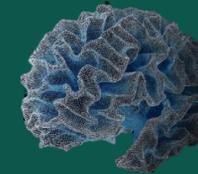


Right Amygdala Volume Predicts Future PTSD Severity in Preadolescent Children Exposed to Trauma

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RESULTS

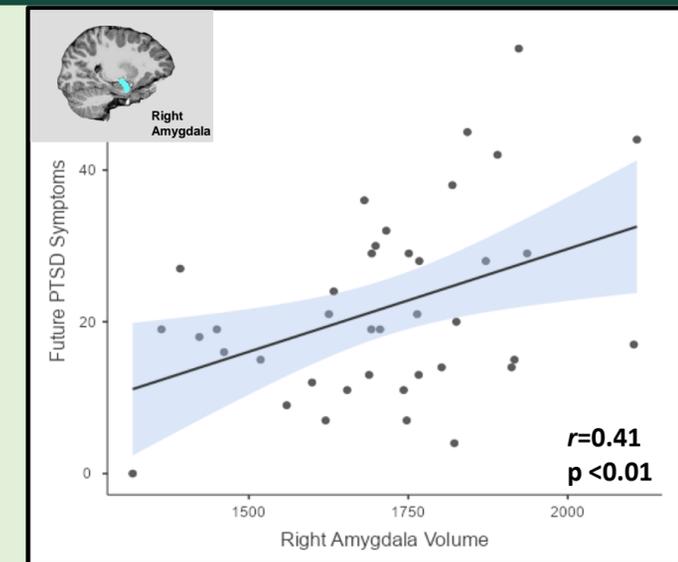


Figure 2: Amygdala volume at age 9 is positively correlated with future PTSD symptoms ($R^2=0.17$, $F=7.50$ $p=0.009$)



**DETROIT
TRAUMA
PROJECT**

BACKGROUND

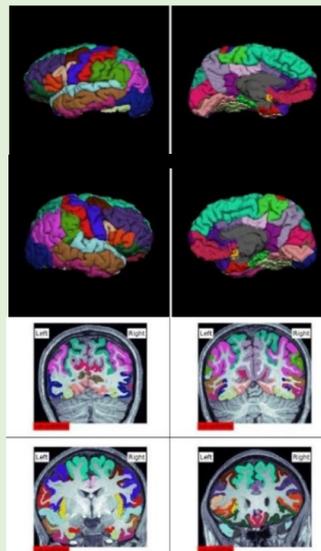
- Childhood trauma exposure is a major risk factor for subsequent posttraumatic stress disorder (PTSD).
- Neurobiological symptoms of PTSD are characterized by heightened sympathetic arousal and impaired function of fear circuitry.
- The amygdala is a critical structure in the brain's fear circuitry and is involved in increasing sympathetic arousal and dampening fear regulation from prefrontal cortices.
- This study assessed whether size of amygdala during preadolescence predicted future vulnerability for pediatric PTSD.
- We hypothesized that larger amygdala volume at baseline would predict greater future PTSD symptoms differently based on trauma exposure.

METHODS

Participants: 59 children (35 F), aged 9 years at baseline visit (V1).

Procedure:

- Visit 1: Collected T1 weighted structural images and trauma exposure using VEXR-C¹
- Visit 2: Assessed self-reported PTSD symptoms after 2 years (age 11) using UCLA-PTSD-RI².
- Data analysis: MRI data was analyzed and visualized using Freesurfer³ software. ENIGMA structural preprocessing protocols were used to quality check cortical and subcortical parcellations.



