

Quantifying Outcomes in Fibrodysplasia Ossificans Progressiva (FOP) by Patient Age: Results from an International Burden of Illness Survey

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Background

- Fibrodysplasia ossificans progressiva (FOP; OMIM #135100) is an ultra-rare, severely debilitating genetic disorder characterized by progressive, irreversible heterotopic ossification (HO) within soft and connective tissues.^{1,2}
- Over 95% of people with FOP manifest HO before 15 years of age.³
- HO is permanent and disability in FOP is cumulative; most people with FOP require lifelong assistance in performing activities of daily living (ADLs) and are confined to a wheelchair by their third decade of life.^{4,5}

Objective

To determine the impact of FOP on physical functioning, use of aids, assistive devices, and adaptations (AADAs), and quality of life (QoL) by age for people with FOP.

Methods

- An international, cross-sectional burden of illness survey (NCT04665323) was co-created with advisors from the FOP community.
- The survey was available online between 18th January and 30th April 2021 across 15 countries and in 11 languages.
- Participants were recruited through the International FOP Association (IFOPA) and national/regional FOP organizations.
- Individuals with FOP of any age were eligible to participate; for individuals aged <13 years, the survey was completed by proxy.
- Physical functioning and ability to conduct ADLs were assessed through the FOP Physical Function Questionnaire (FOP-PFQ); AADA use was measured through a tailored questionnaire; QoL was assessed through the Patient-Reported Outcomes Measurement Information System (PROMIS).
- Descriptive analyses were conducted for the following patient age groups: <8 years; 8–14 years; 15–24 years; ≥25 years.

Results

- 219 patient responses were received:
 - Patient demographics are presented in **Table 1**;
 - The number of patient responses by country is presented in **Figure 1**.
- Mean (standard deviation [SD]) FOP-PFQ percentage of worst possible score increased with age, from 29.6 (25.1) for patients aged <8 years to 76.1 (26.7) for patients aged ≥25 years (**Figure 2**).
- On average, patients aged <8 years used fewer AADAs than patients aged ≥25 years for all AADA categories, except for school/sport (**Figure 3**).
- Mean PROMIS T-scores were similar for patients aged <8 years and 8–14 years (**Figure 4A**); patients aged ≥25 years had lower mean physical and mental health PROMIS T-scores than patients aged 15–24 years (**Figure 4B**).

