

Nonseizure Outcomes With Cannabidiol in Pediatric Versus Adult Patients With Lennox-Gastaut Syndrome and Dravet Syndrome: Subgroup Analysis of BECOME, a Caregiver Survey

Tracy Dixon-Salazar,¹ Anne T Berg,² Mary Anne Meskis,³ Sherry R Danese,⁴ Timothy B Saurer,⁵ Ngoc Minh D Le,⁵ and M Scott Perry⁶

¹Lennox-Gastaut Syndrome (LGS) Foundation, San Diego, CA, USA; ²Northwestern University Feinberg School of Medicine, Chicago, IL, USA; ³Dravet Syndrome Foundation, Cherry Hill, NJ, USA; ⁴Outcomes Insights, Ventura, CA, USA; ⁵Jazz Pharmaceuticals, Carlsbad, CA, USA; ⁶Cook Children's Medical Center, Fort Worth, TX, USA

Background

- BECOME was a global outcomes survey of caregivers for people with Lennox-Gastaut syndrome (LGS) or Dravet syndrome (DS) that assessed changes in **BE**havior, **CO**gnition, and **MO**re with **E**pidiolex® (cannabidiol [CBD]).^{1,2}
- In the primary analysis, a substantial proportion of caregivers reported improvements in seizure and nonseizure outcomes.^{1,2}
 - Nearly all caregivers reported planning to continue CBD
- Although LGS and DS onset is usually in infancy or early childhood, they are lifelong diseases with symptoms that evolve over time, emphasizing the need to understand the effects of CBD in pediatric vs adult patients.³
- We conducted a subgroup analysis of BECOME to compare the seizure and nonseizure outcomes of CBD treatment in pediatric vs adult patients.
 - This poster presents the nonseizure outcomes (seizure outcomes will be presented in Poster 006)

Objective

- To compare the nonseizure outcomes of CBD treatment in pediatric (aged <18 years) vs adult (aged ≥18 years) patients with LGS or DS.

Methods

- US-based caregivers of patients with LGS or DS who received ≥3 months of CBD treatment (Epidiolex, 100 mg/mL oral solution) were asked to compare the month before survey administration with the period prior to CBD initiation.
- 'Don't Recall' or 'Not Applicable' responses were excluded. Net percentages included respondents' answers to ≥1 question within each domain.
- The survey consisted of multiple-choice and rank-order questions, based on validated measures and other previously published caregiver reports,⁴⁻⁸ and used a symmetrical 3-, 5-, or 7-point Likert scale (from worsening to improvement) to rate changes.

