

Supplemental Material

Table S1: Summary of the range of findings in recent papers contrasting the effects of threat and deprivation

Citation	Measures of Threat	Measures of Deprivation	Threat Findings	Deprivation Findings	Paper Conclusion
Busso et al., 2017 <i>Psychosomatic Medicine</i>	Violence exposure - any exposure to emotional abuse, sexual abuse, physical abuse, violence in school home and neighborhood	Poverty	<ul style="list-style-type: none"> • Positively associated with externalizing and internalizing symptoms • Associated with reduced sympathetic and HPA reactivity to TSST • HPA axis reactivity during TSST mediated effects on internalizing and externalizing symptoms 	<ul style="list-style-type: none"> • Positively associated with externalizing symptoms • Associated with higher baseline HPA axis activity (cortisol) 	<ul style="list-style-type: none"> • Threat has specific effects on HPA and autonomic system and these effects mediate associations with psychopathology
Colich et al., 2019 <i>Psychological Medicine</i>	Physical abuse; witnessing domestic violence; sexual assault, witnessing or being the victim of violence in the community; emotional abuse	Physical & psychosocial neglect; financial insecurity; food insecurity; low parental education attainment; household poverty	<ul style="list-style-type: none"> • Increased number of threat exposures associated with earlier age at menarche • Increased number of threat exposures associated with increased odds of post-menarche distress, fear, externalizing and eating disorders • Age at menarche mediated association between cumulative threat ELAs on distress and externalizing disorders 	<ul style="list-style-type: none"> • Number of deprivation exposures not associated with age at menarche • Increased number of deprivation exposures associated with elevated odds of post-menarche externalizing disorders 	<ul style="list-style-type: none"> • Threat specific effects on pubertal timing which mediates relationship with post menarche psychological distress

Dennison et al., 2017 <i>Child Development</i>	Abuse and domestic violence	Neglect; food insecurity	<ul style="list-style-type: none"> •Associated with increased depression scores but not after controlling for deprivation •Associated with reduced integrity of white matter in left external capsule •Moderated development of white matter integrity in anterior limb of internal capsule, such that trauma associated with reduced age related increases in integrity 	<ul style="list-style-type: none"> •Associated with increased depressive symptoms but after controlling for threat only caregiver neglect associated with depression •Food insecurity associated with lower performance in reward learning task •Associated with reduced white matter integrity in left anterior limb of internal capsule and greater integrity in left uncinate •Neglect associated with increased white matter integrity in left uncinate •White matter integrity in anterior limb of internal capsule mediated association between food insecurity and depression 	<ul style="list-style-type: none"> •Deprivation associated with poorer reward learning and alterations in dopaminergic circuits which mediate symptom of depression, but threat is not.
Gooding et al., 2016 <i>Journal of Pediatric Psychology</i>	Physical, sexual, emotional abuse	SES (parental education)	<ul style="list-style-type: none"> •Associated with increased depressive and PTSD symptoms •Associated with reduced increases in systolic and diastolic blood pressure during stress 	<ul style="list-style-type: none"> •Direct effects not assessed; Only controlled for 	<ul style="list-style-type: none"> •Threat may have specific effects on cardiovascular stress reactivity
Heleniak et al., 2016 <i>Biological Psychology</i>	Sexual abuse; life threatening accidents; natural disaster; witnessing severe injury or death; victim of physical violence or assault; threatened with weapon; captive or abducted;	SES (parental education)	<ul style="list-style-type: none"> •Associated with increased internalizing and externalizing symptoms •Associated with reduced sympathetic reactivity and cardiac output to speech stressor •Cardiac output during speech preparation mediated relationship 	<ul style="list-style-type: none"> •Direct effects not assessed; Only controlled for 	<ul style="list-style-type: none"> •Threat may have specific effects on cardiovascular stress reactivity which is linked to development of psychopathology

