



# Nigerian young people from parentally deprived backgrounds show enhanced working memory capacity

By Dr. Jessica Edwards

Early adverse rearing can impair cognitive functions in all domains.<sup>1</sup> However, those who take an evolutionary–developmental stance propose that there could be adaptive benefits associated with early adverse rearing.<sup>2,3</sup> One example might be that being raised in an abusive or violent environment might improve threat detection.<sup>4</sup> To probe this important paradigm further, Tochukwu Nweze and colleagues studied the executive functioning of 53 parentally deprived young people in Nigeria who lived in institutions (12 participants) or in foster care (41 participants).

To assess domain-specific alterations in executive functioning, the researchers used a battery of executive function tasks that measured set-shifting, inhibition, and working memory. They compared their findings to 51 non-deprived young people who lived with their biological parents. “We found that non-deprived children did not perform significantly better than deprived children in terms of set-shifting or inhibition”, says Nweze. “On the contrary, deprived children in our sample performed significantly better than non-deprived children in the digit span task that assesses working memory capacity: here, the effect sizes were greater than 1”.

Nweze *et al.* believe that their findings support an adaptation model that assumes that early deprivation might not generally impair cognitive functions but can even enhance it under some conditions in some domains.<sup>2</sup> “We interpret the enhanced working memory ability of the deprived group as a correlate of its ecological relevance”, explains Nweze. “In Nigeria, underprivileged children may need to rely to a larger extent on working memory ability to attain success through academic work. Given the relatively fewer opportunities for social mobility in Nigeria, guardians and teachers constantly remind children from deprived backgrounds that academic hard work could provide them with an escape route from poverty — it is likely that this message resonated with the deprived children in our sample.” However, the researchers also accept that any benefits are likely to be subtle in comparison to the considerable costs of parental deprivation.

A limitation of this study is that adversity was not measured but was assumed based on living in foster care or institutions rather than with parents. Further research which accurately measures adversity is now needed to investigate whether these findings replicate. Going forward, Nweze *et al.* propose that researchers and clinicians rethink their approach to intervention following adversity. “The damage control approach that has been advanced over the decades, has dismissed enhanced performance in deprived groups as a compensatory mechanism”, describes Nweze. “Rather, we believe that emphasis should be placed on maximizing the strengths and talents of children from deprived backgrounds”.

### Referring to:

Nweze, T., Nwoke, M.B., Nwifo, J.L., Aniekwu, R.I. & Lange, F. (2020), *Working for the future: parentally deprived Nigerian Children have enhanced working memory ability*. *J. Child Psychol. Psychiatr.* doi: 10.1111/jcpp.13241.

### References:

<sup>1</sup>Merz, E.C *et al.* (2016), *Executive function in previously institutionalized children*. *Child Dev. Perspect.* 10: 105-110. doi: 10.1111/cdep.12170.

<sup>2</sup>Ellis, B.J. *et al.* (2017), *Beyond risk and protective factors: An adaptation based approach to resilience*. *Perspect. Psychol. Sci.* 12: 561-587. doi: 10.1177/1745691617693054.

<sup>3</sup>Frankenhuis, W. E., & De Weerth, C. (2013). *Does Early-Life Exposure to Stress Shape or Impair Cognition?* *Current Directions in Psychological Science*, 22(5), 407-412. doi:10.1177/0963721413484324

<sup>4</sup>Mittal, C. *et al.* (2015), *Cognitive adaptations to stressful environments: When childhood adversity enhances adult executive function*. *J. Pers. Soc. Psychol.* 109: 604-621. doi: 10.1037/pspi000028.

### Glossary:

**Executive function:** a set of complex cognitive processes – including working memory, inhibition, and set shifting – that are necessary for adaptive, goal-directed behaviour.

**Working memory:** the process of holding information in mind and mentally working with it.

**Inhibition:** the process of suppressing impulses or habits.

**Set shifting:** the process of switching between perspectives or tasks.