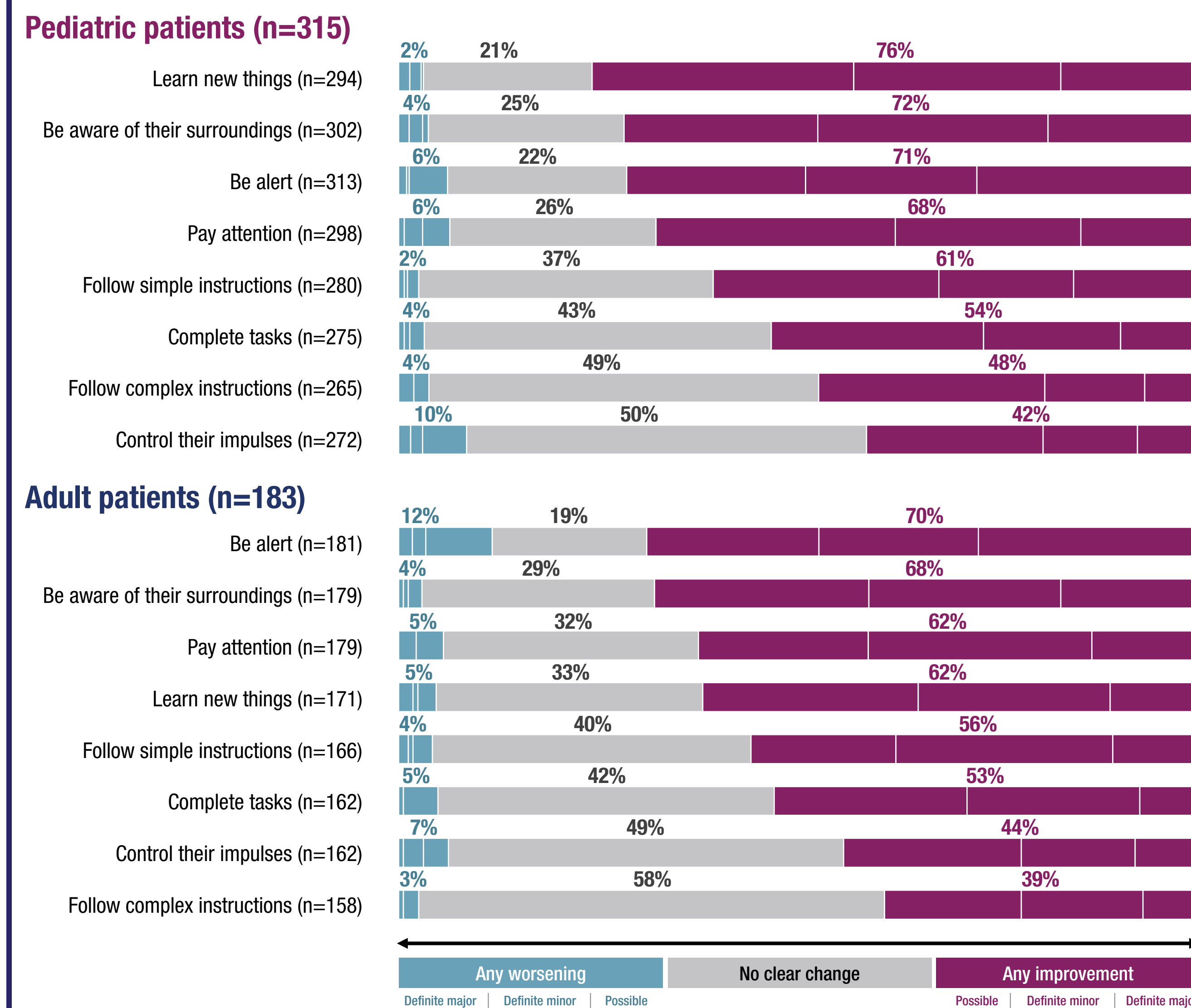
Results

Table 1. Patient characteristics and CBD exposure

	Pediatric patients (n=315)	Adult patients (n=183)	All patients (N=498)
Mean, y (range)	9 (1-17)	28 (18-73)	16 (1-73)
Male, n (%)	165 (52)	96 (53)	261 (52)
Responding caregivers, n (%)			
Parent	310 (98)	172 (94)	482 (97)
Grandparent	3 (1)	1 (1)	4 (1)
Other	2 (1)	10 (5)	12 (2)

