

Child characteristics related to improvement in language performance of children with DLD of 4-6 years

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Introduction

There is a paucity of information on the effects of special education provisions on the language skills of children with DLD. Specifically, it is unclear

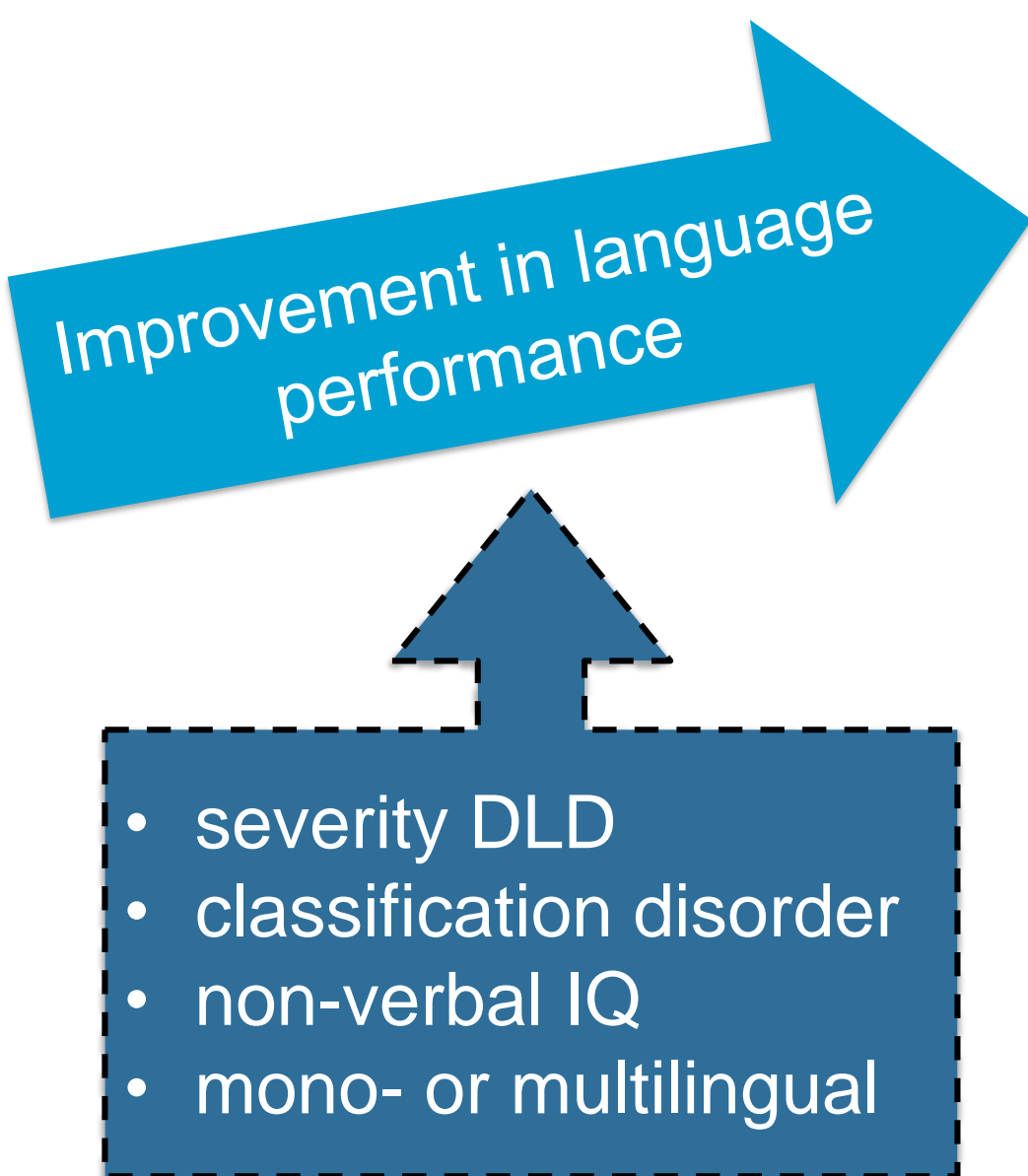
1. if (and how) school-based intervention impacts various language domains
2. to what extent child characteristics modulate outcomes

Method

We traced the trajectory of 154 children with DLD at 18 schools for special education that provide systematic language-oriented interventions.

Mean age 4;10 at the start of the study; range 3;11 – 5;7 yrs

T0 = start schoolyear
T1 = end schoolyear



Children with DLD in special education show improvement in language performance.

