

Outcomes Star™ Psychometric Factsheet: Alcohol Star™

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Background

The Alcohol Star is designed for supporting people who have a drinking problem or are taking drugs when this is a problem alongside drinking. It was developed by Triangle alongside Alcohol Concern and was piloted by over 40 Alcohol services over a 9-month period. More information about the Alcohol 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

Alcohol Star data routinely collected and 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 ($N = 937$) collected by a UK charity supporting people recovering from addictions. The average time between 1st and 2nd Star readings was 200 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 58% of the variance in the data. There was a very small negative relationship between readings for drug and alcohol use, presumably because some service users were less likely to use one if they were using the other.

Internal Consistency Internal consistency was good (Cronbach's $\alpha = .75$) and would not be increased if any items were deleted.

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 large effect sizes for two areas (Emotional health and Offending) and medium effects for the remaining eight areas.

Averaged across outcome areas, 34% began at the highest point on the Journey of Change. Since these service users could not move forward, they were excluded when analysing responsiveness.

Conclusions

The results of these initial analyses are encouraging and suggest that the Alcohol Star is a valid outcomes measurement tool, with a unidimensional factor structure, internal consistency 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 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 =937)

	1	2	3	4	5	6	7	8	9
1 Alcohol									
2 Physical health	.33								
3 Use of time	.37	.50							
4 Social networks	.28	.43	.59						
5 Drug use	-.10	.14	.26	.26					
6 Emotional health	.42	.46	.58	.50	.22				
7 Offending	.21	.13	.30	.23	.30	.21			
8 Accommodation	.16	.24	.38	.35	.24	.36	.37		
9 Money	.19	.34	.48	.46	.32	.32	.32	.57	
10 Family and relationships	.30	.33	.42	.48	.31	.31	.31	.45	.48

Table 2. Responsiveness of the Alcohol Star

	First Star median	Final Star median	Z	Effect size r^2	n^2
Alcohol	7.00	9.00	-13.15***	0.46	416
Physical health	7.00	8.00	-15.58***	0.39	781
Use of time	7.00	8.00	-16.83***	0.43	775
Social networks	7.00	8.00	-15.60***	0.40	754
Drug use	7.00	8.00	-15.18***	0.42	657
Emotional health	7.00	8.00	-20.95***	0.51	836
Offending	8.00	10.00	-10.21***	0.58	157
Accommodation	7.00	9.00	-11.96***	0.42	398
Money	8.00	9.00	-14.70***	0.39	703
Family and relationships	7.00	9.00	-16.18***	0.44	681

*** $p < .001$

¹ 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

² Averaged across the 10 outcome areas, 34% began at the highest point on the Journey of change and so could not move forward. These service users were excluded when analysing responsiveness.

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.

Burns, S. & MacKeith, J. (2017) The Alcohol 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.