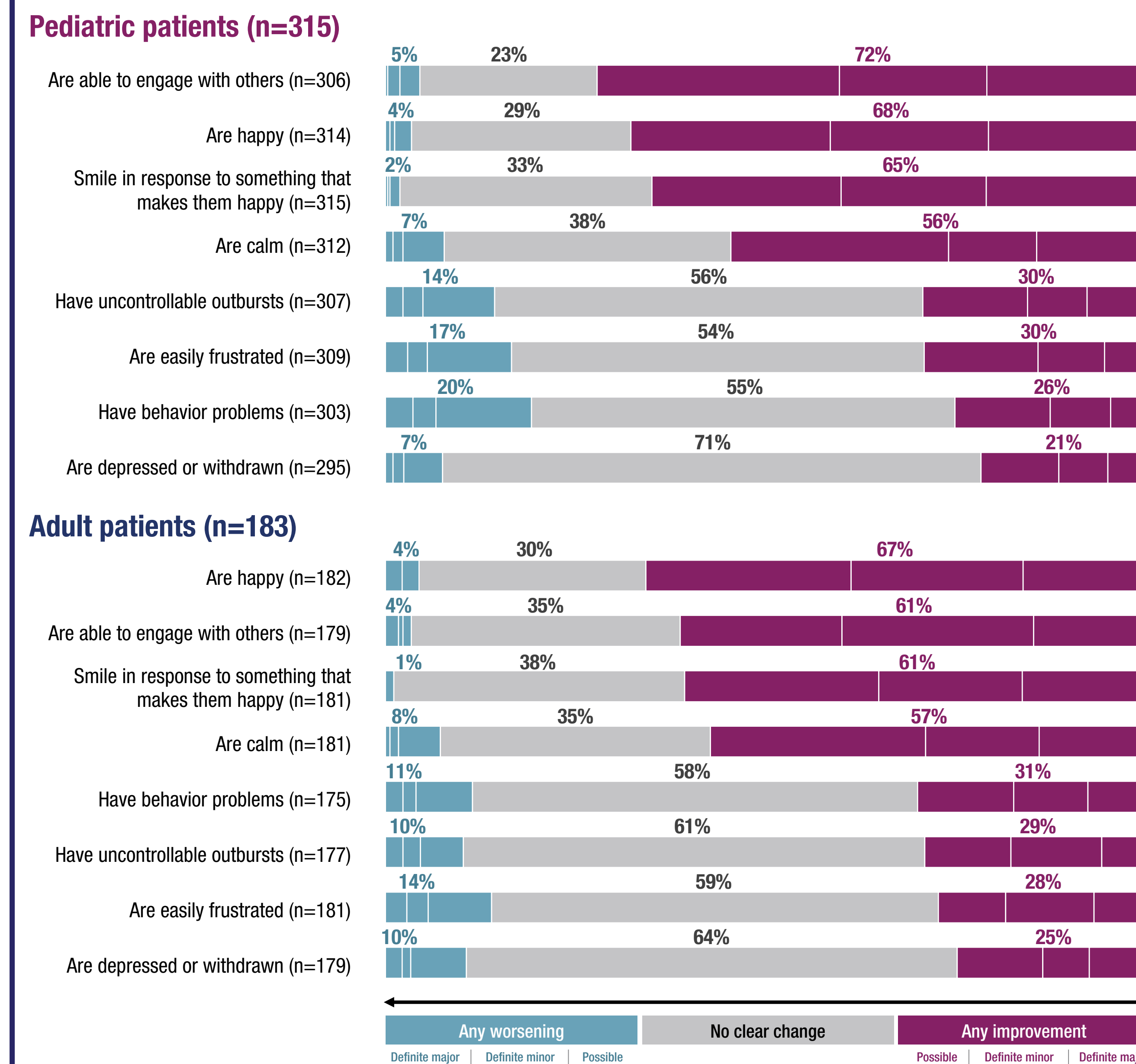
- Pediatric patients were treated with CBD for an average of 1.9 years and were taking a median (Q1, Q3) CBD dose of 16 mg/kg/d (9, 20).
- Adult patients were treated with CBD for an average of 2.2 years and were taking a median (Q1, Q3) CBD dose of 11 mg/kg/d (7, 17).
- Additional details for patients' concomitant antiseizure medications can be viewed via the QR code.

Figure 1. Alertness, cognition, and executive function – Change in ability to



- Any improvement in alertness, cognition, and executive function was reported in 87% of pediatric patients and 81% of adult patients.
- For pediatric patients, the most frequently reported improvement in this domain was in the ability to learn new things (76%).
- For adult patients, the most commonly reported improvement was in alertness (70%).

Figure 2. Emotional and social functioning – Change in how often they



- Any improvement in emotional and social functioning was reported in 82% of pediatric patients and 80% of adult patients.

