

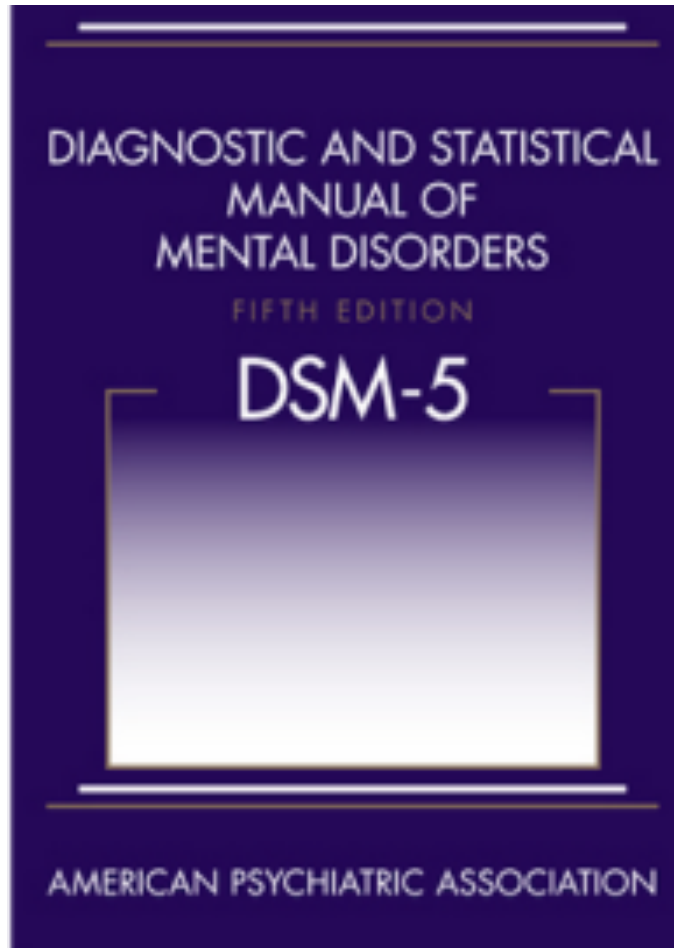
Transdiagnostic neural correlates of affective face processing in anxiety and depression

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“Disorder-specific approach”



1. There is substantial discrepancy between the disorder-specific approach with our current understanding of depressive and anxiety disorders. (Shannon et al., 2017)
2. Disorder-specific interventions pay relatively limited attention to comorbidity, despite evidence of high comorbidity rates up to 40– 80% in both clinical and epidemiological studies (Shannon et al., 2017)
3. Despite the clinical utility of diagnostic categories, there are also some limitations to the reliability and validity of the diagnostic classifications that disorder-specific treatments have been based on (Shannon et al., 2017)



“Transdiagnostic”?

➔ Grouping disorders based on shared characteristics



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Current Definitions of “Transdiagnostic” in Treatment Development: A Search for Consensus

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Systematic review and meta-analysis of transdiagnostic psychological treatments for anxiety and depressive disorders in adulthood

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HIGHLIGHTS

- Transdiagnostic (TD) treatments have large effects on anxiety and depression.
- TD-CBT has been most widely evaluated, followed by mindfulness-based treatments.
- Medium to large comparative group differences between TD treatments and control conditions
- Type of treatment, delivery format, and type of control condition influenced outcomes.
- More comparisons are needed with TAU controls, and across treatment types.

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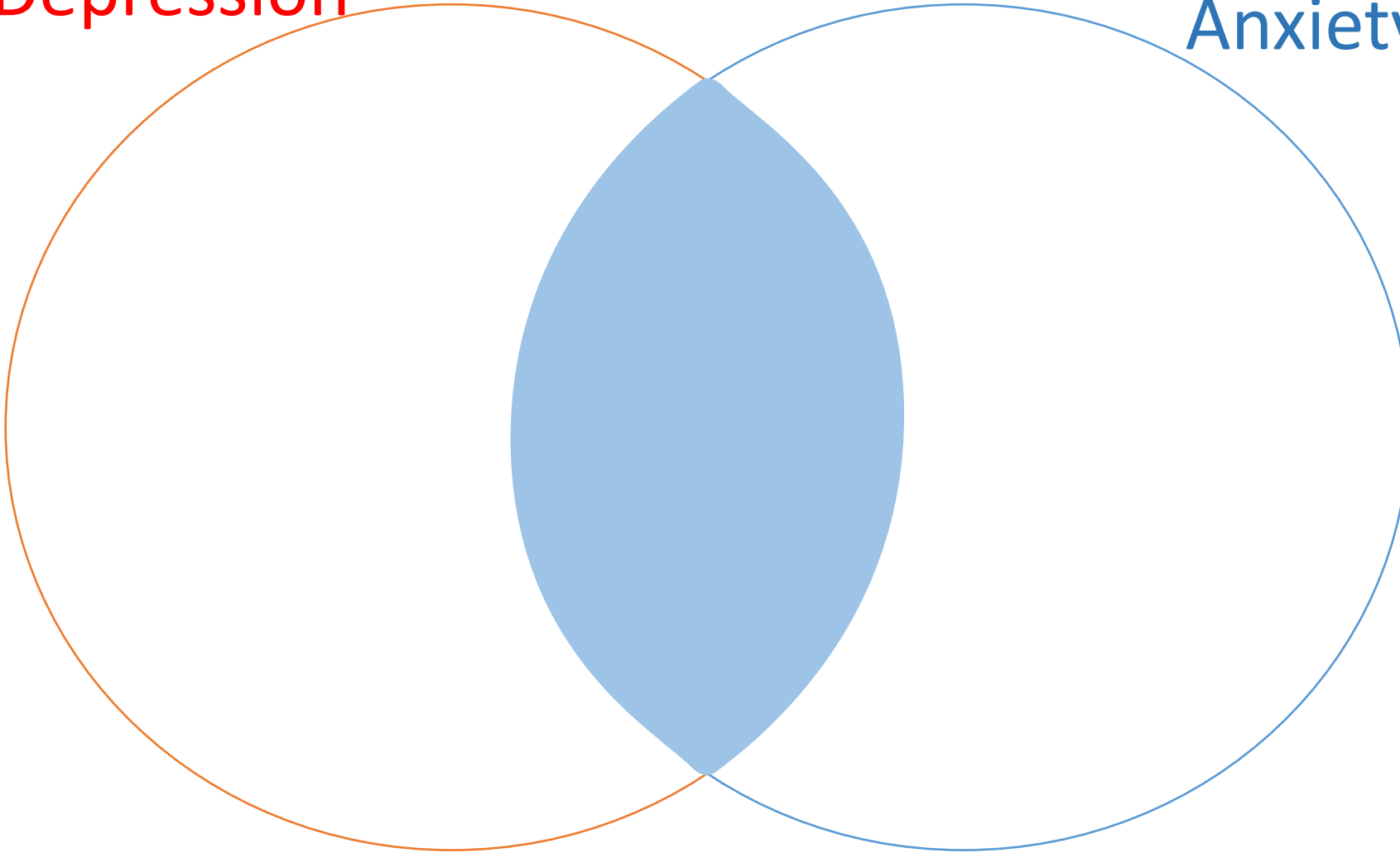
ABSTRACT

