

Authors' response

Reliability of instruments and magnitude of the effect for Mann-Whitney U test on Psychological health of young children with Acute Lymphoblastic Leukaemia

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Dear Sir

At the outset, we appreciate the respondent's diligence in going through our paper and earnest critique to enhance the study's quality. The critique was primarily focused on a tool utilized in the study, namely the Strengths and Difficulties Questionnaire (SDQ) [1]. This included the failure to report the psychometric properties of SDQ, and suggestion to estimate effect size for findings on SDQ. Our response is presented under these headings.

1. Failure to report psychometric properties of SDQ

Our misguided presumption regarding the popularity and acclaim of SDQ as a well-established tool in mental health research and practice precluded us from reporting the psychometric properties. We now acknowledge our folly and accept the respondent's critique. In response, we seek to offer a few references of studies that document the psychometric properties of the SDQ. This is limited to parental report regarding young children's mental health.

Reviews [2, 3] on SDQ have reported relatively good internal consistency for the tool with weighted average Cronbach's alpha around 0.80 for the total difficulties scale. Across subscales, internal consistency estimates have ranged from 0.49 to 0.76. Construct validity was established, with most studies adhering to the 5-factor structure, with satisfactory factor

loadings (≥ 0.40 - ≤ 0.70) [3]. Concurrent validity with other established tools such as the Child Behavior Checklist (weighted correlation coefficients ranging from 0.52-0.76 across subscales) [3] was satisfactory. Additionally, a recent study [4] reported Cronbach's alpha values ranging from 0.73 to 0.88 for mothers' reports in a non-clinical sample of 3 to 5-year-olds ($n = 17,752$), reflecting adequate reliability.

We accept the respondent's suggestion of providing confidence interval estimates. The mean, standard deviation, median, interquartile range, and confidence interval estimates are as under:

SDQ Domain Group & Statistic		Total Difficulties	Emotional Problems	Conduct Problems	Hyperactivity	Peer Problems	Pro-Social
Healthy	Mean	5.25	1.35	0.85	2.65	0.40	8.00
	SD	3.14	1.34	0.99	2.13	0.75	1.72
	Median	5.50	1.50	0.50	2.00	0.00	8.50
	IR [#]	4.00	2.00	2.00	4.00	1.00	4.00
	CI: LB-UB	3.78-11.29	0.72-3.29	0.39-1.31	1.65-3.65	0.05-0.75	7.20-8.80
ALL	Mean	9.20	2.25	2.05	3.00	1.80	7.50
	SD	4.47	2.22	1.36	2.62	1.61	2.07
	Median	9.00	2.00	2.00	2.50	1.50	7.00
	IR [#]	7.00	4.00	2.00	4.00	3.00	3.00
	CI: LB-UB	7.11-11.29	1.21-3.29	1.42-2.68	1.78-4.22	1.05-2.55	6.53-8.47

[#]Interquartile range

We were unable to locate any published research in India using a parental report on SDQ for young children, which contained confidence interval estimates; for purposes of comparison.

2. Reporting of effect size

We agree with the respondent's assertion that effect size estimation adds to the practical significance of the results. In this regard, the proposed Glass Rank-Biserial Correlation Coefficient is deemed appropriate. We additionally thank the respondent for taking the effort to calculate the effect size. Thus, the revised table from the original manuscript [5], incorporating the effect size is as under:

SDQ Domain	Group [#]	Median [§]	Range		Mean Rank	U (p-value)	r _{bis}
			Min	Max			
Total Difficulties	Healthy	5.50	0.00	12.00	15.38	97.50** (0.005)	0.512
	ALL	9.00	0.00	18.00	25.63		
Emotional Problems	Healthy	1.50	0.00	4.00	18.38	157.50 (0.253)	0.212
	ALL	2.00	0.00	7.00	22.63		
Conduct Problems	Healthy	0.50	0.00	3.00	15.38	97.50** (0.005)	0.512
	ALL	2.00	0.00	5.00	25.63		
Hyperactivity	Healthy	2.00	0.00	6.00	20.10	192.00 (0.841)	0.04
	ALL	2.50	0.00	8.00	20.90		
Peer Problems	Healthy	0.00	0.00	2.00	14.93	88.50** (0.002)	0.557
	ALL	1.50	0.00	5.00	26.08		
Pro-Social	Healthy	8.50	5.00	10.00	21.58	178.50 (0.565)	0.107
	ALL	7.00	2.00	10.00	19.43		

**p≤0.01; [#]Sample number in each group = 20

[§]Close to Average scores – total difficulties: 0-13, emotional problems: 0-3, conduct problems: 0-2, hyperactivity: 0-5, peer problems: 0-2, pro-social: 8-10

The effect size for the three significant domains, namely, total difficulties, conduct problems, and peer problems are ≥ 0.50 , suggesting a large effect. This suggests that children with ALL do demonstrate greater problem behaviors, specifically in conduct and peer issues, in comparison to healthy peers. It is however, to be noted that the median score on these domains falls within the ‘close to average’ range. Put together, these results suggest that while children with ALL demonstrate more difficulties, conduct, and peer problems vis-à-vis healthy peers, their behaviors are not reflective of syndromal disturbances. Nonetheless, the large effect size certainly implicates a need for intervention for children with ALL, towards facilitating normalization in their current context.

Conflict of interest: None declared

References

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