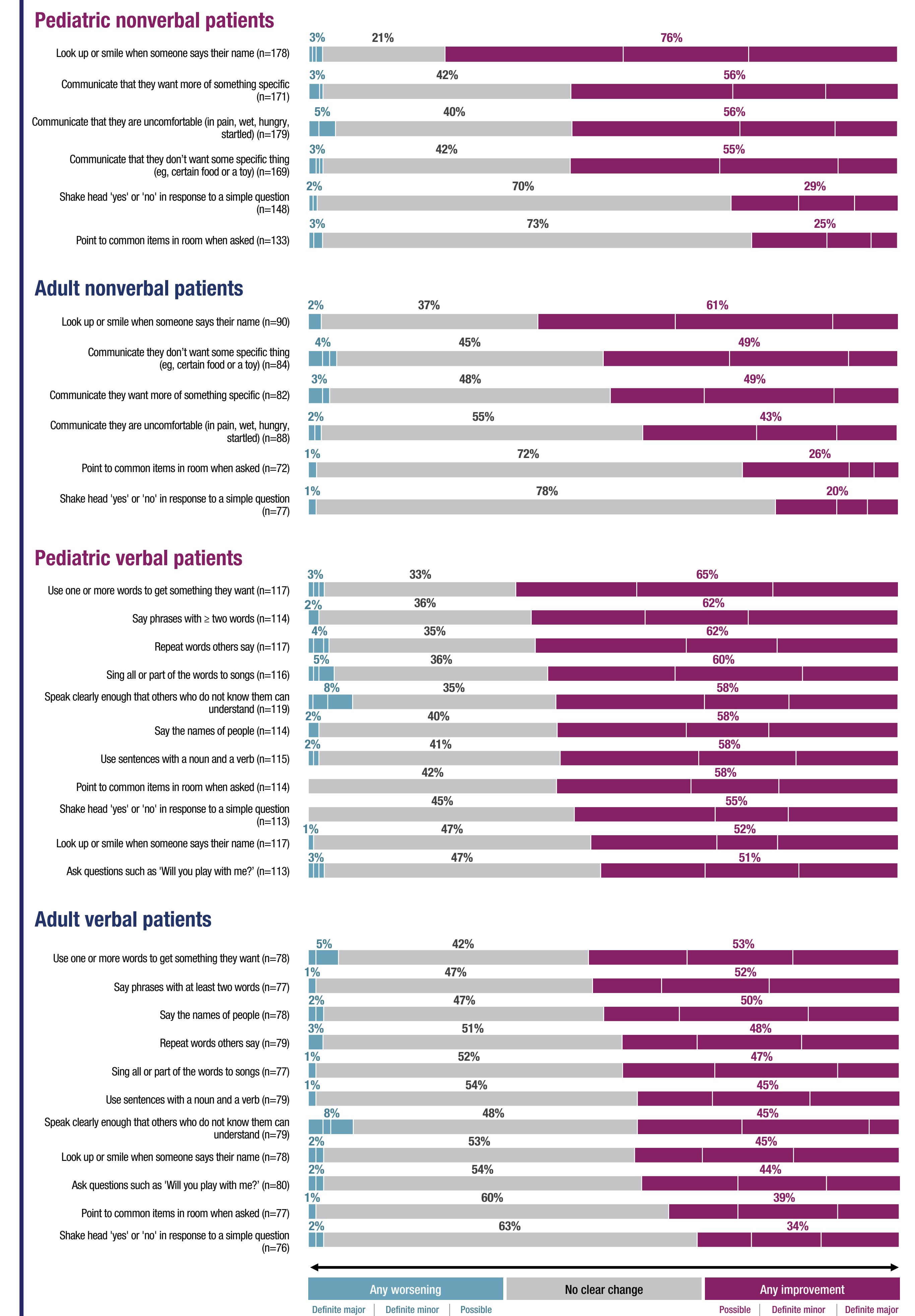
Physical functioning, sleep, and daily activities

- A numerically greater proportion of caregivers of pediatric vs adult patients reported improvement in ≥1 question in the physical functioning (53% vs 33%), sleep (53% vs 48%), and daily activities (56% vs 44%) domains.
- Additional details on changes in physical functioning, sleep, and daily activities are available via the QR code.

Conclusions

- A substantial proportion of caregivers of patients with LGS or DS, regardless of age, reported improvements in alertness, cognition, executive function, emotional and social function, language and communication, physical function, sleep, and daily activities since initiating CBD treatment.
 - Alertness, cognition, and executive function (87% vs 81% for pediatric vs adult patients)
 - Emotional and social function (82% vs 80%)
 - Language and communication (85% vs 68% for nonverbal pediatric vs adult patients; 81% vs 63% for verbal pediatric vs adult patients)
 - Physical functioning (53% vs 33%)
 - Sleep (53% vs 48%)
 - Daily activity (56% vs 44%)
- Numerically greater proportion of caregivers of pediatric vs adult patients reported improvements in language and communication, physical functioning, sleep, and daily activities domains, highlighting the importance of early diagnosis and intervention in lowering the impact on patients' physical, emotional, and mental wellbeing.
- Improvements in seizure outcomes in pediatric vs adult patients were also reported (Poster # 006).
- Nearly all caregivers (93%) of pediatric and adult patients reported planning to continue CBD.
 - Although most caregivers of pediatric (93%) and adult (88%) patients cited seizure-related improvements as a reason for continuing, 79% of caregivers of pediatric patients and 73% of caregivers of adult patients cited nonseizure-related improvements as the reason (additional details available via the QR code)

