

Outcomes Star™ Psychometric Factsheet: Little Star™

Dr Anna Good, Triangle Consulting

October 2023

Background

The Little Star is the version of the Outcomes Star for supporting children with motor impairments who are receiving Conductive Education and/or other therapies. It is designed to be completed by a worker who is offering professional support to the child, together with the child's parent(s) or primary carer(s). This version of the Star was developed by Triangle with the Dame Vera Lynn Children's Charity. Particular thanks goes to the conductors, therapists and service users for collaborating in the development and testing of the Little Star.

More information about the Little Star can be found on the Triangle website and in the [Development Report](#).

Method and analytic strategy

Routinely collected Little Star data entered onto the Star Online was analysed by Triangle to confirm the validity of the Little Star as an outcomes measurement tool. In total, 131 service users were included, 86 of whom had a second reading.

A full explanation of the analytic strategy is provided in the accompanying document – Outcomes Star Psychometric Factsheets: Overview.

Results

Does it make sense for the different outcome areas of the Star to be included in the same tool?

Factor Structure: The Kaiser-Meyer-Olkin value exceeded the recommended minimum value of 0.60 (Kaiser 1970, 1974) and a significant Bartlett's Test of Sphericity (Bartlett, 1954) supported the suitability of the data for factor analysis. This analysis yielded a unidimensional factor structure explaining 74.7% of the real-data variance.

Internal Consistency: Internal consistency was good (Cronbach's $\alpha = .93$).

Is each outcome area measuring a unique aspect of the service user's situation?

Item redundancy: Five of the 21 inter-item correlations just exceeded the 0.7 threshold, however during the development process practitioners felt it was important to include issues such as fine and gross motor skills as separate outcome areas (see Table 1).

Does the Star detect change occurring within a service?

Responsiveness to change: Wilcoxon Signed Rank Test comparing first and second Star readings revealed statistically significant change for all outcome areas. Between 41% and 56% of service users progressed in each area and the effect size was medium for all areas ($p < .001$, see Table 2). It should be noted that this sample included some service users who could not move forward (because they began at 5 on the individual outcome areas) and these analyses only looked at the change between the first and second Stars as the sample size for those with three or more Star readings was too small.

Conclusion

The results of these initial analyses are encouraging and suggest that the Little Star is a valid outcomes measurement tool, with a single underlying construct and responsiveness to change.

We are keen to examine consistency in understanding of the scales (inter-rater reliability) and the relationship between Star readings and other measures (convergent and predictive validity). Please contact us if you have Little Star data and would like to be involved in this research.

Further research

External research about the Star as an outcomes and keywork measure can be found on our website: <http://www.outcomesstar.org.uk/about-the-star/evidence-and-research/research-library/#all>

TABLE 1: Polychoric correlation matrix for outcome areas (N = 557)

	1	2	3	4	5	6
1. Gross motor skills						
2. Fine motor skills	.73					
3. Cognitive skills	.54	.61				
4. Communication	.53	.59	.74			
5. Social skills	.51	.51	.61	.63		
6. Self-care skills	.68	.70	.70	.70	.65	
7. Emotional well-being	.49	.52	.53	.53	.64	.58

TABLE 2: Responsiveness of the Little Star

Scale	Time 1 Median	Time 2 Median	Wilcoxon statistic Z	Effect size ¹ r	% readings improved
1. Gross motor skills	3.00	3.50	-5.653***	0.43	45%
2. Fine motor skills	3.00	3.00	-5.722***	0.44	49%
3. Cognitive skills	2.00	3.00	-5.962***	0.45	49%
4. Communication	2.00	3.00	-6.163***	0.47	56%
5. Social skills	2.00	3.00	-4.781***	0.36	45%
6. Self-care skills	2.00	3.00	-5.164***	0.39	41%
7. Emotional well-being	3.00	3.00	-5.177***	0.39	50%

¹ Cohen (1988) provided rules of thumb for interpreting these effect sizes, suggesting that an *r* of .1 represents a 'small' effect size, .3 represents a 'medium' effect size and .5 represents a 'large' effect size

References

- Bartlett, M. S. (1954). A note on the multiplying factors for various χ^2 approximations. *Journal of the Royal Statistical Society. Series B (Methodological)*, 296-298.
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