

Cognitive Debrief of the PROMIS Parent Proxy Mobility Item Bank in Caregivers of Children Living With Duchenne Muscular Dystrophy



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Introduction

Duchenne muscular dystrophy (DMD) is an X-linked rare, debilitating neuromuscular disease characterized by a lack of functional dystrophin protein production, causing muscular deterioration. DMD is usually diagnosed between the ages of 3 to 5 years¹, when toddlers develop a waddling gait, toe walking, calf hypertrophy, and difficulty climbing stairs.

Due to DMD's early onset and progressive nature, caregivers play a crucial role in assessing and relaying information about patients' health, including their clinical status and functional ability. One method of recording patients' health is with Observer-reported outcomes (ObsROs, or "parent proxy" measures) that can be completed by the patient's caregiver, as they are considered the most appropriate reporter for the observable concepts measured.

Clinical Outcomes Assessment (COA) measures should be "fit-for-purpose" (i.e., valid, reliable, and responsive for use) to evaluate patient experiences in the target population. A critical step in establishing whether a COA is fit for purpose is to demonstrate content validity. This involves assessing whether the COA evaluates concepts that are relevant to the disease experience and ensuring that the items are clear and understandable to the rater. Cognitive debriefing interview methods are the industry best-practice for assessing content validity².

This study explored the content validity of the Patient-Reported Outcomes Measurement Information System (PROMIS) Parent Proxy Mobility item bank (version 2.0) to measure caregiver-reported relevant mobility experiences of pediatric patients with DMD.

Methods

The study involved N=12 cognitive debrief interviews with caregivers of ambulatory children living with DMD. Participants were recruited via a specialist recruitment vendor (Rare Patient Voice). Adult caregivers (≥ 18 years) of a child (≤ 18 years) with a clinical diagnosis of DMD in the US were eligible for inclusion in the study. Caregivers of children with DMD who were currently participating in a Sarepta-sponsored interventional clinical trials were excluded.

Interviews were conducted remotely using a web-based conferencing system. All interviews were conducted using a semi-structured interview guide, using a "think aloud" approach. The 75-minute, remote interviews explored comprehension and conceptual relevance of PROMIS Parent Proxy Mobility item bank among Caregivers of children with DMD who were currently participating in an interventional clinical trial related to the study sponsor were excluded.

Framework analysis methodology was used to analyze the data³, with specific pre-defined codes to determine participant understanding and interpretation of items, response options and recall period. Data were summarized descriptively using both numbers and participant quotes.

Results

Twelve caregivers of children aged 4-14 years old (Table 1), living with early (n=9) or late (n=3) ambulatory DMD, participated. Caregivers were predominantly female (n=10), and all were White (n=12) and educated at college or associate degree level (n=12; Table 2).

Table 1. Socio-demographic characteristics of children with DMD

Child demographics	N=12
Age, years	
• Mean	8.9
• Range	4-14
Race/ethnicity*, n	
• White	11
• Asian	1
• Hispanic or Latino	1

* Participants could select more than one response

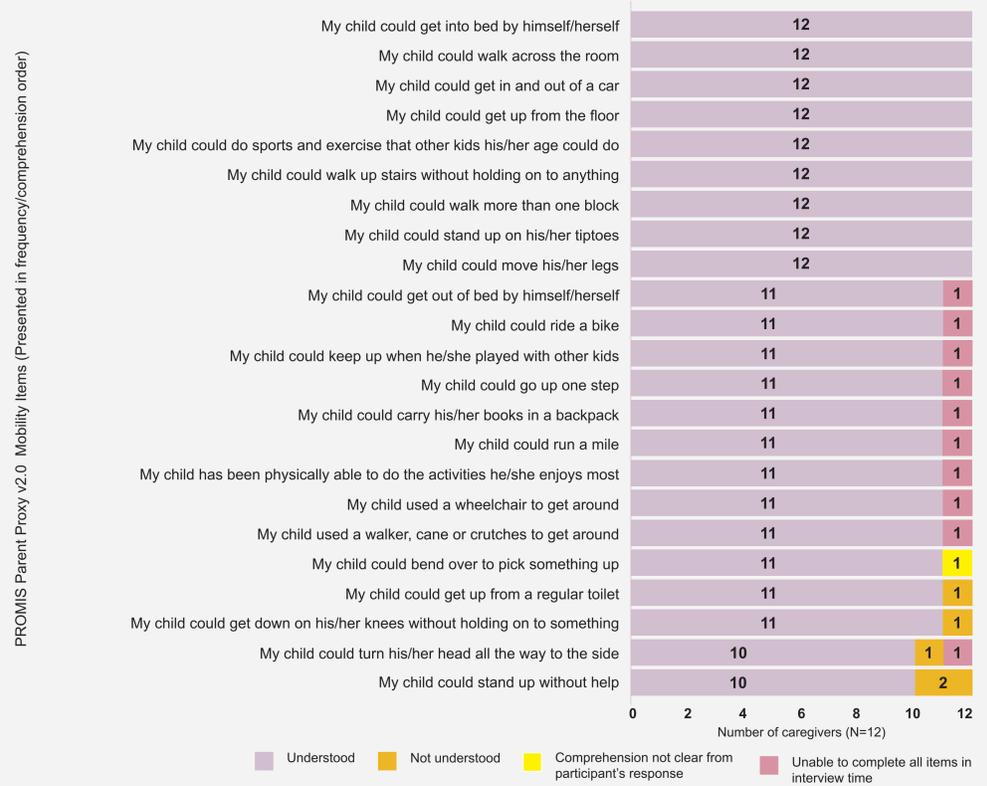
Table 2. Socio-demographic characteristics of caregivers