	family violence; physical abuse		between threat and externalizing symptoms		
Heleniak & McLaughlin, 2019 <i>Development & Psychopathology</i>	Physical, sexual, emotional abuse; domestic violence exposure; violence exposure	Income to needs ratio; emotional neglect	<ul style="list-style-type: none"> •Associated with externalizing symptoms and ODD, not conduct disorder (varied by type) •Associated with performance on cognitive and affective theory of mind (varied by type) •Cognitive theory of mind mediated physical and sexual abuse effects on externalizing symptoms; Cognitive and affective theory of mind mediated effects of emotional abuse and violence exposure on externalizing symptoms 	•Not associated with cognitive or affective theory of mind performance	• Threat specific effects on affective and cognitive theory of mind which mediates symptoms of psychopathology
Jenness et al., 2018 <i>Development & Psychopathology</i>	Physical and sexual abuse; domestic violence; other violence exposure	SES (parent education)	<ul style="list-style-type: none"> •During retrieval, associated with reduced activation in left lateral occipital cortex/TPJ, left superior temporal sulcus, left angular gyrus; Both frequency and severity associated with superior temporal sulcus activation - negatively •Significant indirect effect of violence exposure on working memory performance through activation in superior 	•Not directly tested; Only controlled for	• Threat is associated with specific effects on working memory in emotional context through effects on fronto-parietal circuits.

temporal sulcus during
retrieval

Jenness et al., 2019 <i>Journal of Abnormal Psychology</i>	Physical abuse; sexual abuse; domestic violence exposure	SES	<ul style="list-style-type: none">•Associated with increased PTSD symptoms; Moderated by resting RSA.•Associated with reduced extinction learning; Moderated by resting RSA	•Not directly tested; Only controlled for	•Threat specific effects on fear conditioning which are moderated by ANS activity and associated with PTSD symptom risk.
Lambert et al., 2017 <i>Journal of Neuroscience</i>	Physical, sexual, emotional abuse; domestic violence exposure	Income to needs, emotional neglect	<ul style="list-style-type: none">•Associated with lower memory for context when paired with angry faces•Associated with decreased hippocampal volume and reduced hippocampal activation during context encoding when context paired with angry faces•Associated with increased functional connectivity between right hippocampus and right vIPFC•Hippocampal-vIPFC connectivity and hippocampal volume mediated association between threat exposure and context memory for trials paired with angry faces	•Poverty associated with reduced hippocampal activity during trials paired with angry faces	•Threat has specific effects on hippocampal-prefrontal systems which is linked to emotional memory

Lambert et al., 2017 <i>Development & Psychopathology</i>	Physical, emotional, and sexual abuse; violence exposure in school, home and neighborhood	Income to needs ratio	<ul style="list-style-type: none">•Associated with decreased adaptation to emotional conflict and poorer inhibitory control in emotional Stroop•Sexual abuse associated with poor adaptation and sexual and physical abuse associated with poor inhibition on emotional Stroop when examined by type	<ul style="list-style-type: none">•Associated with poorer inhibition and switching in flanker task and worse inhibition on emotional Stroop	<ul style="list-style-type: none">•Threat associated with emotion regulation deficits but not cognitive control, and deprivation associated with cognitive control deficits but not emotion regulation. Both associated with inhibition deficits in emotional context.
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Lambert et al., 2019 <i>Developmental Cognitive Neuroscience</i>	Physical and sexual abuse; domestic violence exposure; community violence exposure	Income to needs ratio; parental education	<ul style="list-style-type: none">•Threat associated with increased performance on associative memory for emotional faces for angry faces only•During encoding: greater activation in mPFC in precentral gyrus, medial frontal gyrus, and superior frontal gyrus, for neutral stimuli in right inferior frontal gyrus, precentral gyrus, and insula; decreased activation in hippocampus, for angry faces in right intraparietal sulcus, supramarginal gyrus, angular gyrus, and postcentral gyrus	•Not directly tested; Only controlled	<ul style="list-style-type: none">•Threat is associated with broad associative learning deficits through alterations in hippocampal and fronto-parietal circuits
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Lawson et al., 2017 <i>PLOS One</i>	Abuse; exposure to domestic violence; neglect	SES - parent education, occupation, financial circumstances	<ul style="list-style-type: none"> •Maltreatment predicted smaller hippocampal volumes •Did not predict amygdala volume •Interaction with sex - higher adversity higher right amygdala in females and lower in males 	•Did not predict hippocampal or amygdala volume	<ul style="list-style-type: none"> •Maltreatment has a main effect on hippocampal volume while SES has sex specific effects possibly reflective of differential effects of different forms of stressful childhood adversity on brain development
LoPilato et al., 2019 <i>Schizophrenia Research</i>	Emotional abuse; physical abuse; psychological bullying; physical bullying; sexual abuse	Neglect; income-to-needs ratio; restricted peer interactions; absence of biological parental figure	•Threat not associated with corticolimbic volume	•Deprivation associated with smaller left cortical volume, right cortical volume and right hippocampal volume	<ul style="list-style-type: none"> •Deprivation is uniquely associated with smaller cortical and hippocampal volume in youth at high risk for clinical psychosis
LoPilato et al., 2019 <i>Development & Psychopathology</i>	Emotional abuse; physical abuse; psychological bullying; physical bullying; sexual abuse	Neglect; income-to-needs ratio; restricted peer interactions; absence of a biological parental figure	<ul style="list-style-type: none"> •Threat associated with stress perception, effect moderated by sex •Threat associated with morning cortisol, with effect being mediated by stress perception when accounting for high clinical risk for psychosis 	•No significant association with stress perception or morning cortisol	<ul style="list-style-type: none"> •Threat has sex specific effects on stress perception and morning cortisol levels