No differences in improvement between:

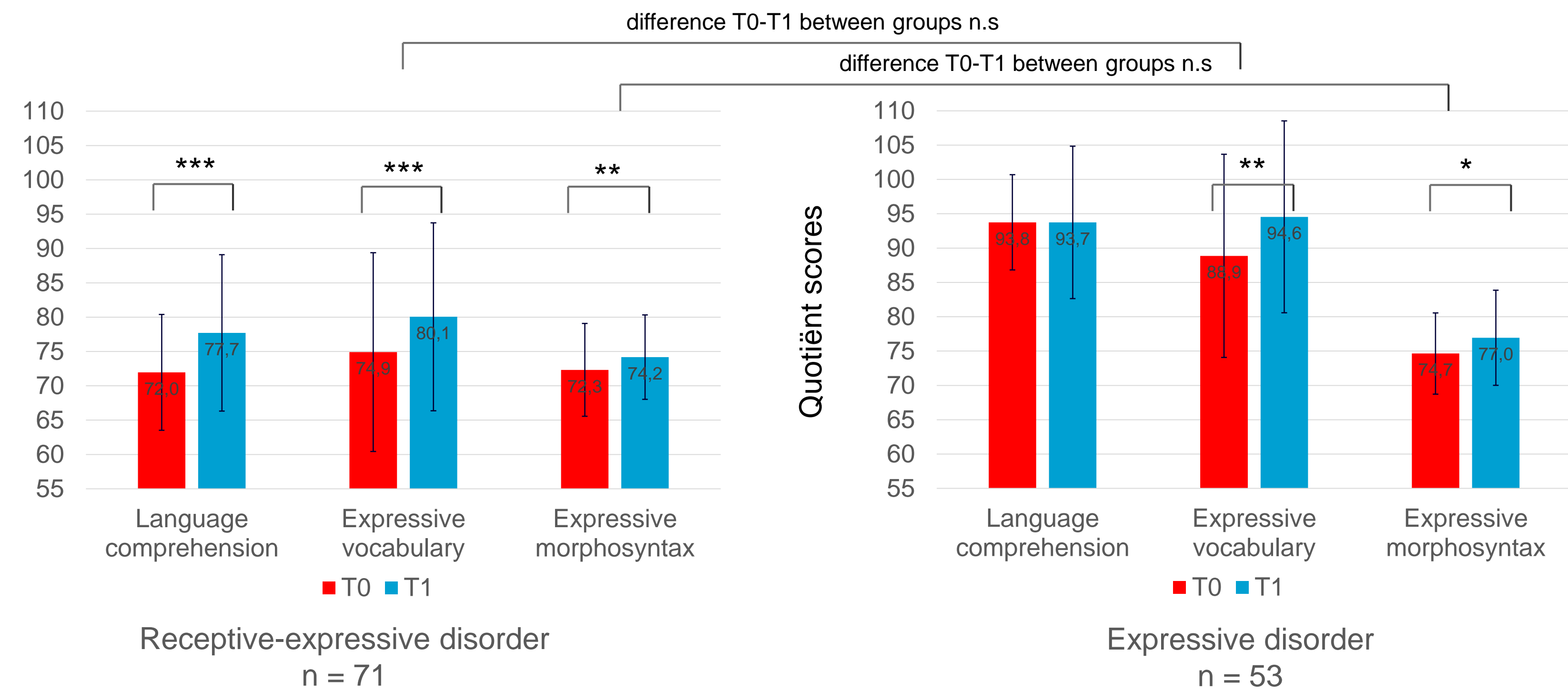
- Children with receptive-expressive disorders and expressive disorders
- Children with low and high IQs
- Mono- and multilingual children

Intervention is important for all children with DLD.

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Results

Scores on standardized tests for different language domains of children with receptive-expressive disorders and expressive disorders



Correlations of improvement (difference scores between T0 and T1) with non-verbal IQ and severity of the disorder (scores at T0)