A broad array of transdiagnostic psychological treatments for depressive and anxiety disorders have been evaluated, but existing reviews of this literature are restricted to face-to-face cognitive behavioural therapy (CBT) protocols. The current meta-analysis focused on studies evaluating clinician-guided internet/computerised or face-to-face manualised transdiagnostic treatments, to examine their effects on anxiety, depression and quality of life (QoL). Results from 50 studies showed that transdiagnostic treatments are efficacious, with large overall mean uncontrolled effects (pre- to post-treatment) for anxiety and depression ($g_s = .85$ and $.91$ respectively), and medium for QoL ($g = .69$). Uncontrolled effect sizes were stable at follow-up. Results from 24 RCTs that met inclusion criteria showed that transdiagnostic treatments outperformed control conditions on all outcome measures (controlled ESs: $g_s = .55$, $.80$, and $.46$ for anxiety, depression and QoL respectively), with the smallest differences found compared to treatment-as-usual (TAU) control conditions. RCT quality was generally poor, and heterogeneity was high. Examination of the high heterogeneity revealed that CBT protocols were more effective than mindfulness/acceptance protocols for anxiety (uncontrolled ESs: $g_s = .88$ and $.61$ respectively), but not depression. Treatment delivery format influenced outcomes for anxiety (uncontrolled ESs: group: $g = .70$, individual: $g = .97$, computer/internet: $g = .96$) and depression (uncontrolled ESs: group: $g = .89$, individual: $g = .86$, computer/internet: $g = .96$). Preliminary evidence from 4 comparisons with disorder-specific treatments suggests that transdiagnostic treatments are as effective for reducing anxiety, and may be superior for reducing depression. These findings show that transdiagnostic psychological treatments are efficacious, but higher quality research studies are needed to explore the sources of heterogeneity amongst treatment effects.

