Outcomes Star™ Psychometric Factsheet: Student Star™

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Background

The Student Star was developed by Triangle with Ruskin Mill Trust for young people with additional needs in colleges or other supported work and learning environments. It is suitable for students with a range of needs, including autism, learning disabilities or behavioural needs.

More information about the Student Star can be found in the User 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

Student 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 443 1st and 283 2nd anonymised Star readings collected by a UK County council. The average time between 1st and 2nd Star readings was 136 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 71% of the variance in the data.

Internal Consistency Internal consistency was very good (Cronbach's α =.85).

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 Wilcoxen Signed Rank Test revealed a statistically significant increase in all outcome areas (see Table 2), with medium effect sizes for six areas and small-medium effects for three areas (Physical health, Friends and relationships and Social responsibility). When service users beginning at 10 in these three areas were excluded (who could not move forward), these became medium effect sizes (Physical health: r = .33, Friends and relationships: r = .38, Social responsibility: r = .33).

Conclusions

The results of these initial analyses are encouraging and suggest that the Student Star is a valid outcomes measurement tool, with a unidimensional factor structure, internal consistency and responsiveness to change. 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* =443)

	1	2	3	4	5	6	7	8
1 Practical skills								
2 Communication and social skills	.40							
3 Learning skills	.36	.43						
4 Physical health	.35	.38	.43					
5 Living skills	.40	.36	.41	.46				
6 Friends and relationships	.34	.56	.42	.43	.41			
7 Well-being	.30	.46	.45	.46	.37	.52		
8 Social responsibility	.34	.35	.43	.41	.47	.39	.42	
9 Work readiness	.41	.41	.36	.41	.40	.45	.48	.41

Table 2. Responsiveness of the Student Star (*N* =283)

	First Star median	**Final Star median**	***Z***	***Effect size r*[1]**
Practical skills	8.00	8.00	-7.58***	0.32
Communication and social skills	7.00	8.00	-7.40***	0.31
Learning skills	7.00	8.00	-7.92***	0.33
Physical health	7.00	8.00	-5.23***	0.22[2]
Living skills	8.00	8.00	-7.41***	0.31
Friends and relationships	8.00	8.00	-6.17***	0.26[2]
Well-being	7.00	8.00	-8.70***	0.37
Social responsibility	8.00	9.00	-5.09***	0.21[2]
Work readiness	7.00	8.00	-7.84***	0.33

****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] When service users beginning at 10 in these areas were excluded, these became medium effect sizes (Physical health: *r* = .33, Friends and relationships: *r* = .38, Social responsibility: *r* = .33)

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