9.34	0.500	-0.02	1.04
I was too tired to do things outside	0.42	0.06	0.25	0.04	27.55	0.002	0.36	1.27
I was too tired to do sports or exercise	0.39	0.06	0.28	0.05	16.37	0.089	0.14	1.25
I was too tired to go up and down a lot of stairs	0.38	0.07	0.22	0.05	16.99	0.075	0.31	1.41
I felt weak	0.38	0.07	0.23	0.05	12.68	0.242	0.18	1.21
Being tired kept me from having fun	0.34	0.07	0.20	0.04	32.59	0.000	0.28	1.24
I got tired easily	0.33	0.07	0.22	0.04	30.57	0.001	0.40	1.31
I was too tired to watch television	0.33	0.09	0.17	0.05	15.19	0.130	0.18	1.06
I was so tired it was hard for me to focus on my work	0.32	0.07	0.21	0.05	19.40	0.035	0.29	1.24
I was too tired to read	0.32	0.06	0.19	0.04	30.83	0.001	0.37	1.41
I felt tired	0.31	0.06	0.14	0.04	36.28	0.000	0.37	1.17
I was too tired to eat	0.30	0.09	0.16	0.05	18.13	0.053	0.18	0.90
I was so tired it was hard for me to pay attention	0.29	0.06	0.17	0.04	19.12	0.039	0.27	1.30
Being tired made it hard for me to keep up with my schoolwork	0.28	0.07	0.19	0.04	13.57	0.193	0.17	1.42
I was too tired to take a bath or shower	0.27	0.09	0.13	0.05	10.39	0.410	0.09	1.15
I was too tired to go out with my family	0.22	0.08	0.12	0.04	22.45	0.013	0.13	1.16
It was hard for me to get out of bed in the morning because I was too tired	0.21	0.07	0.14	0.04	52.88	0.000	0.67	1.51
I felt too tired to spend time with my friends	0.15	0.08	0.09	0.04	23.72	0.008	0.10	1.25
I had trouble finishing things because I was too tired	0.15	0.06	0.09	0.04	34.09	0.000	0.28	1.40
I had trouble starting things because I was too tired	0.13	0.07	0.08	0.04	17.49	0.064	0.28	1.36
I felt more tired than usual when I woke up in the morning	0.13	0.06	0.08	0.04	37.82	0.000	0.52	1.57
Fatigue averages	0.30	0.07	0.18	0.04	23.85		0.26	1.26

Table 16

Agreement statistics for the PROMIS® pediatric upper extremity items

Child item—PROMIS® Pediatric Upper Extremity Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry <i>p</i>	Average difference	SD difference
I could put on my socks by myself	0.90	0.04	0.61	0.08	10.76	0.05	0.43
I could open my clothing drawers	0.84	0.07	0.57	0.14	2.08	-0.01	0.34
I could tie shoelaces by myself	0.81	0.05	0.53	0.07	9.32	0.02	0.71
I could zip up my clothes	0.79	0.08	0.52	0.12	2.25	0.01	0.46
I could put toothpaste on my toothbrush by myself	0.78	0.10	0.38	0.12	6.60	0.05	0.50
I could pull a shirt on over my head by myself	0.78	0.08	0.50	0.12	9.56	0.05	0.45
I could turn door handles by myself	0.78	0.09	0.38	0.13	5.67	-0.04	0.39
I needed help with a bath	0.78	0.06	0.49	0.09	7.62	0.04	0.70
I could write with a pen or pencil	0.70	0.09	0.36	0.07	6.33	-0.05	0.53
I could pour a drink from a full pitcher	0.70	0.06	0.45	0.07	9.31	-0.05	0.74
I could put on my shoes by myself	0.67	0.10	0.32	0.11	4.29	0.02	0.64
I could put on my clothes by myself	0.64	0.10	0.27	0.07	11.33	0.05	0.64
I could open the rings in school binders	0.62	0.09	0.36	0.09	13.89	0.02	0.61
I could brush my teeth by myself	0.61	0.17	0.24	0.17	5.78	0.02	0.49
I could button my shirt or pants	0.59	0.10	0.31	0.10	6.76	0.03	0.63
I could hold a full cup	0.58	0.14	0.30	0.15	2.47	0.03	0.41
I could pull open heavy doors	0.58	0.07	0.37	0.07	19.17	0.11	0.86
I could dry my back with a towel	0.57	0.09	0.34	0.10	8.07	-0.09	0.80
I could use a key to unlock a door	0.52	0.12	0.27	0.11	3.87	0.00	0.65
I could pull on and fasten my seatbelt	0.49	0.16	0.13	0.07	8.29	0.06	0.52
I could dial a phone	0.48	0.24	0.18	0.16	3.00	0.06	0.58
I could cut paper with scissors	0.42	0.17	0.14	0.09	5.76	-0.01	0.49
I could lift a cup to drink	0.40	0.27	0.05	0.06	7.11	0.06	0.46
I could move my hands or fingers	0.39	0.14	0.16	0.08	6.43	0.04	0.66
I could use a mouse or touch pad for the computer	0.34	0.21	0.15	0.15	6.08	0.05	0.54
I could open a jar by myself	0.30	0.10	0.19	0.07	11.22	-0.13	1.13
I used a pencil with a special grip to write	0.25	0.10	0.09	0.05	60.59	0.46	1.37
I could wash my face with a cloth	0.16	0.27	0.03	0.05	_a	0.05	0.49