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Depression

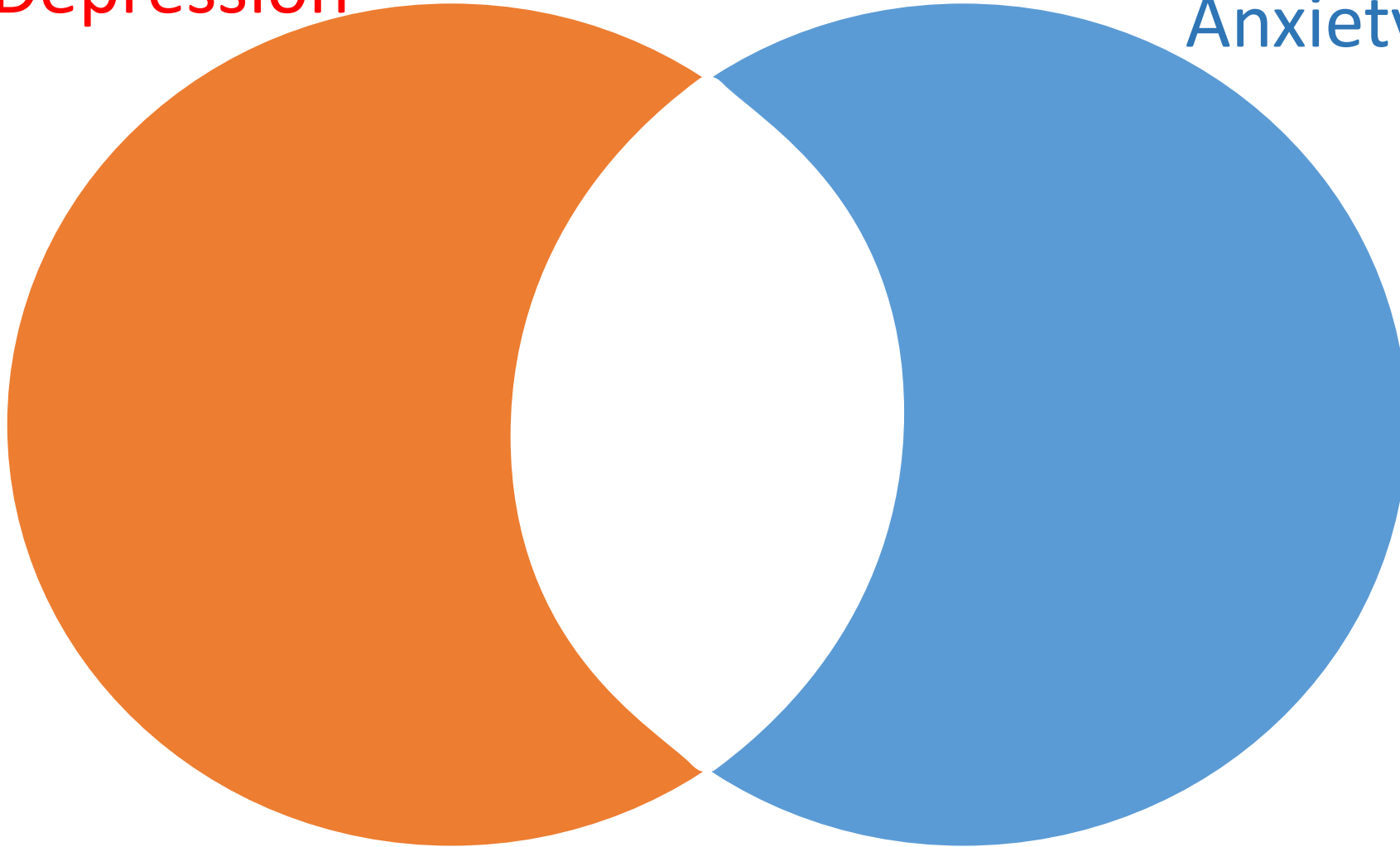
Anxiety



Heightened attention toward and processing of negative emotional information

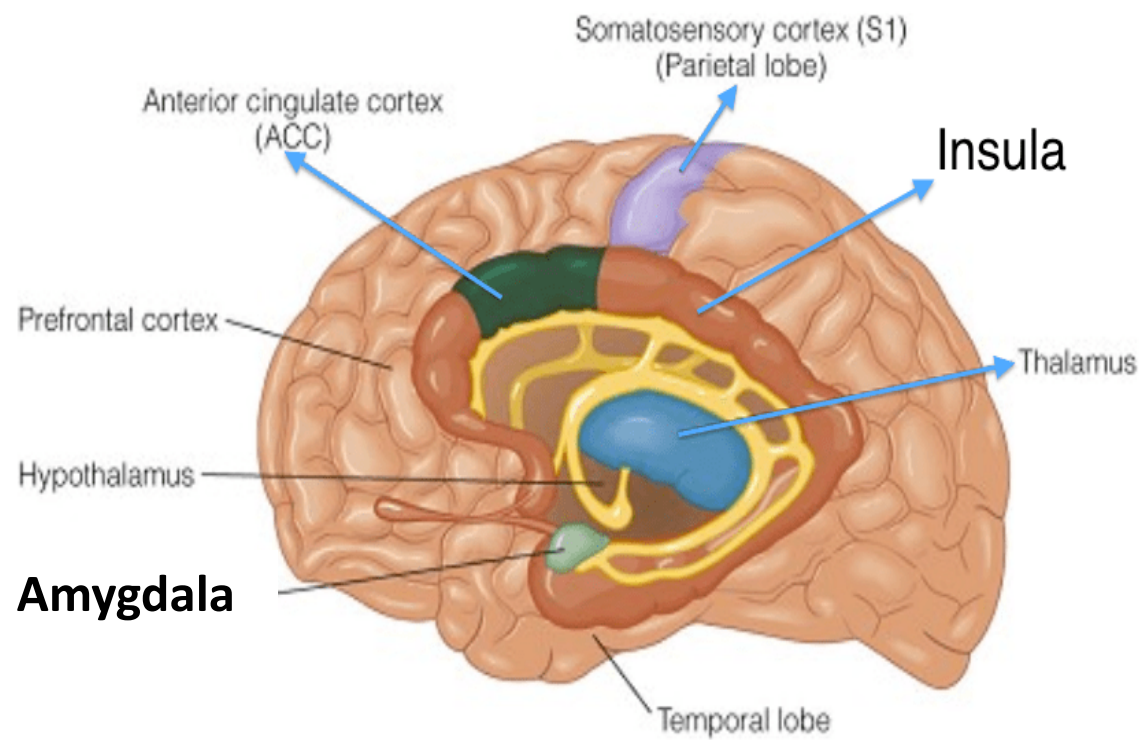
Depression

Anxiety



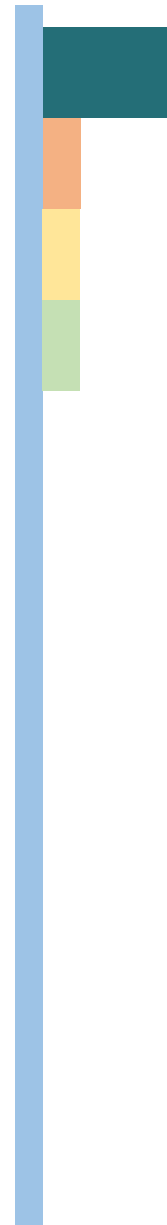
Extent and timing of attention toward negative stimuli

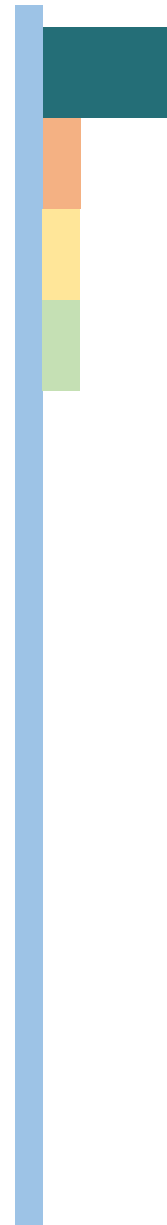
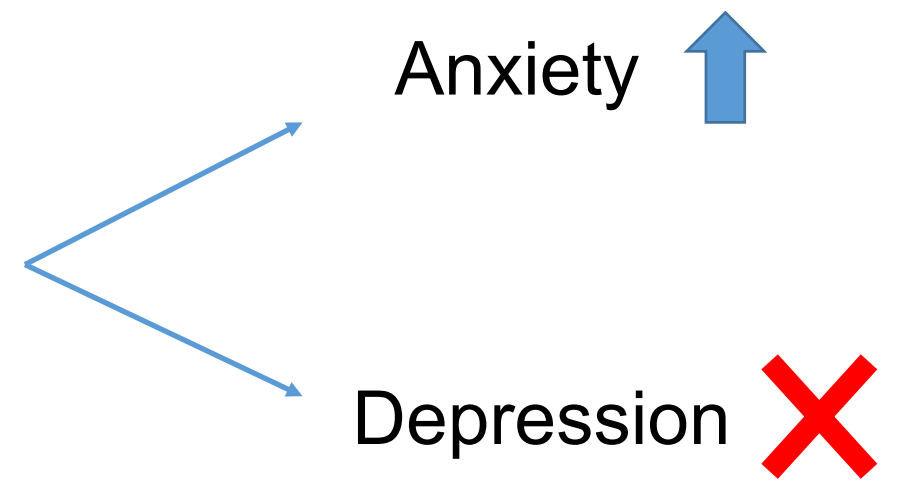
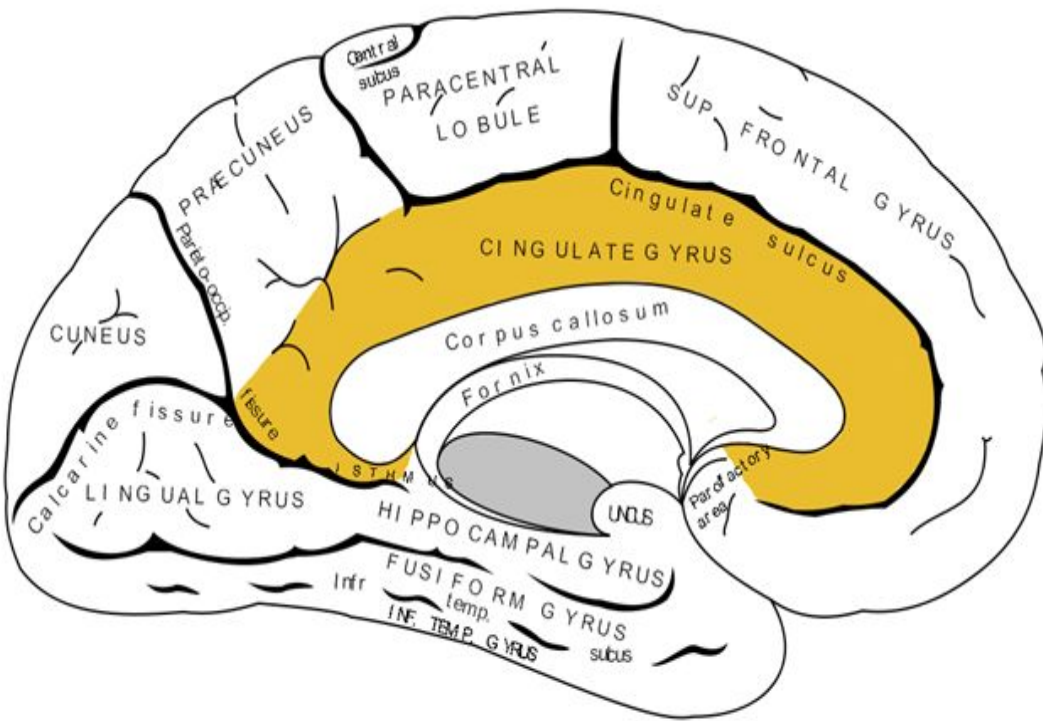