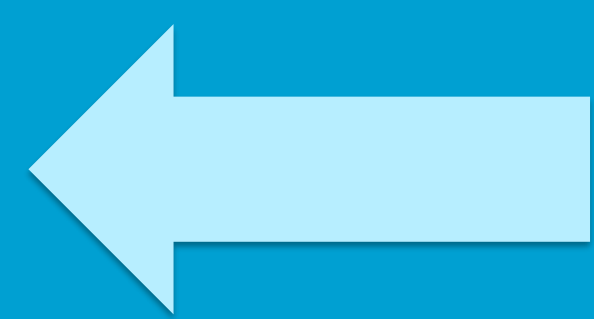
		LC T1-T0	EV T1-T0	EM T1-T0
Nonverbal IQ	Pearson Correlation	0.042	0.058	0.061
	N	126	130	127
LC T0	Pearson Correlation	-.317***	0.055	0.035
	N	130	128	126
EV T0	Pearson Correlation	0.094	-.420***	0.002
	N	129	134	130
EM T0	Pearson Correlation	0.087	-0.098	-.446***
	N	127	130	131

LC = language comprehension; EV = expressive vocabulary; EM = expressieve morphosyntax
*** p < 0.001

Quotiënt scores on T0 and improvement of mono- and multilingual children

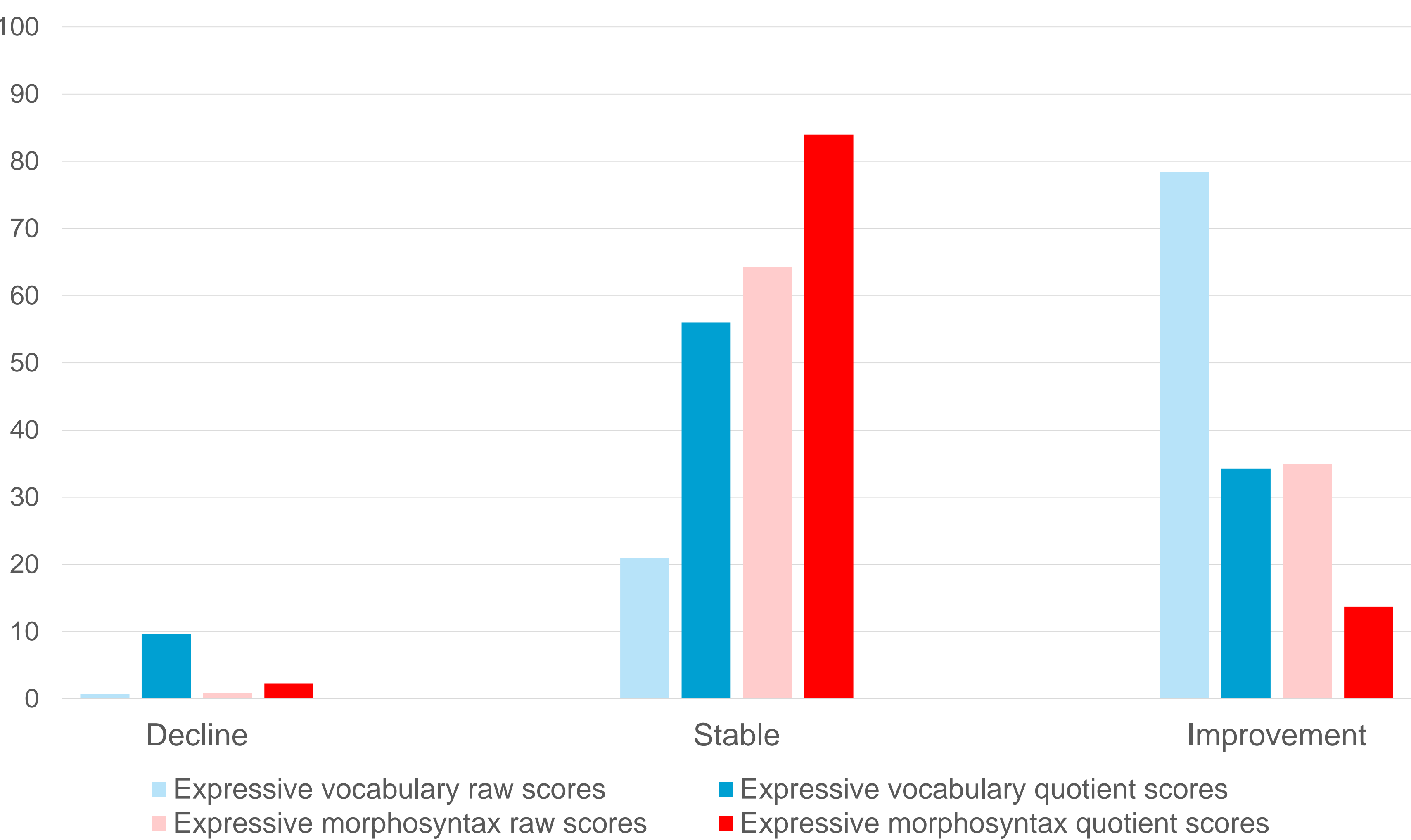
	N	M LC T0 (SD)	M EV T0 (SD)	M EM T0 (SD)
Monolingual	109	83.7*** (12.73)	85.5*** (14.66)	74.29 (7.62)
Multilingual	32	72.5 (12.46)	68.5 (14.00)	71.78 (5.35)