Figure 3. Language and communication – Change in ability to



- Any improvement in language and communication were reported in 85% of nonverbal pediatric patients vs 68% of nonverbal adult patients and 81% of verbal pediatric patients vs 63% of verbal adult patients.
- The most frequently reported improvements were in the ability to look up or smile upon mention of their name in nonverbal pediatric patients (76%) and nonverbal adult patients (61%).

References: 1. Dixon-Salazar T, et al. Presented at the AES Annual Meeting; December 3–7, 2021; Chicago, IL, USA. Abstract 3.3. 2. Berg AT, et al. Presented at the AES Annual Meeting; December 3–7, 2021; Chicago, IL, USA. Abstract 3.304. 3. Cross JH, et al. *Front Neurol*. 2017;8:505. 4. Buck D, et al. *Epilepsy Behav*. 2007;10(1):38-43. 5. Ammann D, et al. *Qual Life Res*. 2020;29(5):1361-1371. 6. Goodwin SW, et al. *Epilepsia*. 2018;59(3):668-678. 7. Klatchoian DA, et al. *J Pediatr (Rio J)*. 2008;84(4):308-315. 8. Conway L, et al. *Epilepsia*. 2017;58(4):646-656.

Acknowledgments: Writing and editorial assistance were provided by Ritu Pathak, PhD, of Ashfield MedComms, an Inizio company, funded by Jazz Pharmaceuticals, Inc.

Support: BECOME was sponsored by Greenwich Biosciences, Inc (now part of Jazz Pharmaceuticals, Inc).

Disclosures: All authors met the ICMJE authorship criteria and had full access to relevant data. Neither honoraria nor payments were made for authorship. **TDS, ATB, MAM, SRD,** and **MSP** have consulted for, conducted studies funded by, or received honoraria from GW Pharmaceuticals companies (now part of Jazz Pharmaceuticals, Inc); **TBS** is an employee of Jazz Pharmaceuticals, Inc. **NMDL** was an employee of Jazz Pharmaceuticals, Inc. Epidiolex® is approved in the US for the treatment of seizures associated with Lennox-Gastaut syndrome, Dravet syndrome, or tuberous sclerosis complex in patients ≥1 years of age.



Scan this code to access this poster online. This code is not for promotional purposes.

Supplementary Material

Table S1. Patient characteristics and CBD exposure

	Pediatric patients (n=315)	Adult patients (n=183)	All patients (N=498)
Mean, y (range)	9 (1–17)	28	16 (1–73)
Male, n (%)	165 (52)	96 (53)	261 (52)
Number of concomitant ASMs, median (Q1, Q3)			
Current	4 (2, 4)	4 (3, 5)	4 (2, 5)
Most common ASMs in ≥20% of patients in any group, n (%)			
Clobazam	172 (55)	73 (40)	245 (49)
Clonazepam	83 (26)	44 (24)	127 (26)
Valproate	71 (23)	53 (29)	124 (25)
Levetiracetam	80 (25)	42 (23)	122 (25)
Lamotrigine	46 (15)	60 (33)	106 (21)
Responding caregivers, n (%)			
Parents	310 (98)	172 (94)	482 (97)
Grandparents	3 (1)	1 (1)	4 (1)
Other	2 (1)	10 (5)	12 (2)