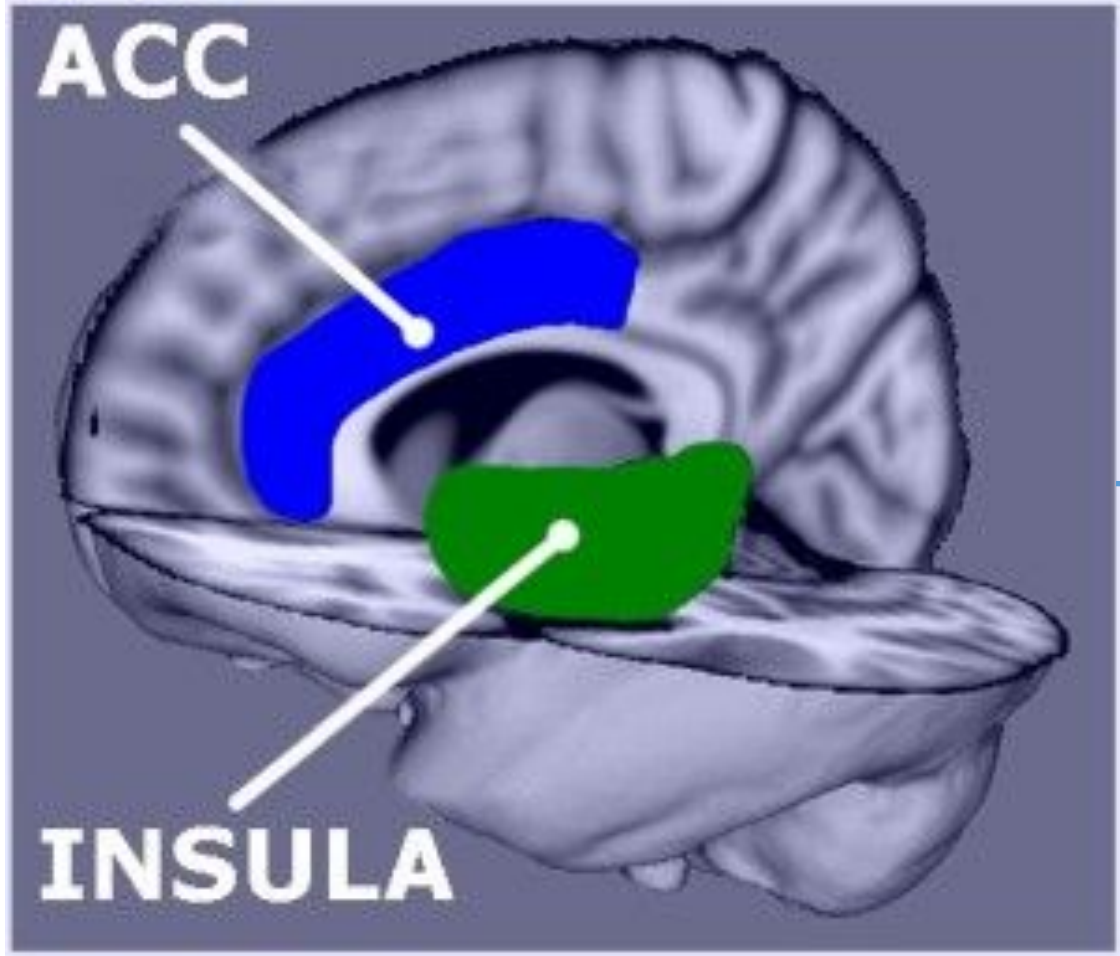


Anxiety ↑

Depression ↑



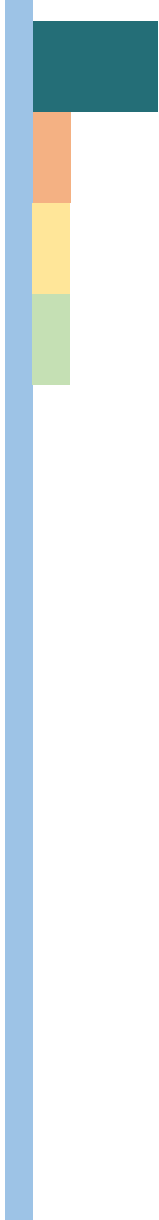


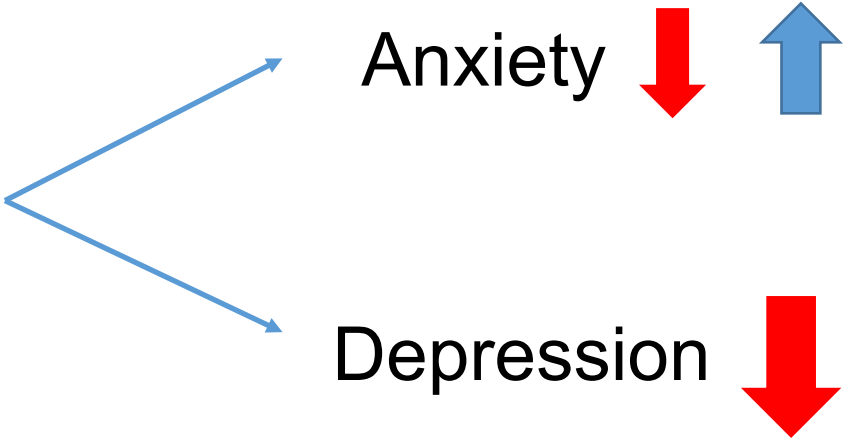
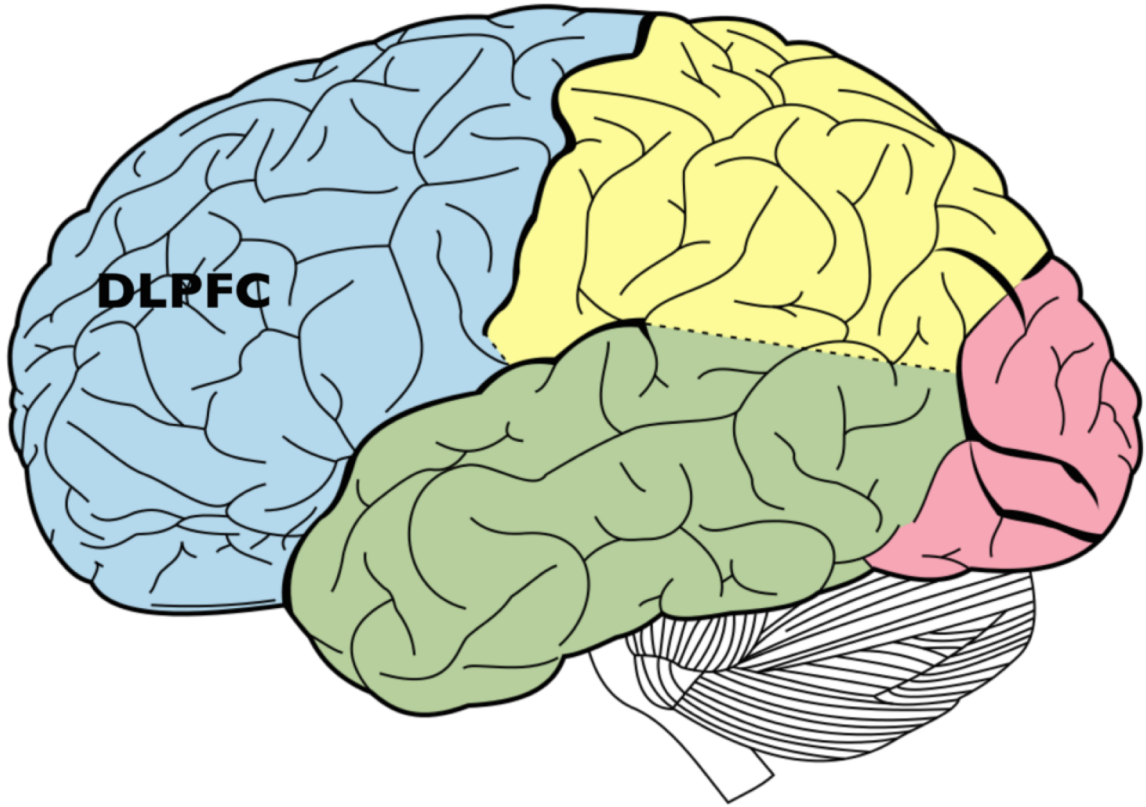


