

## Outcomes Star™ Psychometric Factsheet: Teen Star™

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### Background

The Teen Star was designed for use with young people specifically in substance misuse services although it can be used in other settings where young people have complex needs. It was developed by Triangle with a group of Camden service providers, including Forward, Alcohol Recovery Project and Youth Offending Service.

More information about the Teen Star can be found in the Organisation Guide (Burns & MacKeith, 2017) and the overall principles behind the development of all versions of the Outcomes Star are described in MacKeith (2011).

### Method and analytic strategy

Teen Star data routinely entered onto the Star Online was analysed by Triangle to test the Star's validity as an outcomes measurement tool. These psychometric tests were conducted using anonymised data ( $N=164$ ) collected by a social enterprise providing social care services for children and young people needing support and protection. The average time between readings was 99 days.

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. The analysis yielded a unidimensional factor structure explaining 60% of the variance in the data.

**Internal Consistency** Internal consistency was good (Cronbach's  $\alpha = .73$ ).

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

**Item redundancy:** No inter-item correlation exceeded the 0.7 threshold, suggesting no redundancy between areas (see Table 1).

### *Does the Star detect change occurring within a service?*

**Responsiveness to change:** The Wilcoxon Signed Rank Test revealed a statistically significant increase in all outcome areas (see Table 2), with medium effect sizes for five out of six areas and a small-medium effect size for Structure and education.

Averaged across outcome areas, 34% of service users began at the highest point of the Journey of Change and were therefore excluded when assessing responsiveness.

### Conclusions

The results of these initial analyses are encouraging and suggest that the Teen Star is a valid outcomes measurement tool, with internal consistency, a unidimensional factor structure and good responsiveness. Research is planned to examine inter-rater reliability and the relationship between Star readings and other measures (convergent and predictive validity).

### Additional research

External research about the Star as an outcomes and keyword 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 =164)**

	1	2	3	4	5
1 Drugs and alcohol					
2 Well-being	.42				
3 Safety and security	.55	.36			
4 Structure and education	.32	.45	.38		
5 Behaviour and citizenship	.39	.21	.62	.37	
6 Family and other key adults	.29	.47	.41	.37	.21

**Table 2. Responsiveness of the Teen Star (N =164)**

	First Star median	Final Star median	Z	Effect size $r^1$	$n^2$
Drugs and alcohol	4.00	5.00	-6.10***	0.44	98
Well-being	4.00	4.00	-5.75***	0.38	112
Safety and security	4.00	4.00	-5.34***	0.35	115
Structure and education	4.00	4.00	-4.54***	0.29	126
Behaviour and citizenship	4.00	4.00	-5.89***	0.36	136
Family and other key adults	4.00	4.50	-4.35***	0.32	92

\*\*\* $p < .001$

<sup>1</sup>Cohen 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

<sup>2</sup>Averaged across outcome areas, 34% of service users began at the highest point of the Journey of change. These service users could not move forward and were therefore excluded when assessing responsiveness

## References

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

Burns, S. & MacKeith, J. (2017) The Teen Star Organisation Guide. Brighton: Triangle Consulting

Kaiser, H.F. (1970). A second generation little jiffy. *Psychometrika*, Vol. 35, pp. 401-15.

Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, Vol. 39, pp. 31-6.

MacKeith, J., (2014). Assessing the reliability of the Outcomes Star in research and practice. *Housing, Care and Support*, 17(4), 188-197.