

# Assessing the neuropsychological implications of cerebral palsy in children and their families compared to the general population

**Authors:** Al-Kindi, Q.<sup>2</sup>, Howse, C.2 & Tucker, P.<sup>1,2</sup>  
**Affiliations:** Recolo UK Ltd <sup>1</sup>; University of Bristol UK<sup>2</sup>

## BACKGROUND:

Cerebral Palsy (CP) is a common, heterogeneous condition that has significant physical and cognitive impact on those diagnosed (Rosenbaum et al., 2007). However, limited research has explored the psychological and emotional consequence of this condition (McMahon et al., 2020).

## AIMS TO ASK:

The project aimed to investigate the differences in child anxiety, parental anxiety and participation between children with CP and typically developing children (TDC). It also investigated the relationship between child anxiety and parental anxiety and whether functional ability mediated this. Lastly, it investigated whether anxiety mediated the relationship between functional ability and participation.

## METHODS:

**Participants:** Online questionnaires completed by 36 parents of TDC (n=17) or of children diagnosed with CP (n=19) aged between 5-17 years and residing in the UK. **Questionnaires:** Pediatric Quality of Life Inventory CP module, Child and Adolescent Scale of Participation, Spence Children's Anxiety Scale-Parent version, and Beck Anxiety Inventory. **Statistical analysis:** Mann-Whitney u test, linear regression, Spearman's correlation and simple mediation with bootstrapping.

Figure 2: Mediation of parent anxiety in child function and anxiety.