	N	M LC T1-T0 (SD)	M EV T1-T0 (SD)	M EM T1-T0 (SD)
Monolingual	97	3.3 (9.53)	4.1 (11.96)	1.99 (5.78)
Multilingual	30	4.3 (9.55)	7.7 (11.20)	2.87 (6.46)



Improvement in language performance

Scores on expressive language tests: % decline – stable – improvement from T0-T1



Shift from scores below mean on T0 to mean on T1

		Quotient scores < 85 on T0	Quotient scores ≥ 85 on T1	
	N	n	n	%
Language comprehension	130	77	19	24.7
Receptive vocabulary	126	29	10	34.5
Expressive vocabulary	134	69	23	33.3
Expressive morphosyntax	131	123	8	6.5

Quotient scores on expressive language tests on T0 and T1

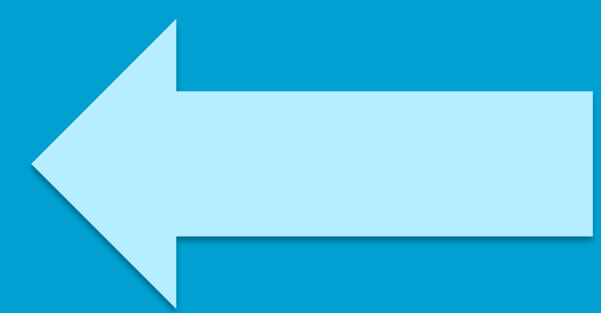
		N	M	SD	Min	Max	> 0.5 SD improvement	Effect size d^a
Expressive vocabulary	T0	132	81.6	15.94	55	123		
	T1		85.6***	15.19	55	130	29%	0.32
Expressive morphosyntax	T0	131	73.5	6.48	58	98		
	T1		75.4***	6.57	64	99	12%	0.32

^a Using pooled SDs of T0 and T1
*** $p < 0.001$

Quotient scores on T0 and T1 and effect sizes for receptive-expressive and expressive language disorder