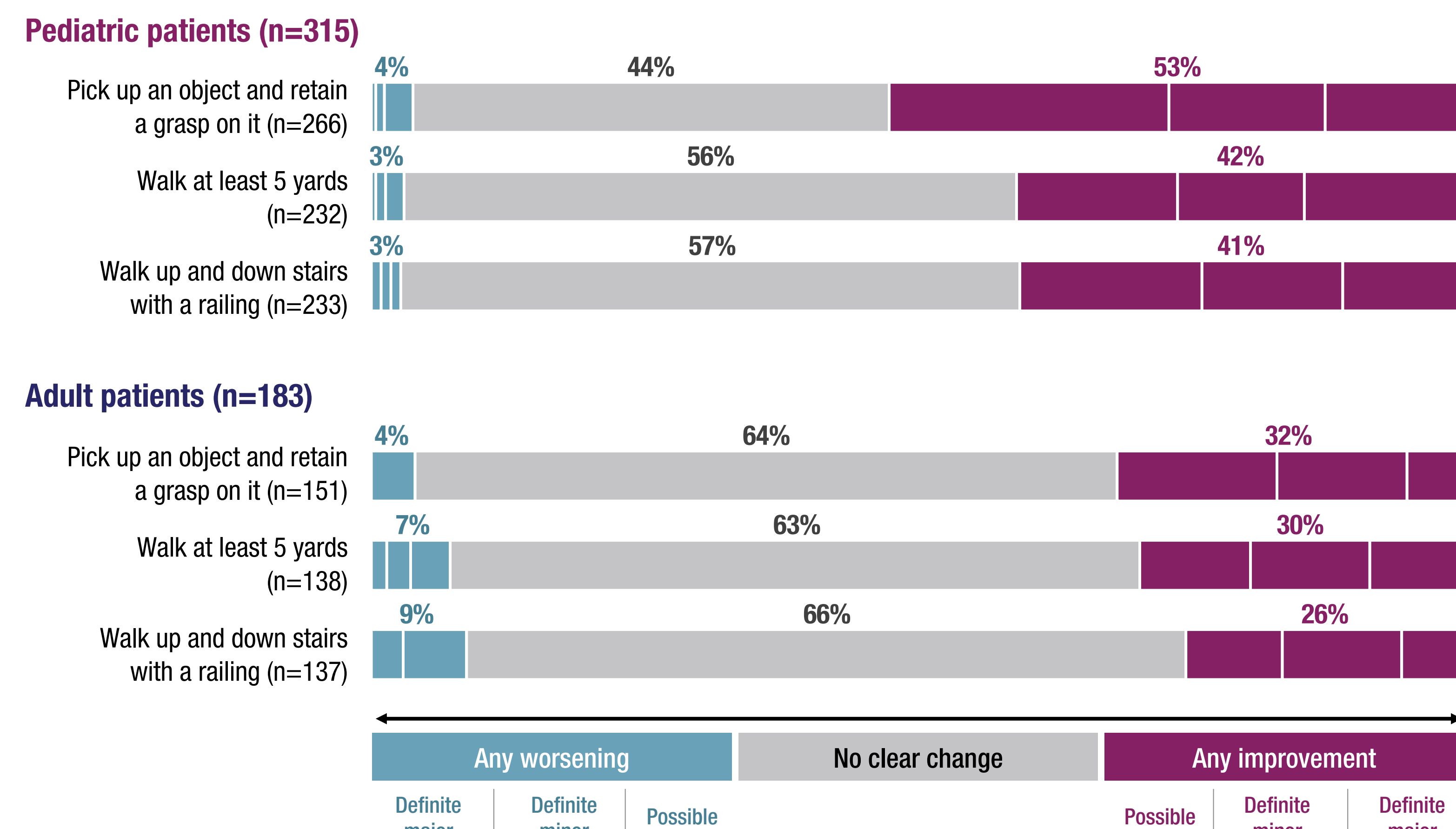
ASM, antiseizure medication; CBD, cannabidiol; Q1, first quartile; Q3, third quartile.