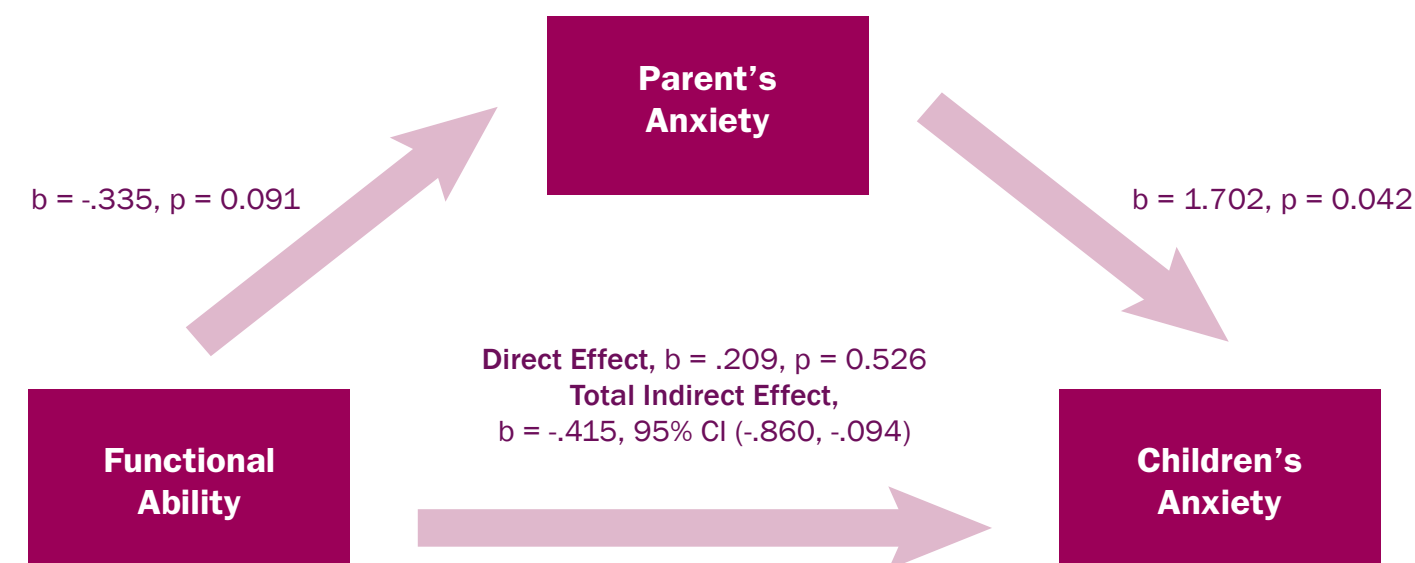
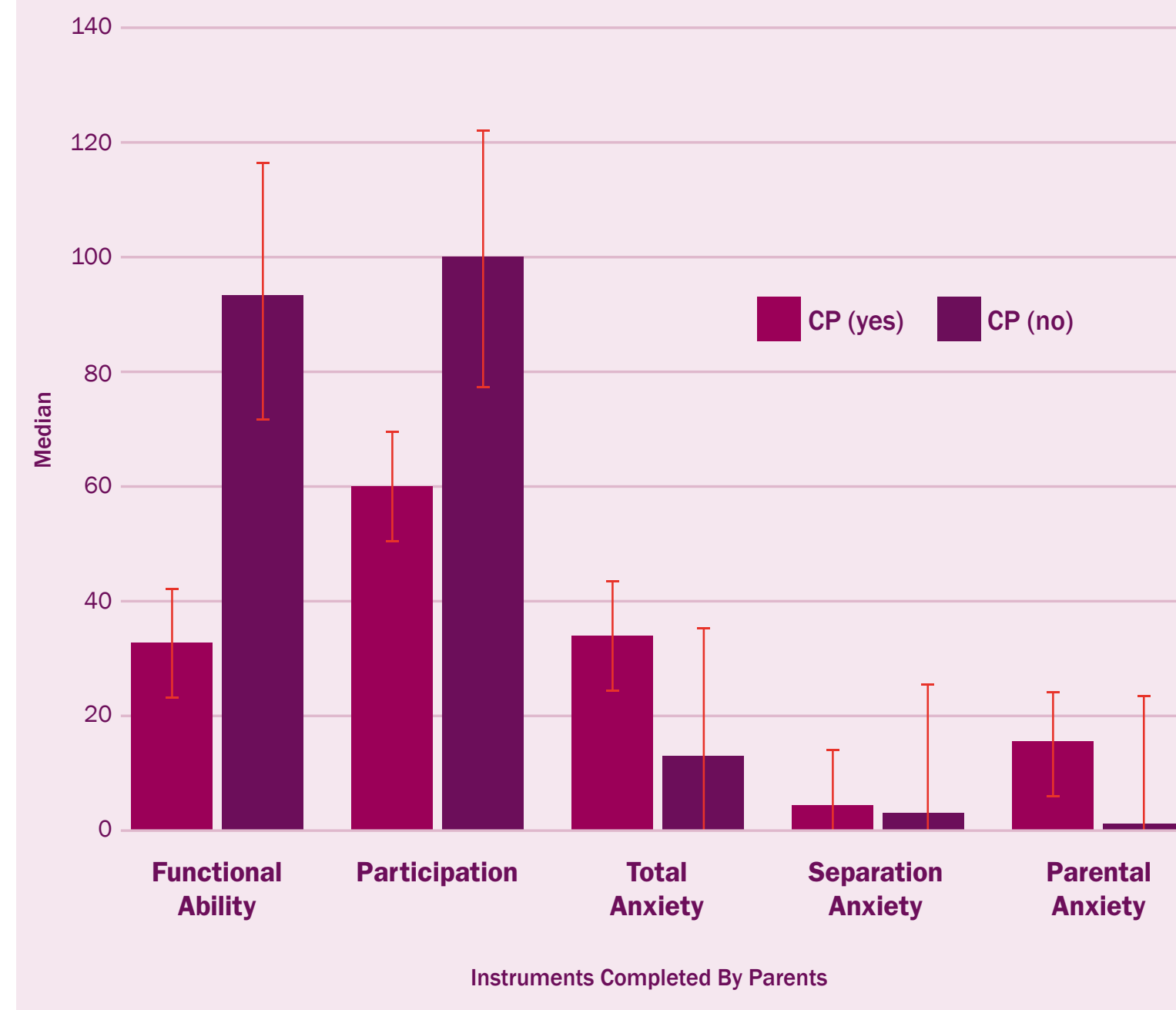


Figure 1: Score comparisons from parents of children with and without CP.



## RECOMMENDATIONS:

These results provide an insight into some key neuropsychological constructs that should be considered by clinicians working with children with CP.

For instance, by demonstrating the potential impact of parental anxiety on the child's presentation.

Additionally, by highlighting participation as a key construct for consideration by clinicians in neurorehabilitation assessments.