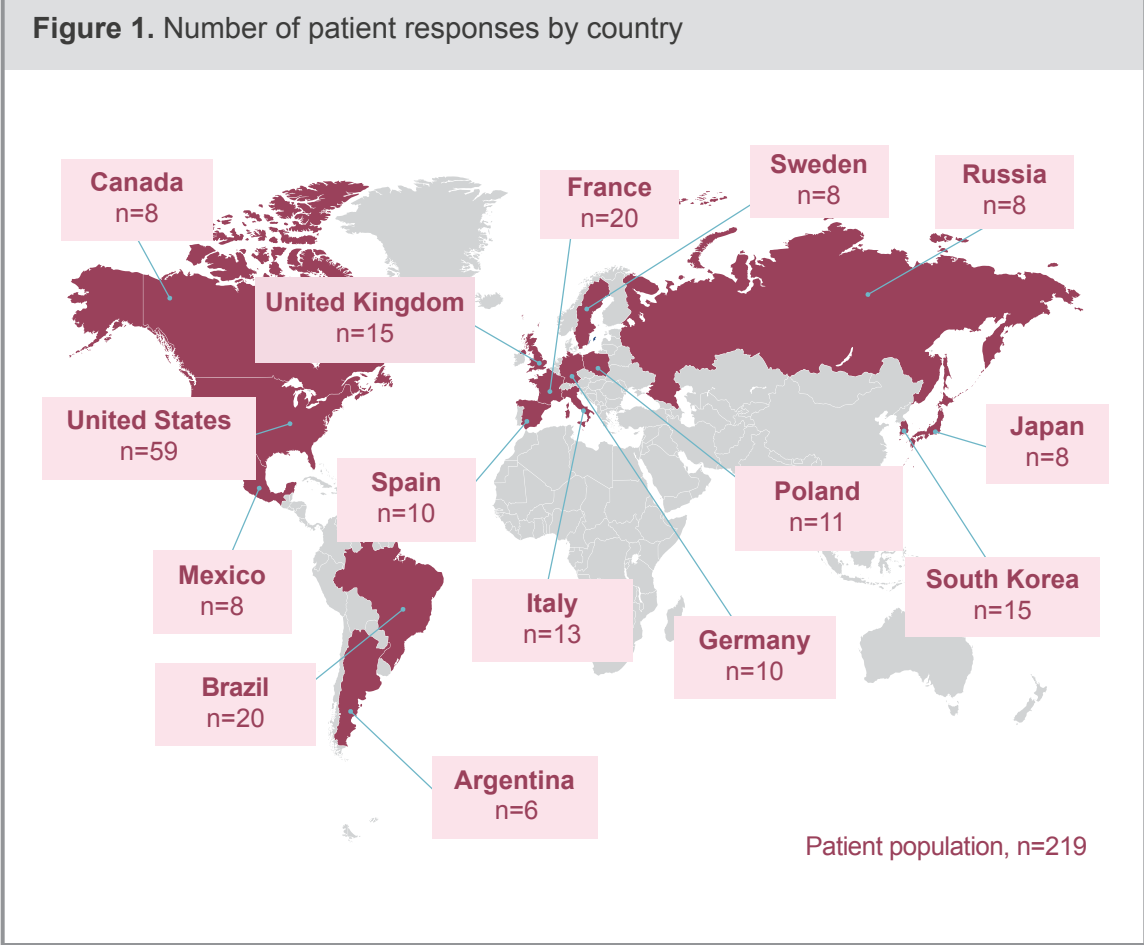
CONCLUSIONS

- Older patients with FOP tended to have more restricted physical functioning and reduced ability to conduct ADLs, often used a greater number of AADAs, and, overall, had lower QoL compared with younger patients.
- These cross-sectional data demonstrate the cumulative disability observed in FOP, and that the physical and QoL impact of FOP increases by age.
- These findings indicate that an individual's age and level of disability should be considered when developing resources to improve support and care for people with FOP.

Figures and Tables

Table 1. Patient demographics and clinical characteristics	
	Patient population n=219
Age, years, median (95% CI)	24.0 (21.0–27.0)
Age, n (%)	
<8 years	31 (14.2)
8–14 years	40 (18.3)
15–24 years	40 (18.3)
≥25 years	108 (49.3)
Gender, n (%) ^a	
Male	57 (35.4)
Female	102 (63.4)
Non-binary	2 (1.2)
FOP diagnosis confirmed by genotyping, n (%)	170 (87.2)

^aPatients' gender was not collected in questionnaires completed by proxies.