Anxiety

Depression

Psychosis





Purpose

Measure the effects of current symptoms on neural activation

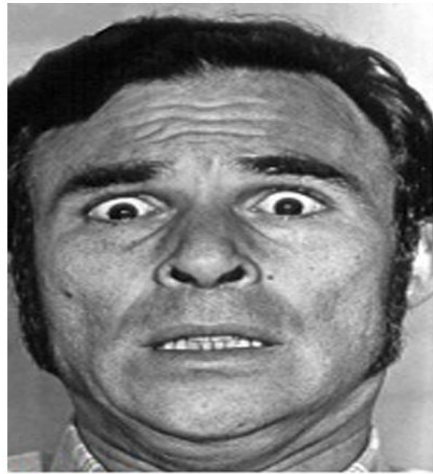
Hypotheses

1. Compared with controls, patients would show increased activation in the Amygdala and insula for negative faces
2. Symptoms of anxiety would be associated with greater activation in the ACC and increased dIPFC activation for negative faces. Also, reduced dIPFC activation for symptoms of depression

Methods

	Healthy controls (<i>n</i> = 57)		Patients (<i>n</i> = 142)		Group comparison
	<i>n</i>	%	<i>n</i>	%	
Gender					
Female	40	70.2	104	73.2	$\chi^2(1) = 0.66$
Male	17	29.8	38	26.8	
Race					
Caucasian	29	50.9	96	67.6	$\chi^2(1) = 0.15$
Other	22	38.6	45	31.7	
Primary diagnosis					
SAD			79	55.6	
MDD			43	30.3	
GAD			20	14.1	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	27.5	9.8	25.9	6.9	$t(79.62) = 1.17$
Education	14.9	2.8	15.4	2.3	$t(197) = 1.35$
Hamilton depression	0.7	1.4	9.8	6.6	$t(161.82) = 18.73^a$
Hamilton anxiety	0.4	0.9	13.7	8.0	$t(152.60) = 16.70^a$

Methods – Emotional Face Matching task



Fearful



Angry



Sad



Happy



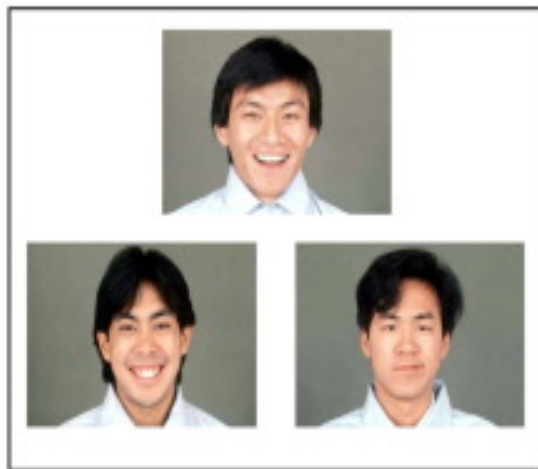
Disgusted



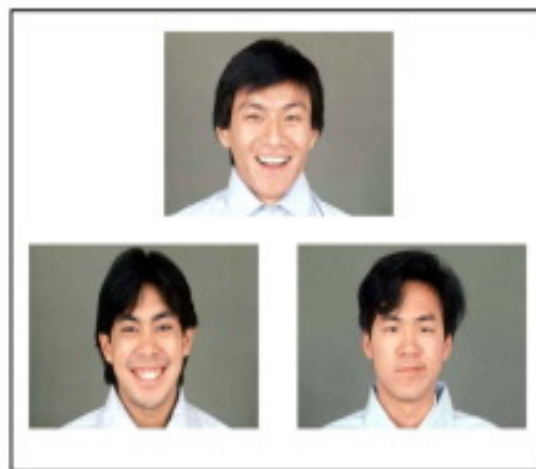
Surprised



Emotional



Emotional



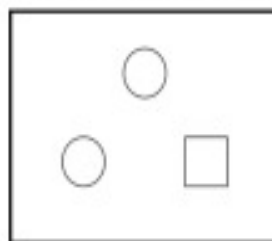
Geometric



20s

20s

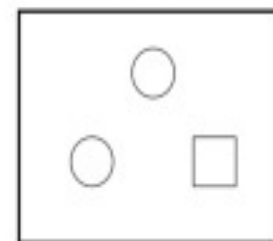
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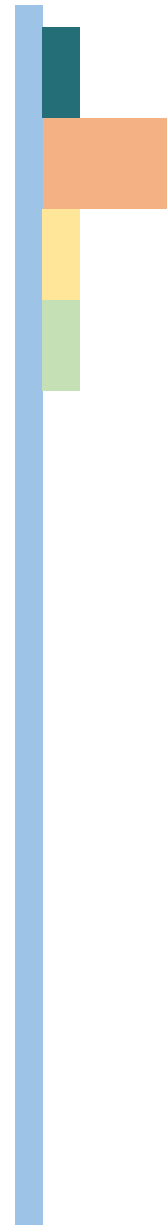
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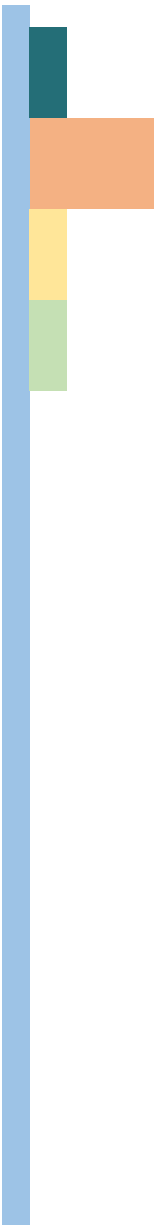
Geometric



