



THE IMPACT OF CHILD MALTREATMENT ON NEUROPSYCHOLOGICAL FUNCTION AND ITS CORRELATES ON AGGRESSIVE BEHAVIOUR

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INTRODUCTION

Child maltreatment, in its various forms (psychological, physical, neglect, sexual abuse, witnessing domestic violence, etc.) is a health public problem that affects 250 millions of children in the world each year. It has a deleterious effect on brain development which could have long-term consequences for cognitive performance. It also contribute to increased anger and aggressiveness, lower self-esteem and higher levels of psychopathology with a range of emotional and behavioural problems in childhood and across the life span.

AIM

1. To investigate the effects of maltreatment on neuropsychological function, specially on executive functioning, processing speed and inhibition capacity. 2. To explore the relationship between maltreatment and conflict difficulties across different contexts (friendships, parental and school relationships), analyzing the justification of different types of interpersonal aggression.

METHOD

Instruments

BAS-C Behaviour Assessment System for Children

(Reynolds *et al* 1952)

CAMA Questionnaire on Moral Attitudes towards Aggression

(Ramírez 1985)

ENFEN Assessment of Executive Functions to Children

(Portellano *et al* 2009)

RPQ Reactive and Proactive Aggression Questionnaire

(Raine *et al* 2006)

Subjects

145 children aged 7-14 (M=10,05; SD=1.65). Maltreated group: 72 children (47% girls, 53% boys) collected from public university hospitals. Control group: 73 (52% girls, 48% boys) recruited from public schools.

	Total sample	Spain		Uruguay		Spain + Uruguay	
		Maltreated	Non-maltreated	Maltreated	Non-maltreated	Maltreated	Non-maltreated
Age	10.05	8.75	10.39	10.20	10.65	9.56	10.53
SD	1.65	1.48	1.60	1.70	1.21	1.75	1.40
Oldest	7	7	8	8	8	14	14
Youngest	14	11	12	14	14	7	8
Female %	0.50	0.38	0.52	0.55	0.53	0.47	0.52
SD	0.50	0.49	0.51	0.50	0.51	0.50	0.50
Min	0	0	0	0	0	0	0
Max	1	1	1	1	1	1	1
Observations	145	32	33	40	40	72	73

RESULTS

- Maltreated children showed lower neuropsychological performance, especially younger children ($p < 0.01$)
- Maltreated group reported significant level of course retention ($p < 0.01$) and more behavioural disorders, especially boys ($p < 0.05$)
- Maltreated boys showed higher justification of physical aggression ($p < 0.01$)
- Boys tended to use more reactive and proactive aggression than girls did ($p < 0.05$), especially, younger ones ($p < 0.1$)

Neuropsychological performance						
ENFEN Test						
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Fonetic fluence	Semantic fluence	Trail-making grey	Trail-making colours	Towers	Interference-Inhibition
Maltreated	-2.021***	-2.008***	-4.960***	-3.764***	17.913	-7.307*
s.e.	[0.687]	[0.712]	[1.873]	[0.908]	[26.587]	[4.197]
p-value	(0.004)	(0.006)	(0.009)	(0.000)	(0.502)	(0.085)
Female	-0.157	-1.735**	-1.718	0.028	-6.860	-1.452
s.e.	[0.564]	[0.694]	[1.500]	[0.792]	[16.440]	[3.694]
p-value	(0.782)	(0.014)	(0.255)	(0.972)	(0.677)	(0.695)
Age	0.853***	0.697***	2.119***	2.153***	-25.868***	5.376***
s.e.	[0.195]	[0.218]	[0.551]	[0.241]	[5.154]	[1.199]
p-value	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)
Spanish	2.045***	3.430***	7.378***	4.264***	10.832	9.163*
s.e.	[0.702]	[0.888]	[1.951]	[0.931]	[27.747]	[4.621]
p-value	(0.004)	(0.000)	(0.000)	(0.000)	(0.697)	(0.050)
Constant	0.677	7.102***	3.466	-8.287***	505.451***	14.935
s.e.	[1.912]	[2.039]	[5.442]	[2.352]	[54.925]	[12.100]
p-value	(0.724)	(0.001)	(0.526)	(0.001)	(0.000)	(0.220)
Observations	98	98	98	98	98	98
R-squared	0.229	0.252	0.229	0.471	0.226	0.196

Course retention and behavioral disorders (maltreated sample)		
	Course retention	Behavioral disorders
Maltreated	0.462***	0.238**
s.e.	[0.103]	[0.095]
p-value	(0.000)	(0.015)
Female	0.116	-0.179**
s.e.	[0.084]	[0.082]
p-value	(0.167)	(0.032)
Age	0.043*	-0.012
s.e.	[0.023]	[0.028]
p-value	(0.062)	(0.675)
Spanish	-0.353***	0.008
s.e.	[0.115]	[0.118]
p-value	(0.003)	(0.944)
Constant	-0.374*	0.269
s.e.	[0.216]	[0.265]
p-value	(0.087)	(0.314)
Observations	96	96
R-squared	0.273	0.132

CONCLUSIONS

- 1) Neuropsychological deficits have been reported in maltreated children that implicate executive function deficits, poorer performance on working memory, attention and processing speed tasks, including deficient inhibitory capacity.
- 2) Maltreatment could be a predictor of lower levels of intellectual ability, school achievement and academic attainment.
- 3) Our findings could be interpreted as supporting interventions that seek to improve neurocognitive, behavioural and social functioning in maltreated children. Especially, through prevention programs in those who had been maltreated earlier through their development.

Reactive and Proactive Aggression		
	Reactive	Proactive
Maltreated	0.198	0.548
s.e.	[0.773]	[0.751]
p-value	(0.798)	(0.467)
Female	-1.812***	-1.725**
s.e.	[0.691]	[0.668]
p-value	(0.010)	(0.011)
Age	0.025	-0.374*
s.e.	[0.215]	[0.210]
p-value	(0.906)	(0.077)
Spanish	-0.099	-0.967
s.e.	[0.726]	[0.674]
p-value	(0.892)	(0.154)
Constant	8.460***	8.015***
s.e.	[2.550]	[2.425]
p-value	(0.001)	(0.001)
Observations	132	132
R-squared	0.054	0.090

Results are from 2 regressions of the form: aggression_i = constant + b₁ maltreated_i + b₂ female_i + b₃ age_i + b₄ nationality_i + e_i

Standard errors appear in brackets and are robust to heteroscedasticity.

Significance of the coefficients: *** p<0.01, ** p<0.05, * p<0.1