Caregiver demographics	N=12
Age, years	
• Mean	40.7
• Range	34-50
Sex, n	
• Female	10
• Male	2
Relationship to child, n	
• Mother	10
• Father	2
Race/ethnicity*, n	
• White	12
• Hispanic or Latino	1
Highest level of education, n	
• Some high school, no diploma	0
• High school diploma or equivalent	0
• Some college or Associate degree	4
• College/Bachelor's degree	4
• Graduate/Post-graduate degree	4

* Participants could select more than one response

All items were understood and interpreted correctly by at least 80% of caregivers (Figure 1). The response options and recall period ("past 7 days") were generally well understood. Responses indicated that the activities assessed were observable by caregivers and appropriate for parent proxy reporting.

Figure 1. PROMIS Parent Proxy v2.0 Mobility item bank: Comprehension (N=12)



Most items were conceptually relevant, reflecting activities impacted by the condition (Figure 2). Caregivers identified several items in the PROMIS Parent Proxy Mobility item bank as particularly bothersome underscoring their relevance to their child's experience (e.g., an (in)ability to play with other children, difficulty doing sports, or riding a bike).

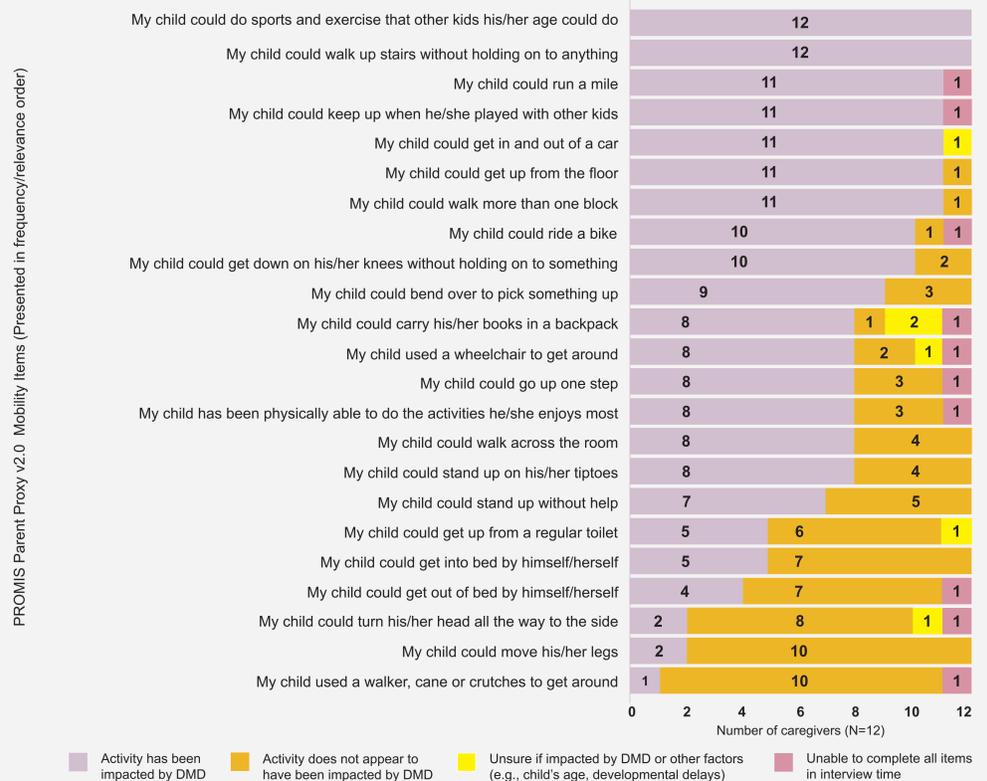
The items with the lowest level of conceptual relevance to DMD were:

- My child could turn his/her head all the way to the side
- My child could move his/her legs
- My child used a walker, cane or crutches to get around

Some items were deemed unsuitable for 4-year-olds (e.g., "carrying books in a backpack", and others were subject to varied interpretation (e.g., "the activities he/she enjoys the most", which ranged from physical to sedentary activities)

However, it should be noted that each item was still considered conceptually relevant to at least one caregiver

Figure 2. PROMIS Parent Proxy v2.0 Mobility item bank: Conceptual relevance to individual patient DMD experience (N=12)



Conclusions

Most items in the PROMIS Parent Proxy Mobility item bank demonstrated adequate content validity and may be fit-for-purpose in an early and/or late ambulatory DMD population. By obtaining direct feedback from caregivers, cognitive debriefing helped confirm comprehension of items and their response options and identify potential relevance gaps for ambulatory children living with DMD. These insights can help guide item selection to more effectively capture patient experiences that are relevant to the individual and appropriate for their disease stage.

A limitation of this study is the limited socio-demographic diversity in the sample, as all caregivers were White and highly educated. As DMD is a rare disease, no demographic sampling quotas were applied to the recruitment process and instead recruitment was focused on ensuring representation of children's ambulatory status and age. However, it should be noted that the PROMIS Parent Proxy Mobility item bank was developed in line with industry recommendations for COA development.

Acknowledgments & Disclosures

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