Machlin et al., 2019 <i>Developmental Science</i>	Not assessed	SES (parent education, income, occupation)		<ul style="list-style-type: none"> •Increased risk for ADHD •Reduced volume in right precentral cortex, right amygdala, caudate, cerebellum, and hippocampus •Indirect effect of SES on ADHD through cerebellum volume 	<ul style="list-style-type: none"> •Deprivation may have specific effects on frontal cerebellar circuits that places children at risk for learning disorders
Machlin et al., 2019 <i>Frontiers in Behavioral Neuroscience</i>	Violence exposure; domestic violence exposure; physical abuse	Emotional, cognitive, physical, and supervisory neglect; abandonment; age appropriate cognitive stimulation (HOME); parental education	<ul style="list-style-type: none"> •No association with cognitive control performance •No main effect on threat conditioning but was an interaction with age such that age was not associated with SCR responses for high threat but was for low 	<ul style="list-style-type: none"> •Deprivation associated with worse cognitive control performance •No association with threat conditioning 	<ul style="list-style-type: none"> •Threat has specific effects on fear learning and deprivation has specific effects on general cognitive processes
McLaughlin et al., 2014 <i>Psychosomatic Medicine</i>	Physical; sexual; emotion abuse	Poverty	<ul style="list-style-type: none"> •Associated with reduced increases in cardiac output during speech stressor prep and math and associated with increases in total peripheral resistance during speech prep 	<ul style="list-style-type: none"> •Not directly tested; Only controlled 	<ul style="list-style-type: none"> •Threat has specific effects on cardiovascular stress reactivity that may have implications for psychopathology
McLaughlin et al., 2016 <i>Neuropsychopharmacology</i>	Physical and sexual abuse; community violence exposure	Poverty	<ul style="list-style-type: none"> •Associated with blunted SCR response during fear conditioning; Not associated with differences in self-reported fear •Associated with reduced hippocampal and amygdala volume •SCR responses during conditioning mediated relationship between threat and externalizing symptoms 	<ul style="list-style-type: none"> •Not directly tested; Only controlled 	<ul style="list-style-type: none"> •Threat has specific effects on fear learning which may be associated with risk for psychopathology

Marusak et al., 2017 <i>Biological Psychiatry: Cognitive Neuroscience & Neuroimaging</i>	Abuse; violence exposure	Income; neglect	<ul style="list-style-type: none"> •Lower VTA right hippocampal resting state connectivity •Increased SN resting state connectivity with right hippocampus - not significant after controlling for income 	•Not directly tested; Only controlled	• Threat may have specific effects on dopaminergic neural circuits
Miller et al., 2018 <i>Journal of Abnormal Psychology</i>	Physical abuse; harsh physical discipline; hostility in observed interaction	Environment deprivation scale (questions about whether there are age appropriate toys, if outside is safe, if there are books etc.)	• Positive association with higher externalizing and internalizing behaviors	<ul style="list-style-type: none"> • Associated with lower verbal abilities (measured using vocab measure from WISC) • No direct association between internalizing or externalizing but indirect effect on externalizing problems via lower verbal abilities • SES also associated with externalizing problems via verbal abilities 	• Deprivation has specific effects on verbal abilities which are a mechanism through which deprivation affects psychopathology
Mitchell et al., 2018, <i>Psychoneuroendocrinology</i>	Childhood Trauma (emotional abuse, physical abuse, sexual abuse, emotional, neglect, physical neglect)	Childhood SES; Parental Education (paternal and maternal)	•No significant effects of total trauma or abuse types on telomere length	<ul style="list-style-type: none"> •Lower SES associated with shorter telomere length •Paternal and maternal educational attainment positively associated with telomere length 	• Socioeconomic status may have distinct effects on telomere lengths

