

Outcomes Star™ Psychometric Factsheet: Change Star™

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Background

The Change Star was published in 2020 for use with men who are participating in a behaviour change program or other service for perpetrators of domestic abuse – men who use or have used violence against female partners. The overall aim of the Change Star is to keep women and children safe, so the emphasis is on how men can become safer for their partners and children to be around. This version of the Outcomes Star was developed by Triangle in collaboration with UnitingCare Queensland, a health and community services provider across Queensland and the Northern Territory in Australia.

More information about the development of the Change Star can be found in the [Development report](#) (MacKeith, Burns, Good & Greaves, 2020) and the overall principles behind the development of all versions of the Outcomes Star are described in MacKeith (2011).

Method and analytic strategy

This validation on the published version follows the initial validation of the pilot version, which is included in the Development Report.

Change Star data routinely collected and entered onto the Star Online by eight organisations was anonymised and then analysed by Triangle to test the Star's validity as an outcomes measurement tool. In total, 313 service users with at least one review Star reading were included.

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: All inter-items correlations were above .30, 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 79% of the variance in the data.

Internal Consistency Internal consistency was very good (Cronbach's $\alpha = .92$).

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

Item redundancy: Nine of the fifteen inter-item correlations were within the 0.7 threshold, suggesting no redundancy between these areas (see Table 1). Four correlations were slightly over the threshold, which is likely to be due to service users commonly beginning with readings of 2 or 3 – across outcome areas, between 55% and 71% of service users were at 2 or 3 for their first reading.

Does the Star detect change occurring within a service?

Responsiveness to change: The Wilcoxon Signed Rank Test revealed a statistically significant increase and a medium-large or large effect size in all outcome areas (see Table 2).

Conclusions

The results of these initial analyses were encouraging and suggest that the Change Star is a responsive unidimensional outcomes measurement tool.

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. Correlation matrix for outcome areas

	1	2	3	4	5	6
1 Taking responsibility	-					
2 Thinking and attitudes	.73					
3 Safe actions and reactions	.69	.71				
4 Communication	.74	.70	.76			
5 Being a good father	.62	.63	.69	.59		
6 Your well-being	.60	.56	.65	.62	.60	

Table 2. Responsiveness of the Change Star

	First Star median	Final Star median	Z	Effect size r^1
Taking responsibility	3.00	4.00	-12.58***	0.50
Thinking and attitudes	3.00	4.00	-12.85***	0.51
Safe actions and reactions	3.00	4.00	-13.14***	0.53
Communication	2.00	4.00	-12.72***	0.51
Being a good father	3.00	4.00	-11.36***	0.45
Your well-being	3.00	4.00	-11.87***	0.47

*** $p < .001$

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

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.

Good, A., & MacKeith, J. (2021). Psychometric validation of the Homelessness Star. *Journal of Social Distress and Homelessness*, 1-10.

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.

MacKeith, J., Burns, S., Good, A. & Greaves, S. (2020) [The Change Star Development Report](#), Brighton: Triangle Consulting.