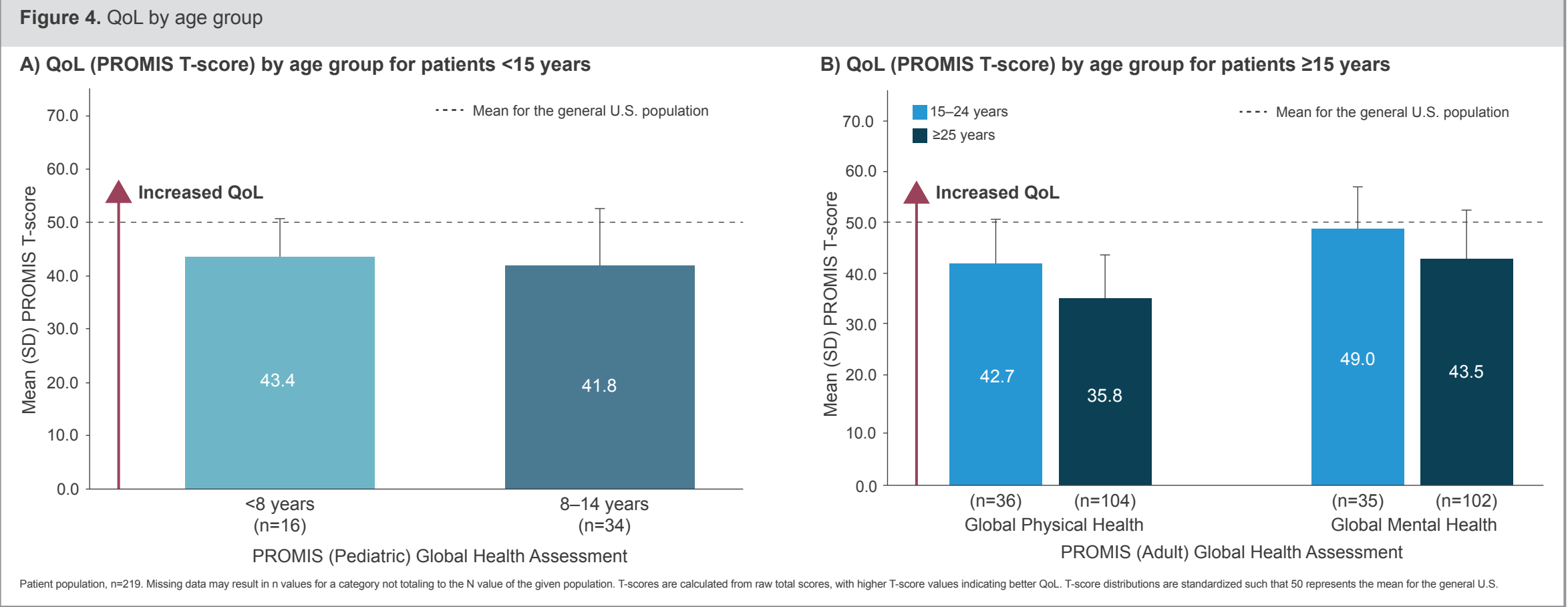
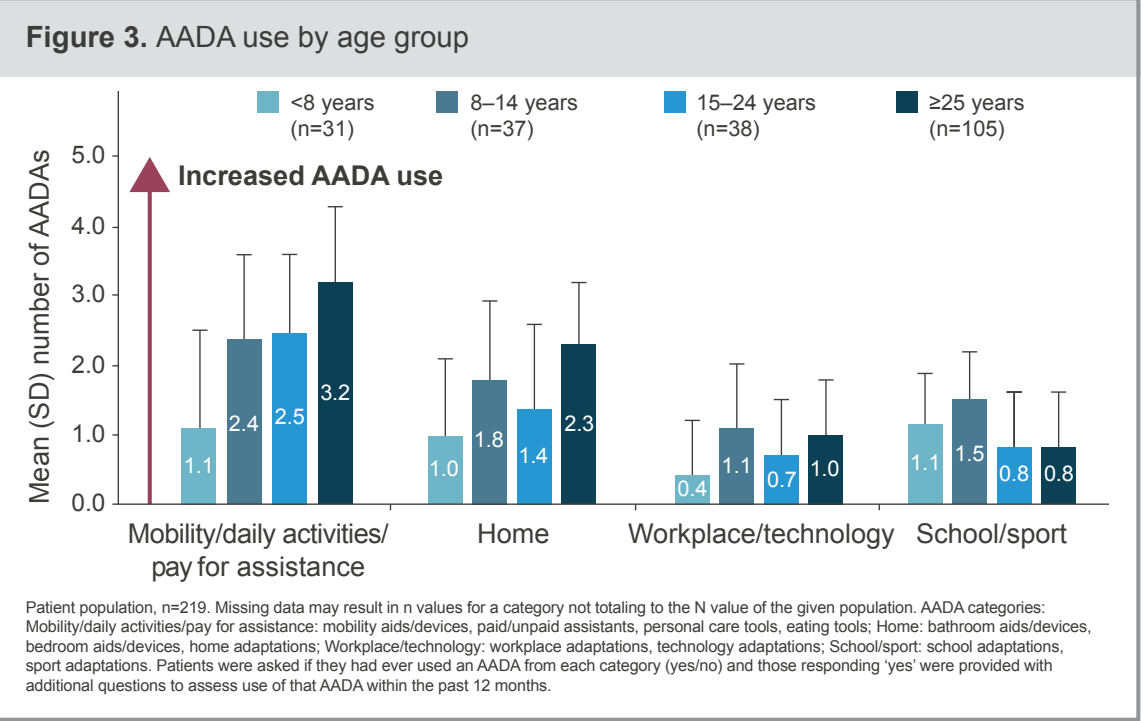
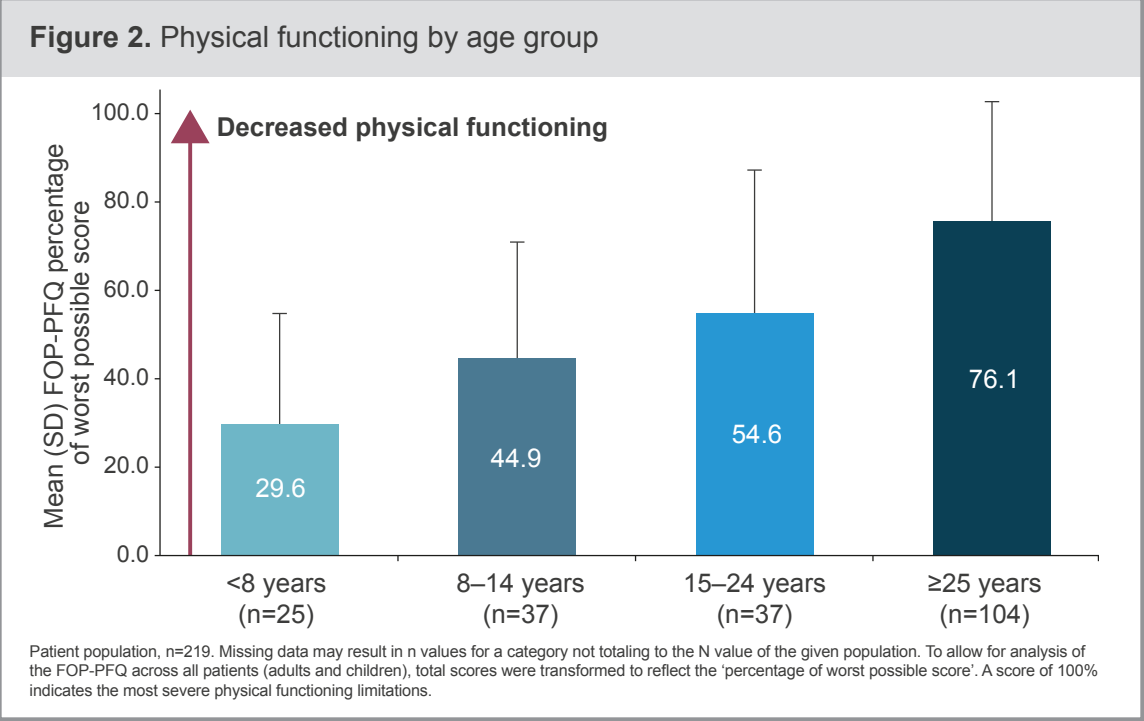
Abbreviations: AADA: aid, assistive device, and adaptation; ADL: activity of daily living; CI: confidence interval; FOP: fibrodysplasia ossificans progressiva; FOP-PFQ: FOP Physical Function Questionnaire; PROMIS: Patient-Reported Outcomes Measurement Information System; QoL: quality of life; SD: standard deviation; U.S.: United States.

References: 1. OMIM #135100 FOP; 2. Kaplan FS. J Bone Joint Surg Am 1993;75:220-30; 3. Cohen RB. J Bone Joint Surg Am 1993;75:215-9; 4. Connor JM. J Bone Joint Surg Br 1982;64:76-83; 5. Pignolo RJ. Bone 2020;134:115274.

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