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## RESULTS:

Parent rated child anxiety was not significantly different between children with CP (Mdn=34) and TDC (Mdn=14),  $U=78.50$ ,  $z=-2.66$ ,  $p=.107$ , but parental anxiety scores were significantly higher in CP (Mdn=15) than TDC (Mdn=1),  $U=78.50$ ,  $z=-2.66$ ,  $p=.007$  (Figure 1).

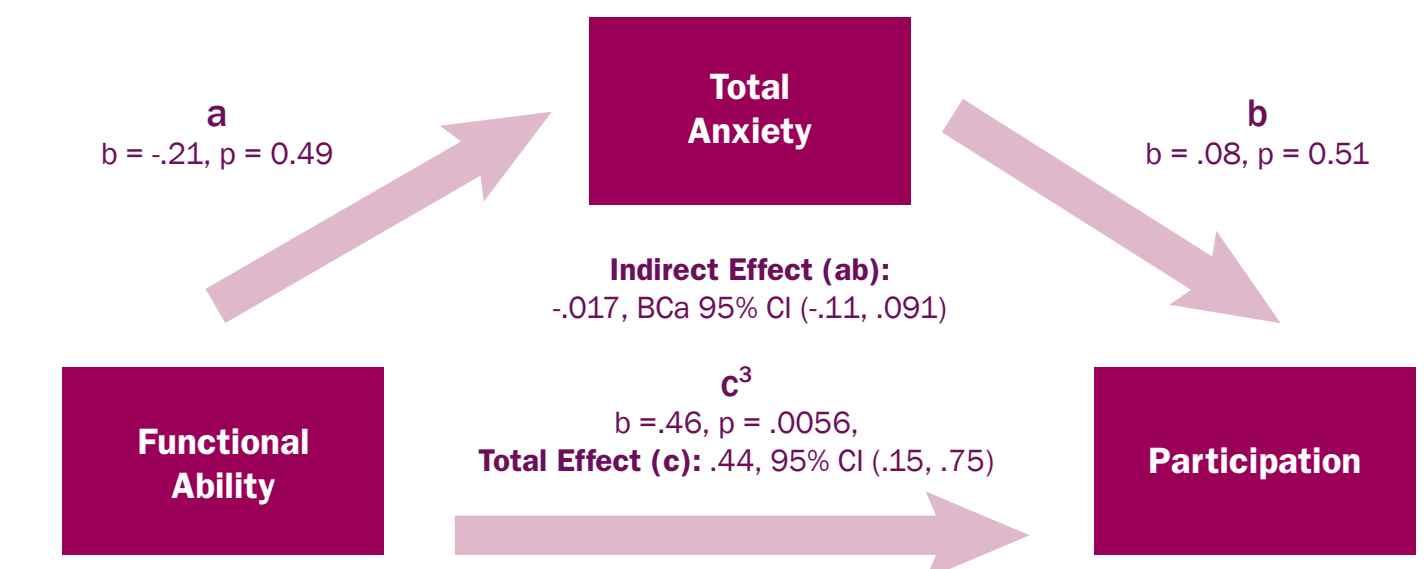
Children with CP (mean rank=10.24) were rated with significantly lower participation than TDC (mean rank=27.74),  $U=318.50$ ,  $z=5.03$ ,  $p<.001$  (Figure 1).

Correlation was significant between measures of child and parental anxiety  $r(17)=.486$ ,  $p<0.001$ , but not between children's anxiety and functional ability  $r(17)=-.169$ ,  $p=0.489$ .

Parental anxiety partially and indirectly mediated the association between child anxiety and functional ability  $\beta=-.42$ , 95% CI[-.86, -.09] (Figure 2).

Functional ability significantly predicted participation scores  $F(1,17)=10.06$ ,  $p=.006$ , 95% CI[.149, .739]. Child anxiety did not mediate the relationship between functional ability and participation  $BCa$  95% CI[-.11, .09] (Figure 3).

Figure 3: Direct effect of function on participation.



## References:

McMahon, J., Harvey, A., Reid, S., May, T. & Antolovich, G. (2020). Anxiety in children and adolescents with cerebral palsy. *Journal of Paediatrics & Child Health*, 56 (8), 1194-1200. doi: 10.1111/jpc.14879  
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