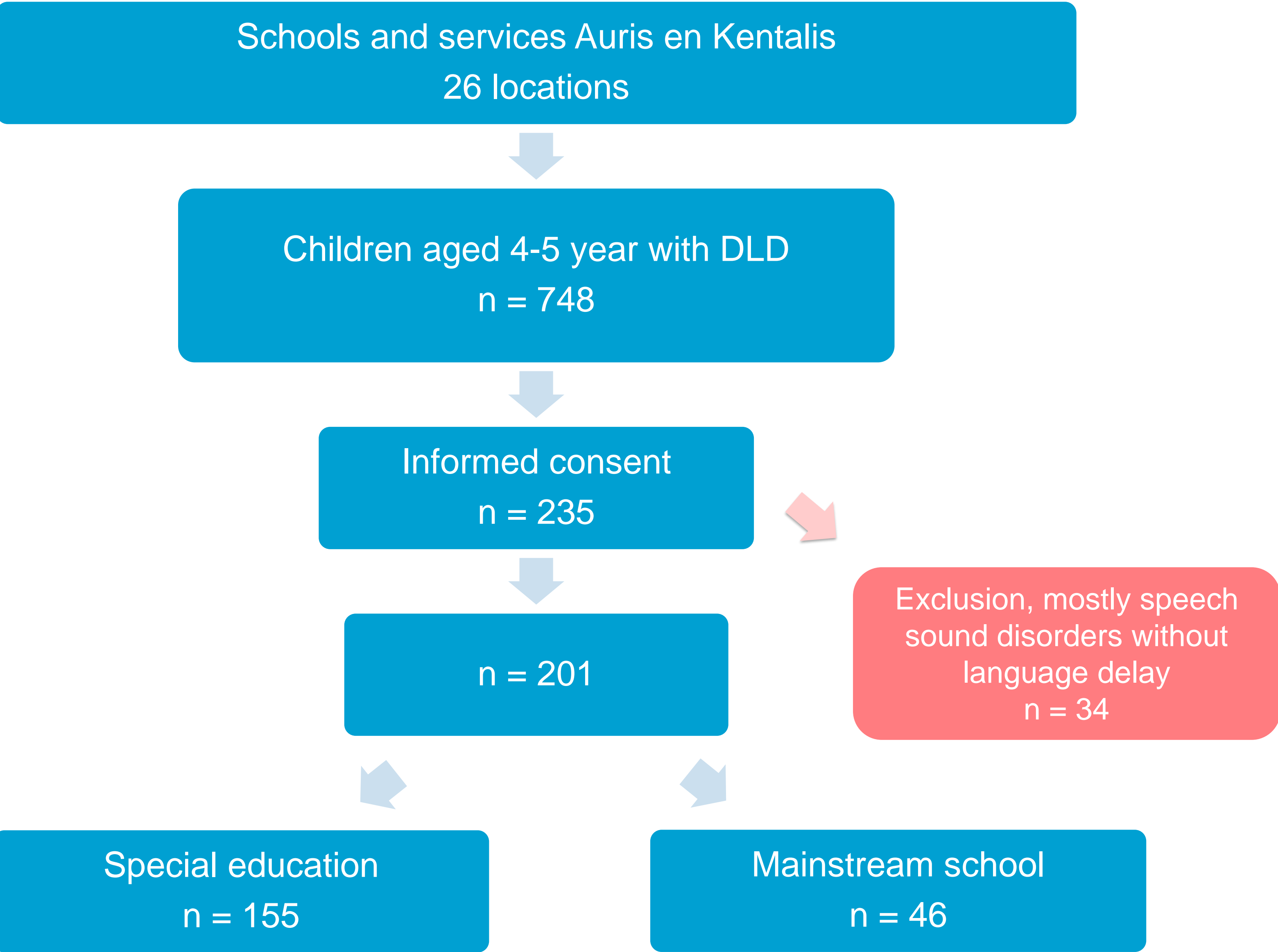
		N	Mean T0	St. Dev.	Mean T1	St. Dev.	Effect size d^a
Language comprehension	Receptive-expressive disorder	77	71.96	8.44	77.71***	11.39	0.58
	Expressive disorder	53	93.75	6.94	93.74	11.11	n/a
Receptive vocabulary	Receptive-expressive disorder	70	86.79	13.21	88.99	12.69	0.17
	Expressive disorder	52	100.08	11.38	99.27	11.61	n/a
Expressive vocabulary	Receptive-expressive disorder	75	74.91	14.47	80.05***	13.68	0.37
	Expressive disorder	53	88.87	14.80	94.55**	13.40	0.39
Expressive morphosyntax	Receptive-expressive disorder	71	72.32	6.76	74.18**	6.14	0.29
	Expressive disorder	55	74.65	5.91	76.95*	6.93	0.36