Table S2. Caregivers' decision to continue CBD treatment

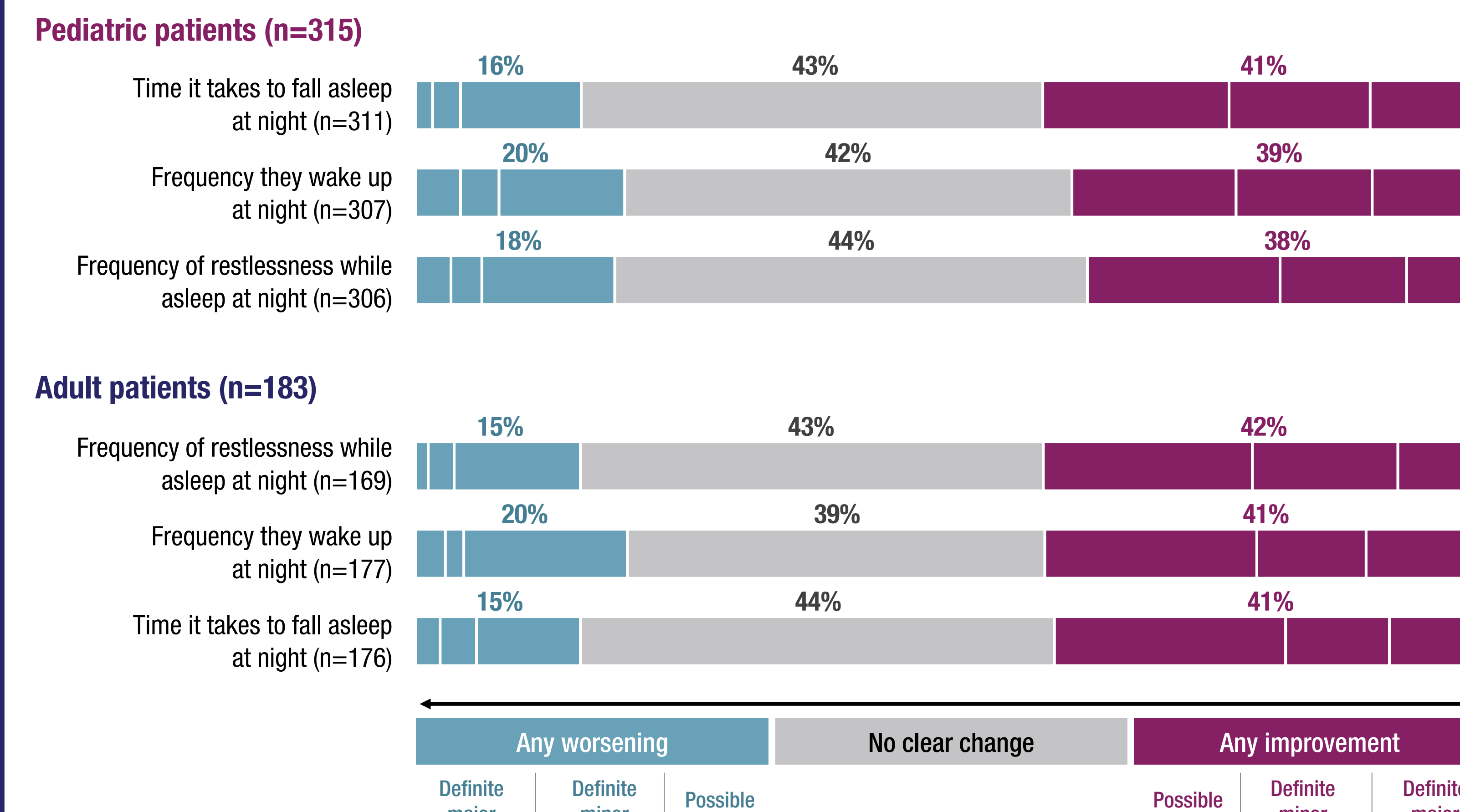
		Pediatric patients (n=315)	Adult patients (n=183)
		% of caregivers	
Do you plan to continue CBD for whom you are caring? (n=498)	Yes	93	93
	No	3	3
	Don't know	4	4
Of those who plan to continue (n=463), which are the most important reasons contributing to your decision to continue treatment?	Seizure related (net)	93	88
	Reduced seizure frequency	81	74
	Reduced seizure severity/duration	75	71
	Nonseizure related (net)	79	73
	Improved alertness	54	44
	Improved cognition	50	32
	Improved language/communication	33	24
	Improved sleep	33	25
	Improved physical functioning	31	18
	Improved social functioning	31	21
Improved emotional functioning	32	25	
Reduced caregiver burden	19	15	
Other	5	11	

CBD, cannabidiol.

Physical functioning



Sleep



Daily activities