20s



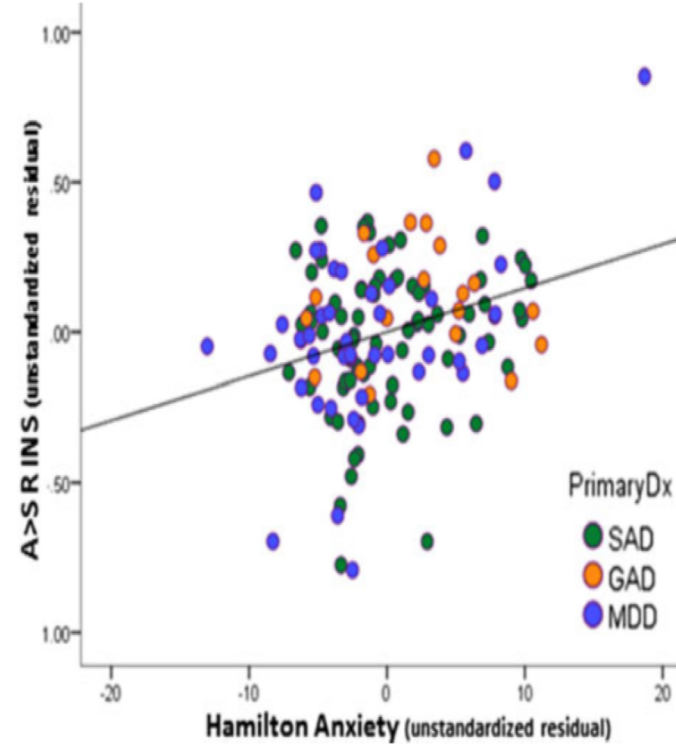
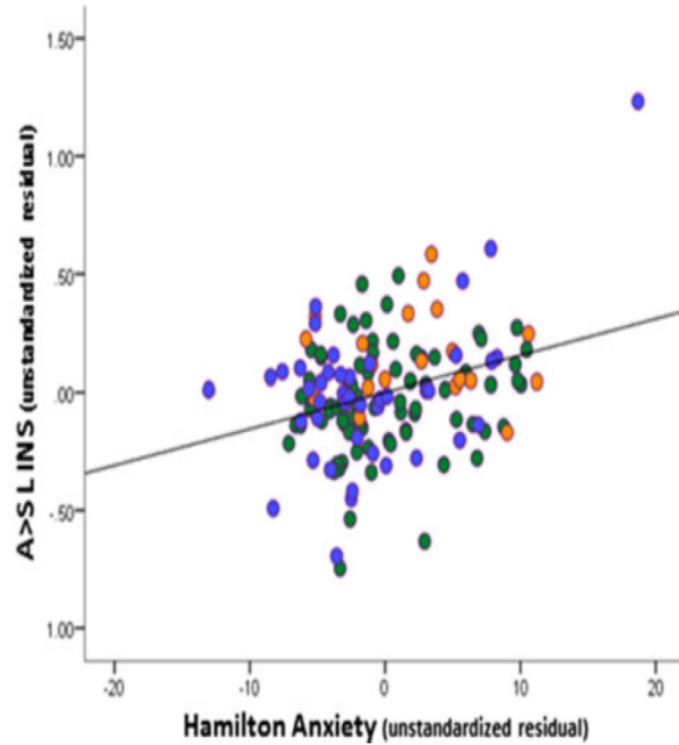
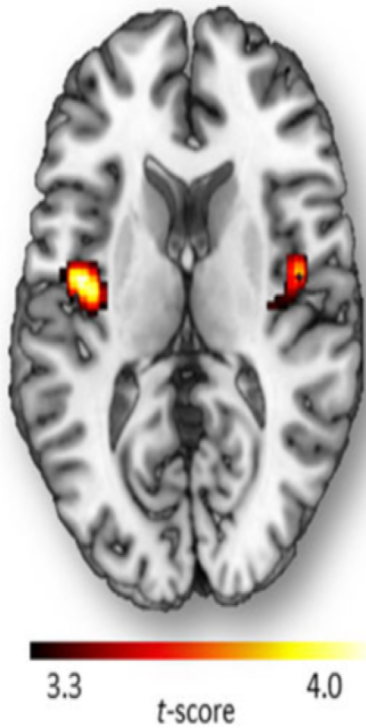
A



- Angry vs Shapes, Fearful vs Shapes, Happy vs Shapes
- Patient vs control
- HAM-A & BOLD, HAM-D & BOLD

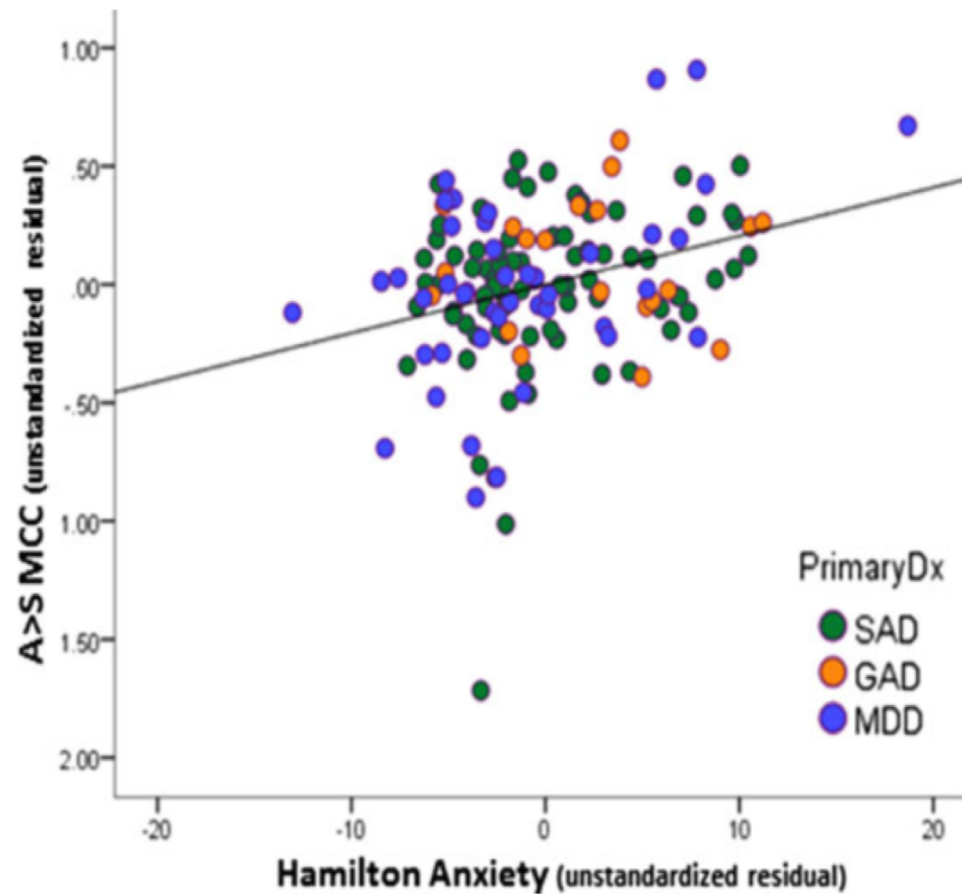
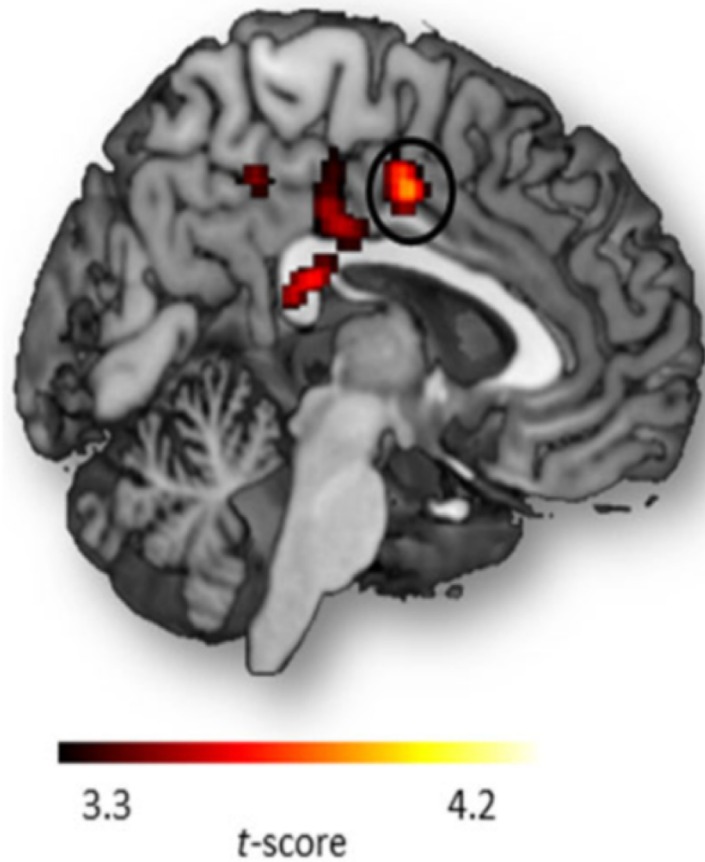