Nicol et al., 2015 <i>Translational Psychiatry</i>	Physical abuse; sexual abuse; emotional abuse	Physical neglect; emotional neglect	<ul style="list-style-type: none"> •Physical abuse associated with brain activation to fearful vs neutral faces in medial frontal gyrus, pulvinar, and cerebellum in patients with borderline personality disorder •No associations of emotional abuse with brain activation in patients with borderline personality disorder •Did not assess specific effects of sexual abuse in patients with borderline personality disorder 	<ul style="list-style-type: none"> •Did not assess specific effects, but there was no effect of total trauma score (including physical, sexual and emotional abuse) in patients with borderline personality disorder 	<ul style="list-style-type: none"> •Threat, specifically physical abuse, is associated with neural responses to fear in patients with borderline personality disorder
Peverill et al., 2019 <i>Child Maltreatment</i>	Physical, sexual, emotional abuse; community violence exposure	SES (parent education)	<ul style="list-style-type: none"> •Associated with more negative connectivity of left amygdala with vmPFC during emotion regulation task - only abuse •Associated with internalizing and externalizing psychopathology 	<ul style="list-style-type: none"> •Not directly tested; Only controlled 	<ul style="list-style-type: none"> •Threat has specific effects on amygdala PFC circuits involved in emotion regulation
Platt et al., 2018 <i>American Journal of Epidemiology</i>	Physical abuse; domestic violence exposure; sexual abuse; violent victimization; witnessing violence; emotional abuse	Financial insecurity; food insecurity; neglect; poverty; low parental education	<ul style="list-style-type: none"> •Physical abuse, domestic violence, and emotional abuse associated with increased risk for low intelligence score. 	<ul style="list-style-type: none"> •Any deprivation associated with lower mean intelligence score •Parent education and neglect are the only subtypes that are associated with increased risk of low intelligence when examined individually 	<ul style="list-style-type: none"> •Deprivation has stronger negative effects on intelligence than threat.

Rodman et al., 2019 <i>Biological Psychiatry</i>	Physical and sexual abuse	Income to needs ratio	<ul style="list-style-type: none"> •Greater modulation in amygdala in abused children predicted lower risk of depression; No relationship in non-abuse children; Similar effect for superior frontal gyrus and dACC •Greater use of cognitive reappraisal strategy moderated relationship between child abuse and depression 	•Not directly tested; Only controlled	• Threat links to mental health may be through neural effects on neurobiological systems involved in emotion regulation
Rosen et al., in press <i>Child Development</i>	Violence exposure	Income to needs ratio, parental education, cognitive stimulation in the home	•Negatively associated with executive function performance	<ul style="list-style-type: none"> •SES as measured by income to needs and parental education and cognitive stimulation associated with executive functioning (working memory, cognitive flexibility, and inhibition); Cognitive stimulation associated with growth in cognitive flexibility over time •SES associated with cognitive stimulation in the home •Cognitive stimulation mediated effects of SES on executive function •Executive functioning mediated effects of SES on academic performance 	• Deprivation has specific effects on executive functioning and through this influences academic outcomes

<p>Sheridan et al., 2017 <i>Development & Psychopathology</i></p>	<p>Physical, emotional, and sexual abuse; community violence</p>	<p>Physical and emotional neglect; parental education</p>	<ul style="list-style-type: none"> •Abuse associated with parent report of inhibitory control but not working memory or global executive functioning; no association after controlling for parent education and neglect •Community violence exposure not associated with parent report of inhibitory control, working memory, or global executive functioning •In working memory task, abuse not associated with accuracy for high working memory trial load •Abuse not associated with differential brain activation in ROIs 	<ul style="list-style-type: none"> •Parent education associated with: parent report of inhibitory control but not working memory or global executive function; accuracy on working memory task for trials involving high working memory load; activation in medial and lateral parietal cortex during working memory encoding and delay •Neglect associated with: parent report of inhibitory control and global executive function but not working memory •Association with medial frontal gyrus recruitment during high relative to low working memory load condition •Related to activity in anterior cingulate cortex during encoding and delay for high compared to low working memory load 	<p>•Deprivation associated with poorer working memory through less efficient PFC recruitment, but threat is not.</p>
<p>Slopen et al., 2019 <i>Psychosomatic Medicine</i></p>	<p>Not assessed</p>	<p>Institutional deprivation</p>	<ul style="list-style-type: none"> •Not associated with differences in immune and cardiometabolic markers 	<p>•Effects on immune system may be specific to threat experiences given lack of evidence for effects from deprivation</p>	

