

## Outcomes Star™ Psychometric Factsheet: Homelessness Star™

*Author: Dr Anna Good; Triangle Consulting Social Enterprise Ltd*

### Background

The Homelessness Star was the first Outcomes Star to be published. The initial prototype was developed in 2003 by Triangle with St Mungo's as part of the London Housing Foundation's Impact through Outcomes programme. The concept was then tested and further developed in a range of other services in London and in Rochdale leading to the publication of the first edition of the Outcomes Star in 2006. Although it was specifically developed for homelessness services, this version is widely used as a generic complex needs tool as well.

More information about the development of the Homelessness Star can be found in the organisation guide (Burns, MacKeith & Graham, 2014) and the overall principles behind the development of all versions of the Outcomes Star are described in MacKeith (2011).

### Method and analytic strategy

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

With the exception of convergent validity, these psychometric tests were conducted using anonymised data ( $N = 1896$ ) collected by a UK charity supporting young people aged 16-25 who are homeless or at risk of homelessness, offering supported accommodation and other prevention, accommodation and support services. In total, 1896 service users with at least one review Star reading were included.

The predictive validity of the Homelessness Star was examined using data collected in pilots aimed at better coordinating existing local services for people facing multiple needs. Service users with a combination of problems such as homelessness, substance misuse, mental health problems and offending, completed the New Directions Team (NDT) assessment ('Chaos index'), the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) and the Homelessness Star as well as specific questions about drug and alcohol consumption at the start and end of the programme. The average time between the initial and final measurements was 9 months.

### 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 60% of the variance in the data.

**Internal Consistency** Internal consistency was very good (Cronbach's  $\alpha = .91$ ).

***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 and medium effect sizes in all outcome areas (see Table 2).

***Does the Star predict other outcomes?***

**Predictive validity:** There were a number of significant correlations between initial Star readings and measures taken at the end of the programme including the NDT assessment (higher scores indicate greater problems) and WEMWBS (higher scores indicate greater wellbeing). The Drug and alcohol misuse scale was negatively correlated with self-reported alcohol consumption, ( $r(47) = -.53, p = .005$ ), with lower readings on the Star associated with a greater number of units consumed.

The Social networks and relationships scale was negatively correlated with the NDT assessment Social effectiveness scale ( $r(32) = -.50, p = .003$ ). The Emotional and mental health scale was negatively correlated with two scales on the NDT assessment: Intentional self-harm, ( $r(31) = -.37, p = .042$ ) and Stress and anxiety, ( $r(31) = -.42, p = .019$ ). Readings on this area of the Star were also positively correlated with the WEMWBS, ( $r(29) = .47, p = .011$ ).

**Conclusions**

The results of these initial analyses are encouraging and suggest that the Homelessness Star is a responsive unidimensional outcomes measurement tool. The change was small in some areas - but many individuals were entering the service without a need in these areas and keyworkers are likely to become more informed about drug misuse and offending over time, which can cause a decrease in readings between Stars.

Research is planned to examine consistency in understanding of the scales (inter-rater reliability) and the relationship between Star readings and future outcomes (predictive validity).

**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. Correlation matrix for outcome areas**

	1	2	3	4	5	6	7	8	9
1 Motivation and taking responsibility									

2 Self-care and living skills	.65								
3 Managing money & personal administration	.59	.58							
4 Social networks and relationships	.59	.56	.51						
5 Drug and alcohol misuse	.39	.40	.44	.38					
6 Physical health	.56	.58	.50	.55	.40				
7 Emotional and mental health	.54	.46	.49	.56	.43	.54			
8 Meaningful use of time	.64	.54	.54	.52	.45	.53	.53		
9 Managing tenancy and accommodation	.54	.57	.64	.48	.44	.51	.48	.58	
10 Offending	.37	.39	.38	.36	.58	.35	.34	.42	.40

**Table 2. Responsiveness of the Homelessness Star**

	First Star median	Final Star median	Z	Effect size $r^2$	$n^2$
Motivation and taking responsibility	6.00	7.00	-15.54***	0.26	1767
Self-care and living skills	7.00	8.00	-12.48***	0.22	1591
Managing money & personal administration	6.00	7.00	-14.31***	0.24	1791
Social networks and relationships	6.00	7.00	-16.13***	0.28	1628
Drug and alcohol misuse	6.00	8.00	-10.83***	0.25	946
Physical health	7.00	7.00	-13.31***	0.24	1578
Emotional and mental health	6.00	7.00	-12.54***	0.22	1603
Meaningful use of time	6.00	7.00	-13.96***	0.24	1695
Managing tenancy and accommodation	6.00	7.00	-14.77***	0.25	1792
Offending	7.00	9.00	-10.94***	0.19	699

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

<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> Service users beginning at 10 were excluded when assessing responsiveness because they could not move forward.

## 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.

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