RESULTS

Group Descriptives

	SEX	N	Mean	SD	P value
Trauma Exposure	M	23	11.65	5.00	0.120
	F	32	9.47	5.13	
Baseline PTSD Symptoms	M	21	27.43	13.20	0.618
	F	25	25.44	13.58	
Future PTSD Symptoms	M	16	24.19	14.01	0.315
	F	24	19.96	10.71	
Left Amygdala Volume	M	23	1603.77	176.64	0.045
	F	35	1508.33	166.41	
Right Amygdala Volume	M	23	1796.67	173.58	0.001
	F	35	1620.21	179.83	

Table 1: Descriptives on trauma exposure, PTSD symptoms, and amygdala measures (p value relates to F-stat)

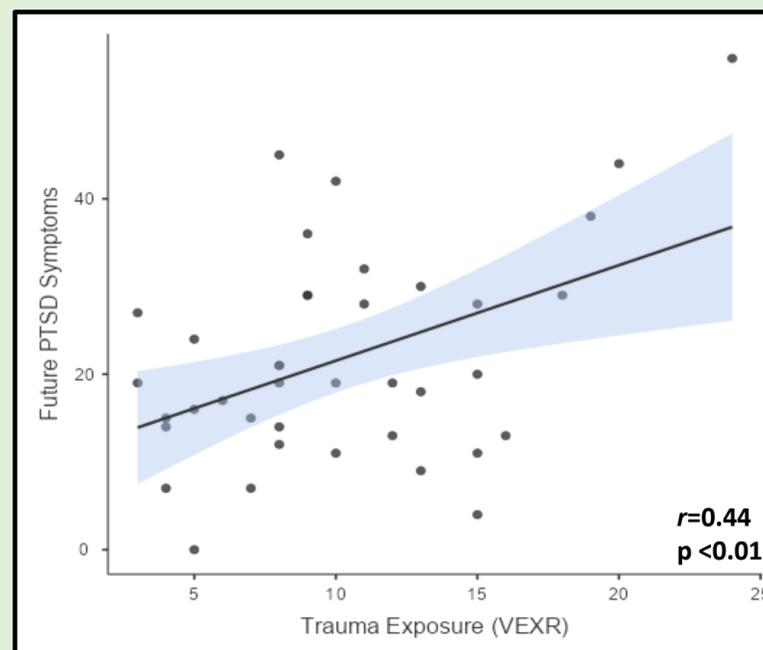
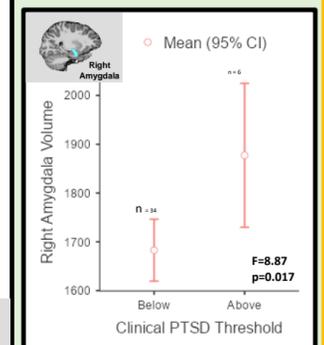
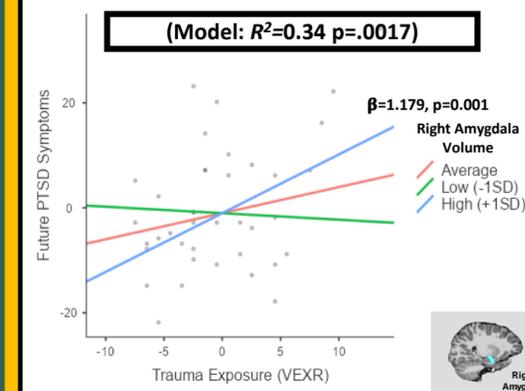


Figure 1: Trauma exposure at age 9 is positively correlated with future PTSD symptoms ($R^2=0.19$, $F=9.12$ $p=0.004$)



Right Amygdala Volume	Estimate	SE	95% Confidence Interval		Z	p
			Lower	Upper		
Average	0.708	0.286	0.148	1.27	2.476	0.013
Low (-1SD)	0.238	0.398	-0.543	1.02	0.596	0.551
High (+1SD)	1.179	0.361	0.472	1.89	3.268	0.001

This table shows the effect of the predictor (Trauma Exposure (VEXR)) on the dependent variable (Future PTSD Symptoms (UCLA-RI)) at different levels of the moderator (Right Amygdala Volume)

Figure 3: Right amygdala moderates association between trauma exposure and PTSD severity

CONCLUSIONS

- Larger right amygdala volume predicts greater future PTSD severity in preadolescent children; however, trauma exposure strengthens the predictive model.
- Though childhood trauma is strongest predictor of future PTSD, larger amygdala volume at early age may add further risk.

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