Differential impact of transdiagnostic, dimensional psychopathology on multiple scales of functional connectivity

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Contact Information:

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Research Paper Sections:

The sections of the research paper input text parsed in this audit.

Section No.	Headings	Sentences
Section: 1	Abstract	15
Section: 2	Introduction	16
N/A	--- --- --- --- --- --- ---	0
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The Sentence Audit Of The Research Paper

Title

Differential impact of transdiagnostic, dimensional psychopathology on multiple scales of functional connectivity

S1 [001] **Abstract**

S1 [002] Introduction

Introduction

S1 [003] Dimensional psychopathology strives to associate different domains of cognitive dysfunction with brain circuitry.

Dimensional psychopathology strives ...

... to associate different domains ...

... of cognitive dysfunction ...

... with brain circuitry.

S1 [004] Connectivity patterns as measured by functional magnetic resonance imaging (fMRI) exist at multiple scales, with global networks of connectivity composed of microscale interactions between individual nodes.

Connectivity patterns ...

... as measured ...

... by functional magnetic resonance imaging ...

... (fMRI) ...

... exist ...

... at multiple scales, ...

... with global networks ...

... of connectivity composed ...

... of microscale interactions ...

... between individual nodes.

S1 [005] It remains unclear how separate dimensions of psychopathology might differentially impact these different scales of organization.

It remains unclear how separate dimensions ...

... of psychopathology ...

... might differentially impact these different scales ...

... of organization.

S1 [006] Methods

Methods

S1 [007] Patients experiencing anxious misery symptomology (depression, anxiety and trauma; n = 192) were assessed for symptomology and received resting-state fMRI scans.

Patients experiencing anxious misery symptomology ...

... (depression, ...

... anxiety ...

... and trauma; ...

... n = 192) ...

... were assessed ...

... for symptomology ...

... and received resting-state fMRI scans.

S1 [008] Three modeling approaches (seed-based correlation analysis [SCA], support vector regression [SVR] and Brain Basis Set Modeling [BSS]), each relying on increasingly dense representations of functional connectivity patterns, were used to associate connectivity patterns with six different dimensions of psychopathology: anxiety sensitivity, anxious arousal, rumination, anhedonia, insomnia and negative affect.

Three modeling approaches ...

... (seed-based correlation analysis ...

... [SCA], ...

... support vector regression ...

... [SVR] ...

... and Brain Basis Set Modeling ...

... [BSS]), ...

... each relying ...

... on increasingly dense representations ...

... of functional connectivity patterns, ...

... were used ...

... to associate connectivity patterns ...

... with six different dimensions ...

... of psychopathology: ...

... anxiety sensitivity, ...

... anxious arousal, ...

... rumination, ...

... anhedonia, ...

... insomnia ...

... and negative affect.

S1 [009] Importantly, a full 50 patients were held-out in a testing dataset, leaving 142 patients as training data.

Importantly, ...

... a full 50 patients were held-out ...

... in a testing dataset, ...

... leaving 142 patients ...

... as training data.

S1 [010] Results

Results

S1 [011] Different symptom dimensions were best modeled by different scales of brain connectivity: anhedonia and anxiety sensitivity were best modeled with single connections (SCA), insomnia and anxious arousal by mesoscale patterns (SVR) and negative affect and ruminative thought by broad, cortex-spanning patterns (BBS).

Different symptom dimensions were best modeled ...

... by different scales ...

... of brain connectivity: ...

... anhedonia ...

... and anxiety sensitivity were best modeled ...

... with single connections ...

... (SCA), ...

... insomnia ...

... and anxious arousal ...

... by mesoscale patterns ...

... (SVR) ...

... and negative affect ...

... and ruminative thought ...

... by broad, ...

... cortex-spanning patterns ...

... (BBS).

S1 [012]   Dysfunction within the default mode network was implicated in all symptom dimensions that were best modeled by multivariate models.

Dysfunction ...

... within the default mode network was implicated ...

... in all symptom dimensions ...

... that were best modeled ...

... by multivariate models.

S1 [013]   Conclusion

Conclusion

S1 [014]   These results suggest that symptom dimensions differ in the degree to which they impact different scales of brain organization.

These results suggest ...

... that symptom dimensions differ ...

... in the degree ...

... to which they impact different scales ...

... of brain organization.

S1 [015]   In addition to advancing our basic understanding of transdiagnostic psychopathology, this has implications for the translation of basic research paradigms to human disorders.

In addition ...

... to advancing our basic understanding ...

... of transdiagnostic psychopathology, ...

... this has implications ...

... for the translation ...

... of basic research paradigms ...

... to human disorders.

S2 [016]   **Introduction**

S2 [017] Traditionally, mental illnesses have been conceptualized as disorder classes diagnosed based on the types, numbers and severity of symptoms reported by patients, as embodied in the Diagnostic and Statistical Manual of Mental Disorders (DSM).

> Traditionally, ...
>
> ... mental illnesses have been conceptualized ...
>
> ... as disorder classes diagnosed based ...
>
> ... on the types, ...
>
> ... numbers ...
>
> ... and severity ...
>
> ... of symptoms reported ...
>
> ... by patients, ...
>
> ... as embodied ...
>
> ... in the Diagnostic ...
>
> ... and Statistical Manual ...
>
> ... of Mental Disorders ...
>
> ... (DSM).

S2 [018] The DSM's observational taxonomy persists in part due to a lack of reliable biomarkers for psychiatric disorders and remains the standard of practice for clinicians today.

> The DSM's observational taxonomy persists ...
>
> ... in part ...
>
> ... due to a lack ...
>
> ... of reliable biomarkers ...
>
> ... for psychiatric disorders ...
>
> ... and remains the standard ...
>
> ... of practice ...
>
> ... for clinicians today.

S2 [019] However, notable issues with the DSM system such as heterogeneity within disorder classes, high comorbidity between disorders and a lack of understanding of underlying mechanisms have motivated the development of an alternative framework: the National Institute of Mental Health's (NIMH) Research Domain Criteria framework (RDoC;[1]).

> However, ...
>
> ... notable issues ...
>
> ... with the DSM system ...
>
> ... such as heterogeneity ...
>
> ... within disorder classes, ...
>
> ... high comorbidity ...
>
> ... between disorders ...
>
> ... and a lack ...
>
> ... of understanding ...
>
> ... of underlying mechanisms have motivated the development ...
>
> ... of an alternative framework: ...
>
> ... the National Institute ...
>
> ... of Mental Health's ...
>
> ... (NIMH) ...
>
> ... Research Domain Criteria framework ...
>
> ... (RDoC;[1]).

End of Sample Audit