^a Using pooled SDs of T0 and T1



Characteristics schools and therapy

Recruitment process and sample overview



Age at start of study		
Mean	Minimum	Maximum
4;11 jaar	3;11 jaar	5;8 jaar

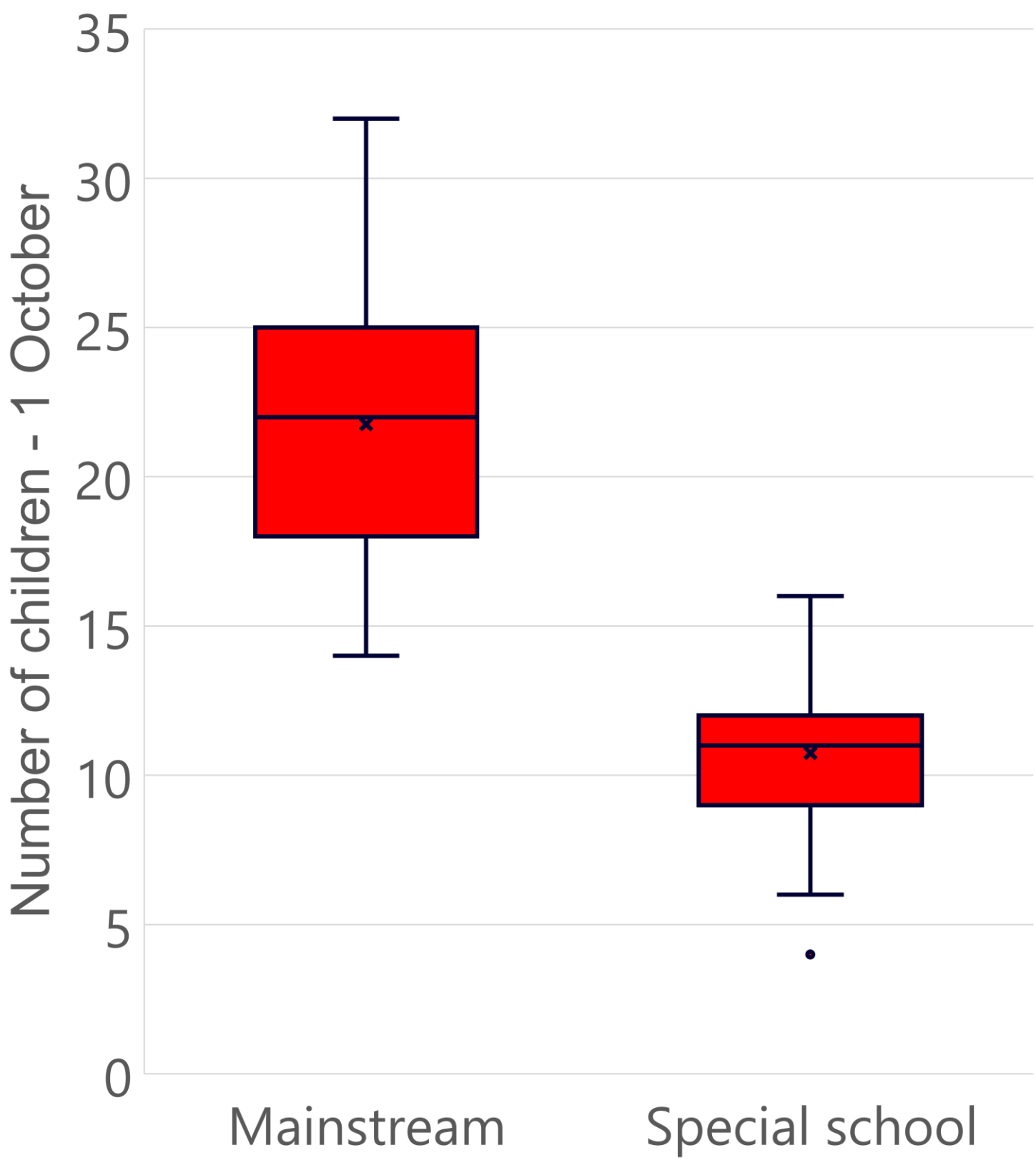
Boys	Girls
n = 141	n = 60

Language scores and non-verbal IQ of children on specials schools and mainstream schools

	Composite language score ^a (LC – EV – EMS) on T0			Composite difference score T1 – T0			Non-verbal IQ		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Special school	133	79.2	10.57	117	3.1	5.19	149	99	12.5
Mainstream school	23	83.1	11.80	15	4.4	2.54	44	103	14.9
Significance		n.s.			n.s.			n.s.	

^a Composite score of standardized tests:
• Schlichting language comprehension (LC)
• Schlichting expressive vocabulary (EV)
• Schlichting expressive morphosyntax (EM)

Number of children in classroom



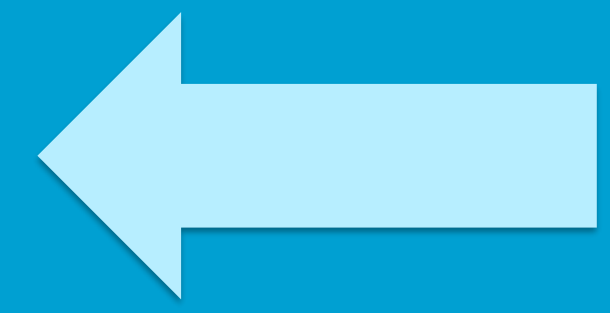
Speech and language therapy – service delivery

Number of minutes	Special education – SLT at school (n = 133) Number of children receiving these sessions		
	Individual	2-4 children	5-9 children
10	17	2	0
15	56	8	5
20	111	53	7
25	51	38	9
30	48	55	29
35	1	0	5
40	2	1	1
45	1	0	0
75	2	0	0

Number of minutes	Mainstream – SLT in private practice (n = 46) Number of children receiving these sessions		
	Individual	2-4 children	5-9 children
30	46	0	0

Speech and language therapy in special schools – minutes per week

	Individual (n = 130)	Group (n = 96)	Total (n = 133)
Mean	24	25	42
Median	23	13	31
St. dev.	10	29	28
Minimum	5	1	17
Maximum	68	147	176



Over de auteurs

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