Results



Anxiety → Left and Right insula

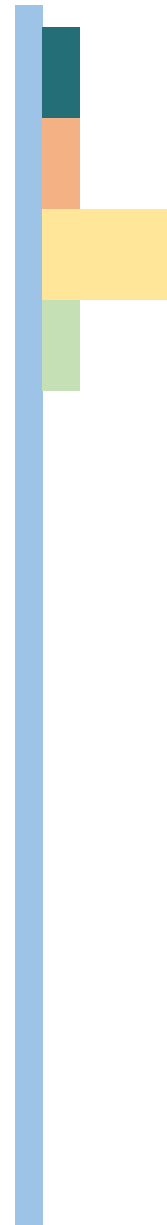




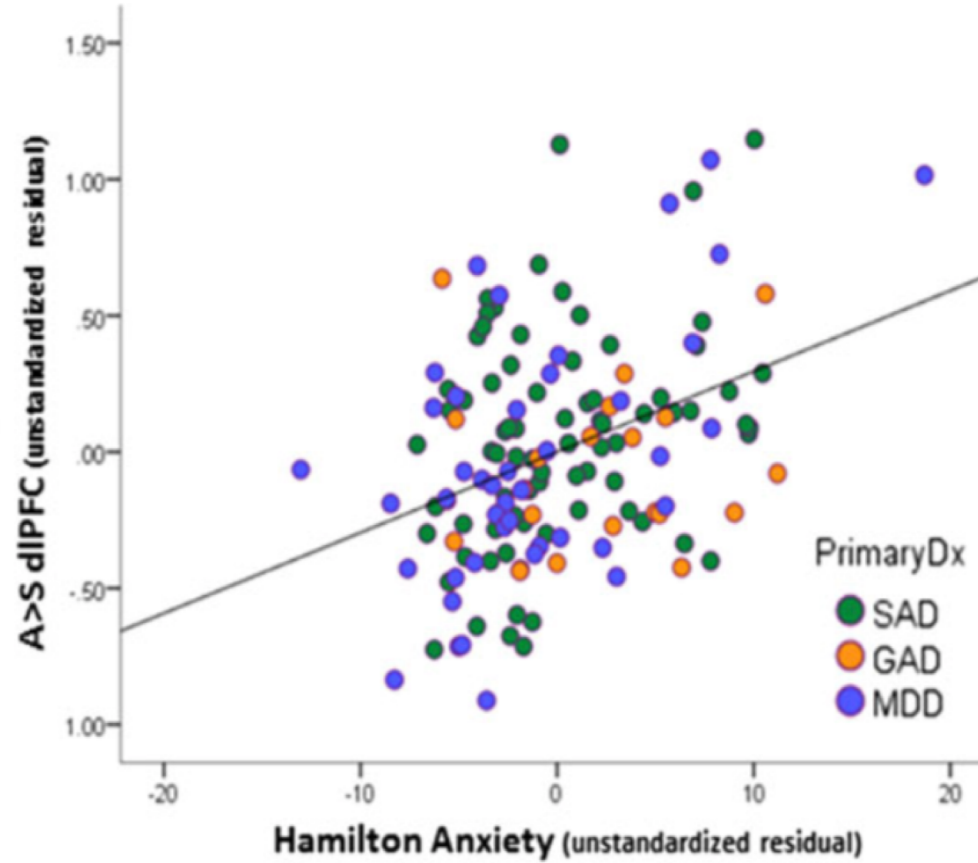
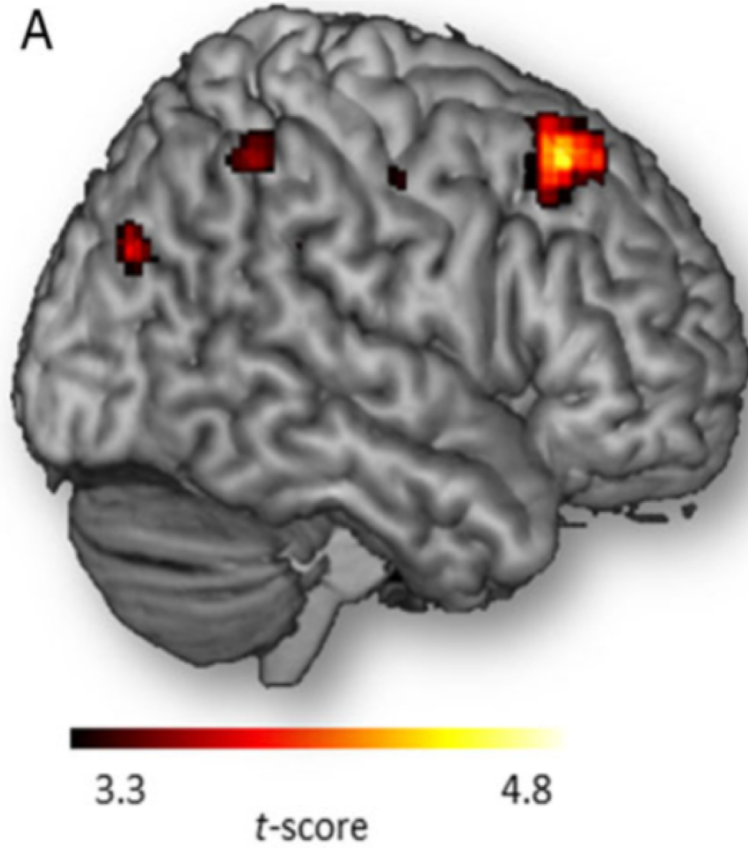
Anxiety