Child item—PROMIS® Pediatric Upper Extremity Scale	Polychoric r	SE	Weighted κ	SE	Symmetry p	Average difference	SD difference
I could hold an empty cup	$_{b}$	–	–0.01	0.00	8.00	0.629	0.07 0.51
Upper extremity averages	0.59	0.12	0.30	0.10	9.34		0.03 0.61

a Too few nonzero cells in the table to compute the symmetry statistic

b Insufficient response variation to compute a valid polychoric correlation

Table 17

Agreement statistics for the PROMIS® pediatric mobility items

Child item—PROMIS® Pediatric Mobility Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I used a walker, cane or crutches to get around	0.99	0.01	0.85	0.07	4.00	0.677	0.02	0.22
I used a wheelchair to get around	0.95	0.03	0.69	0.09	12.33	0.263	0.08	0.50
I could walk across the room	0.79	0.08	0.44	0.11	5.76	0.835	-0.01	0.52
I could get in and out of a car	0.79	0.06	0.52	0.10	12.67	0.243	-0.03	0.66
I could stand up by myself	0.78	0.07	0.48	0.11	8.00	0.629	0.01	0.49
I could turn my head all the way to the side	0.75	0.08	0.38	0.10	8.86	0.546	0.07	0.44
I could walk more than one block	0.71	0.06	0.49	0.07	10.04	0.437	-0.06	0.85
I could bend over to pick something up	0.69	0.07	0.40	0.07	6.04	0.812	0.01	0.74
I could get up from the floor	0.68	0.07	0.36	0.08	21.28	0.019	0.13	0.60
I could ride a bike	0.68	0.06	0.45	0.06	8.17	0.612	0.06	1.25
I could carry my books in my backpack	0.67	0.07	0.44	0.08	8.44	0.586	-0.03	0.85
I could move my legs	0.67	0.10	0.34	0.09	9.33	0.501	0.01	0.54
I could stand up on my tiptoes	0.65	0.06	0.43	0.07	20.30	0.027	0.13	0.91
I could get up from a regular toilet	0.64	0.11	0.34	0.12	4.87	0.900	0.02	0.66
I could walk up stairs without holding on to anything	0.64	0.06	0.39	0.06	8.24	0.606	0.02	1.04
I could get out of bed by myself	0.64	0.09	0.37	0.09	10.00	0.440	0.11	0.74
I could do sports and exercise that other kids my age could do	0.63	0.05	0.39	0.05	5.42	0.861	0.09	1.12
I could get into bed by myself	0.62	0.12	0.30	0.11	8.14	0.615	0.03	0.55
I could get down on my knees without holding on to something	0.59	0.07	0.31	0.06	9.08	0.525	-0.02	0.99
I could keep up when I played with other kids	0.58	0.07	0.36	0.06	11.47	0.322	0.03	1.11
I could go up one step	0.54	0.11	0.24	0.08	9.34	0.500	0.04	0.73
I could run a mile	0.52	0.05	0.36	0.04	15.12	0.128	0.08	1.39
I have been physically able to do the activities I enjoy most	0.46	0.07	0.26	0.05	15.27	0.122	0.08	1.04
Mobility averages	0.68	0.07	0.42	0.08	10.09		0.04	0.78

Table 18

Agreement statistics for the PROMIS® pediatric asthma impact items

Child item—PROMIS® Pediatric Asthma Impact Scale	Polychoric <i>r</i>	SE	Weighted κ	SE	Symmetry	<i>p</i>	Average difference	SD difference
I missed school because of asthma	0.56	0.06	0.34	0.05	8.95	0.54	0.06	1.07
I had trouble sleeping at night because of my asthma	0.51	0.06	0.31	0.04	17.58	0.06	0.01	1.23
My body felt bad when I was out of breath	0.48	0.05	0.29	0.04	37.33	0.00	0.35	1.40
I had asthma attacks	0.46	0.07	0.28	0.05	22.13	0.01	-0.05	1.13
My asthma bothered me	0.46	0.05	0.28	0.04	32.05	0.00	0.37	1.32
It was hard for me to play with pets because of my asthma	0.45	0.07	0.28	0.05	17.81	0.06	-0.21	1.36
I had trouble breathing because of my asthma	0.45	0.05	0.26	0.04	36.28	0.00	0.40	1.30
It was hard for me to play sports or exercise because of my asthma	0.43	0.06	0.28	0.04	20.70	0.02	0.15	1.34
I felt wheezy because of my asthma	0.42	0.06	0.27	0.04	24.28	0.01	0.24	1.28
I coughed because of my asthma	0.42	0.05	0.24	0.04	37.16	0.00	0.39	1.45
I got tired easily because of my asthma	0.41	0.06	0.26	0.04	21.53	0.02	0.18	1.35
I was bothered by the amount of time I spent wheezing	0.41	0.06	0.26	0.04	28.51	0.00	0.15	1.35
My chest felt tight because of my asthma	0.40	0.06	0.26	0.04	28.01	0.00	0.33	1.43
It was hard to take a deep breath because of my asthma	0.38	0.06	0.25	0.04	30.65	0.00	0.20	1.39
I had trouble walking because of my asthma	0.35	0.08	0.18	0.05	14.65	0.15	0.00	1.17
My asthma bothered me when I was with my friends	0.34	0.06	0.21	0.04	9.18	0.52	0.00	1.28
I felt scared that I might have trouble breathing because of my asthma	0.21	0.07	0.13	0.04	35.42	0.00	0.44	1.57
PAIS averages	0.42	0.06	0.26	0.04	24.82		0.18	1.32