

## Authors

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## Research Group Speech and Language Therapy

The Speech and Language Therapy research group aims to optimise social participation and communication of people living with communication disabilities, through development of knowledge and tools for multidisciplinary care.

## Background

- Speech and Language Therapists (SLTs) use the tool ENGAGE to set functional treatment goals together with parents of a young child with Language Disorder (LD).
- Parents evaluate a goal at the start and after treatment with ENGAGE's Likert-scale:



- To interpret parent reported change over time, it is necessary to determine the minimally important change (MIC) and the smallest detectable change (SDC) on the Likert-scale.

## Aim

To assess which changes scores reported by parents on ENGAGE's Likert-scale are clinically relevant.

## Method

- Prospective cohort study: SLTs used ENGAGE for goal setting and evaluation with parents.
- Goal evaluated with Likert scale at start of treatment (T1, n=124), after one week (T2, n=50) and after treatment period (T3, n=117).
- Parents reported real life change on T3 using an anchor question with 7-point Likert scale (1 = great improvement in real life – 7 = no improvement in real life).
- Study sample divided in two groups: children that improved importantly (score 1, 2, 3, 4 on anchor) and children that did not (score 5, 6, 7 on anchor).
- Calculation of Smallest Detectable Change (SDC; the smallest change score beyond measurement error) = mean change T1-T2 +/- 1,96 \* SD(change).
- Minimal Important Change (MIC; smallest change score which is truly relevant to the parents) calculated with Anchor based MIC distribution method.
- MIC = change score on Likert scale with smallest sum of false positive and false negative classifications ([1-sensitivity] + [1-specificity]) is smallest<sup>1</sup>



## Results

SDC: Mean change T2-T1 = 0.28 (SD = 0.86) -> SDC= -1.39 and 1.97.

MIC: ROC-cut off point of 1.5 point change on Likert scale ENGAGE leads to optimal values for sensitivity (0.92) and specificity (0.80).

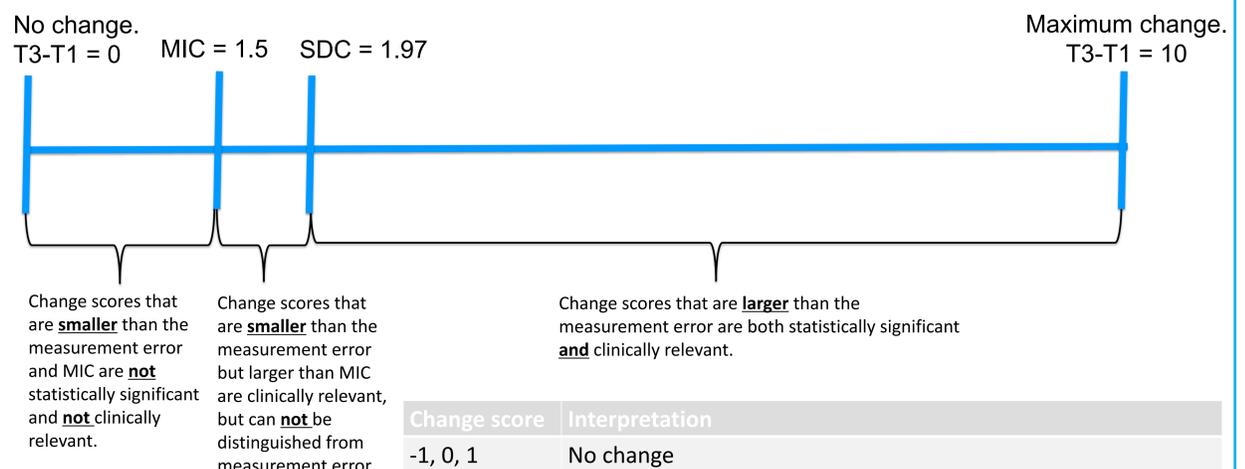
A MIC value for children that have significantly deteriorated could not be determined.

	N=117	Mean change score (SD change score)
1. Very much improved	6	4,2 (2,2)
2. Much improved	27	3,0 (1,6)
3. Moderately improved	55	2,8 (1,7)
4. Somewhat improved	17	1,9 (1,1)
5. Little improved	8	0,6 (1,1)
6. Very little improved	3	1,0 (1,0)
7. Not improved or deteriorated	1	-1,0 (n.a.)

Table 1. Mean change per category on Anchor question

Importantly improved (1, 2, 3, 4)	90	2,9 (1,7)
Not importantly improved (5, 6, 7)	27	1,5 (1,2)

Table 2. Mean change score for improved and not improved group



Change score	Interpretation
-1, 0, 1	No change
2	80% of the parents considers change to be clinically relevant
3 or more	90-100% of the parents considers change to be clinically relevant

Table 3. Interpretation Likert-scale ENGAGE

## Conclusions

- ENGAGE's Likert-scale has adequate responsiveness and interpretability for evaluating functional treatment goals with parents.
- MIC value of 2 points on the Likert scale distinguishes between children that have truly improved after a period of treatment according to their parents and children that have not.
- Change score of 1 or lower is not statistically significant, nor clinically relevant.



## Funding



## Reference

<sup>1</sup>De Vet, H.C.W., Terwee, C.B., Mokkink, L.B., Knol, D.L. (2011). *Measurement in Medicine. Practical guides to Biostatistics and Epidemiology.* Cambridge: Cambridge University Press.