Anterior & midcingulate cortex



A

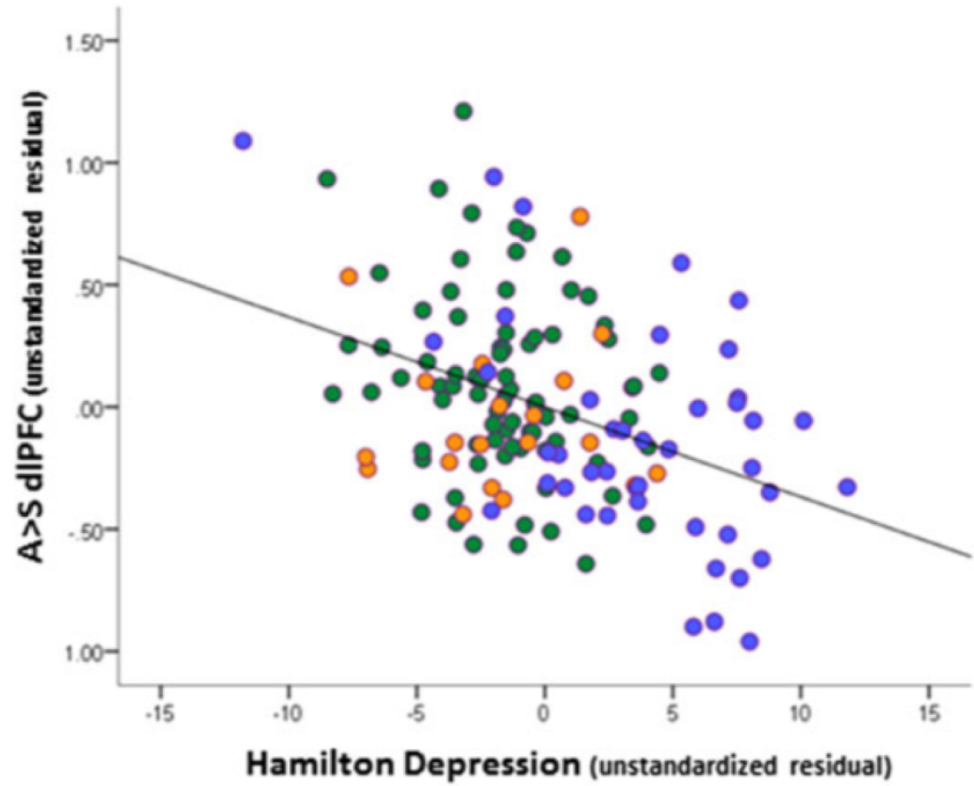
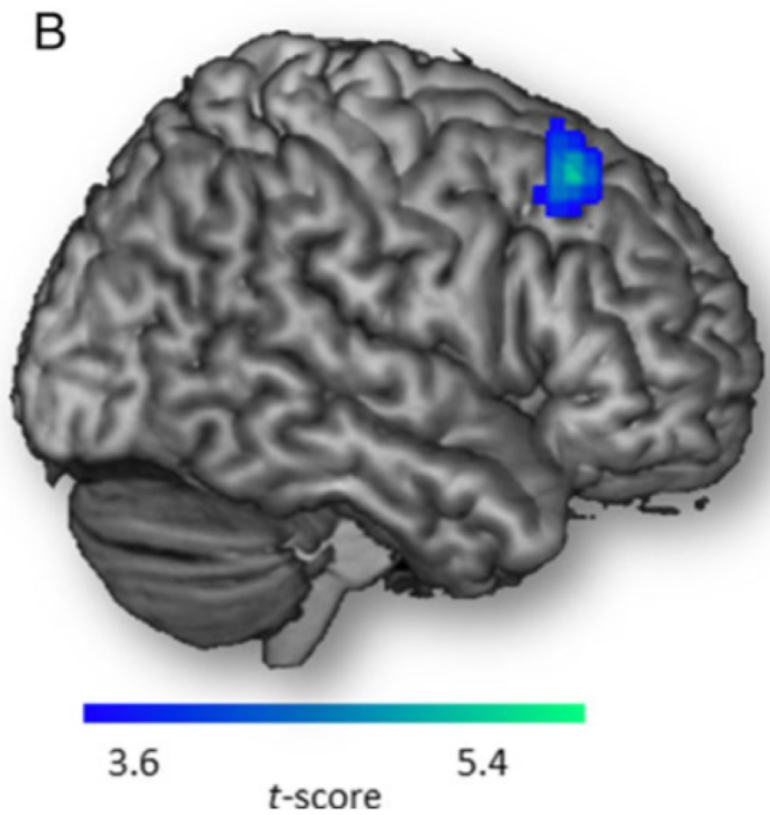


Anxiety

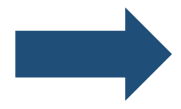


Right dIPFC

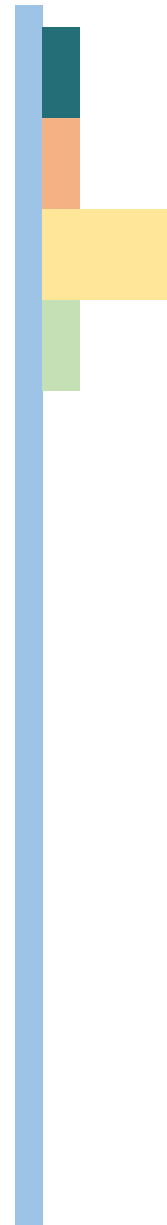




Depression



Right dIPFC



“Importance of paralimbic, midline cortical, and lateral prefrontal brain regions in the neurobiology of anxiety and depression.

...

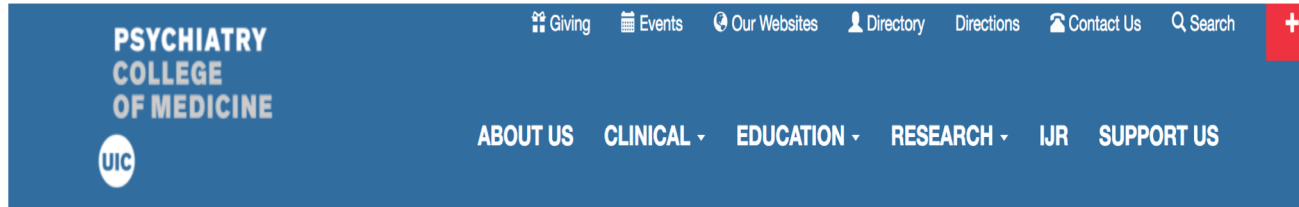
Anxiety and depression can be dissociated at the neural level, and that these symptom profiles may at times exert opposing influences on neural activation (i.e., in the lateral PFC)”

Limitations

1. Only certain anxiety disorders were included
2. Sad faces were not included among the stimuli
3. Results reflect the salience of faces more generally, rather than emotion-specific effects
4. HAM-A and HAM-D may be better at measuring symptom profiles for some disorders than others



What I want to do is..



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DESIGNATION

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Associate Head for Clinical Services
Associate Head for Clinical and Translational Research
Director of the Mood and Anxiety Disorders Clinical and Research Programs

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- Use machine learning, find subtype of depression & anxiety based on the task performance
- Predict individual subtype

Thank you! 😊