Sumner et al., 2019 <i>Biological Psychiatry</i>	Physical abuse; sexual abuse; and domestic violence	Poverty; emotional neglect	<ul style="list-style-type: none"> •Associated with accelerated biological aging as assessed through epigenetic age acceleration and advanced pubertal stage •Examining specific types, only significant associations for epigenetic age for domestic violence and number of types of trauma and pubertal age was only associated with number of types of trauma •Associated with increased internalizing and externalizing symptoms and this was mediated by epigenetic age 	<ul style="list-style-type: none"> •Associated with higher depressive and externalizing problems, but not epigenetic age or pubertal stage 	<ul style="list-style-type: none"> •Threat has specific effects on biological aging which mediates effects on psychopathology, while deprivation does not
Teicher et al., 2018 <i>Neuroimage</i>	Parental nonverbal emotional abuse; parental physical maltreatment; parental verbal abuse; sexual abuse; peer emotional abuse; peer physical abuse; interparental violence and violence to siblings	Emotional and physical neglect	<ul style="list-style-type: none"> •At age 15 and 16 predicted bilateral hippocampal volume •Abuse most significant predictors at age 10, 11, 15, and 16 	<ul style="list-style-type: none"> •At age 7 predicted bilateral hippocampal volume •Males predicted hippocampal volume 1 and 7 	<ul style="list-style-type: none"> •Abuse has specific effects on hippocampal volume in females while neglect has specific effects on hippocampal volume in males

Vaughn-Coaxum et al., 2019 <i>Development & Psychopathology</i>	Community violence exposure; peer victimization	Income-to-needs ratio; parental education	<ul style="list-style-type: none">•Associated with depressive symptoms severity but not inhibitory regulation on cognitive task•Resting RSA and skin conductance moderated associations between threat exposure and depressive symptom severity	<ul style="list-style-type: none">•Lower deprivation associated with lower depressive symptom severity only in the context of higher inhibitory regulation on cognitive task•Resting RSA and skin conductance did not moderate effects of deprivation on depressive symptoms	Threat has specific effects on depressive symptoms through physiological functioning and deprivation has specific effects on depressive symptoms through cognitive functioning
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Whalen et al., 2016 <i>Psychosomatic Medicine</i>	Living in a single-caregiver household; maternal psychopathology; parental arrest; foster care placement; physical abuse; sexual abuse; caregiver report of being unable to meet the families financial need	Income-to-needs ratio	•Significant predictor of membership in group with increasing physical health problems over time	•Significant predictor of membership in group with increasing physical health problems	•Both threat and deprivation have similar effects on trajectories of physical health
Zhang et al., 2018 <i>Child Psychiatry & Human Development</i>	Parental abuse (physical, sexual and emotional abuse)	Parental neglect (physical neglect and unpreferable rearing environment)	•Parental abuse associated with conduct problems and peer problems	•Parental neglect associated with conduct problems and hyperactivity/inattention	• Unique effects of parental abuse on peer problems and of parental neglect on hyperactivity/inattention

Note: Claims of threat specific effects are in RED and claims of deprivation specific effects are in BLUE. Selected papers were (a) published between 2014 – 2019 and (b) made direct comparisons between different types or domains of adversity. This is not an exhaustive literature review, but merely demonstrates the heterogeneity and inconsistency of how issues of adversity are manifested in the literature. Abbreviations: TSST: Trier Social Stress Test; HPA: hypothalamic-pituitary-adrenal; WISC: Wechsler Intelligence Scale for Children; SES: socio-economic status; ROI: region of interest; ADHD: attention deficit hyperactivity disorder; RSA: respiratory sinus arrhythmia; PTSD: post-traumatic stress disorder; dACC: dorsal anterior cingulate cortex; PFC: prefrontal cortex; vlPFC: ventrolateral prefrontal cortex; mPFC: medial prefrontal cortex; vmPFC: ventromedial prefrontal cortex

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