Unique And Predictive Relationships Between Components Of Cognitive Vulnerability And Symptoms Of Depression

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COGNITIVE VULNERABILITY

- Etiology of depression
- Reformulated Learned Helplessness Theory of Depression (Abramson, Seligman, & Teasdale, 1978)
- Hopelessness Theory of Depression (Abramson, Metalsky, & Alloy, 1989)
- Predicts first onset and recurrence of depression (Alloy et al., 2006; Mac Giollabhui et al., 2018)
COGNITIVE VULNERABILITY COMPONENTS
MEASUREMENT OF COGNITIVE VULNERABILITY

• Inconsistent with theory

• Additive or composite score  (Liu, Kleiman, Nestor, & Cheek, 2015)

• Weakest link  (Abela & Sarin, 2002)
Current Study
I. What are the relationships between the components of cognitive style?
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CURRENT STUDY

1. What are the relationships between the components of cognitive style?

2. How do the components of negative cognitive style relate to the symptoms of depression?
Methods
PARTICIPANTS

- $M_{age} = 12.57 \ (SD = .90)$
- 53% female
- (T1) $N = 608$
- (T2) $N = 222$
- Adolescent Cognition and Emotion (ACE) Project (Temple University; Alloy et al., 2012)
MEASURES

Adolescent Cognitive Style Questionnaire—Modified (CSQ)
  (1) Internal  (2) Stable  (3) Global  (4) Future  (5) Self-Worth

Children’s Depression Inventory (CDI)
  (1) Depressed mood  (2) Ineffectiveness  (3) Anhedonia
  (4) Self-Esteem  (5) Interpersonal problems
Analyses & Results
1. GGM regularized via the graphical LASSO

2. Edges = pairwise regularized partial correlations
CONTEMPORANEOUS NETWORK (COGNITIVE STYLE)

1. GGM regularized via the graphical LASSO

2. Edges = pairwise regularized partial correlations

3. Expected influence estimates

(R package qgraph, Epskamp, Cramer, Waldorp, Schmittman, & Borsboom, 2012; Epskamp & Fried, 2016; Robinaugh, Millner, & McNally, 2016; van Borkulo et al., 2016)
1. GGM regularized via the graphical LASSO

2. Edges = pairwise regularized partial correlations

(R package igraph; Csardi & Nepusz, 2006; Reichardt & Bornholdt, 2006; Heeren & McNally, 2018; Robinaugh, LeBlanc, Vuletich, & McNally, 2014)
Bridge expected influence estimates

CONTEMPORANEOUS NETWORK
(COGNITIVE STYLE & DEPRESSION)

Bridge expected influence estimates

(bridge function from the R package networktools; Jones, 2018; Heeren, Jones, & McNally, 2018; Jones, Mair, Riemann, Mugno, & McNally, 2017)
TEMPORAL NETWORKS
(COGNITIVE STYLE & DEPRESSION)

1. Cross-lagged panel network
2. Edges = cross-time effects
3. Arrows indicate direction of prediction

(Rhemtulla, van Bork, & Cramer, 2018; glmnet package; Friedman, Hastie, & Tibshirani, 2010; qgraph package; Epskamp et al., 2012)
TEMPORAL NETWORKS
(COGNITIVE STYLE & DEPRESSION)

• Cross- Lagged (T1 → T2)

• Cross-Construct (T1 CSQ → T2 CDI)

• In-Prediction (impact on node A)

• Out-Prediction (impact of node A)

(Rhemtulla, van Bork, & Cramer, 2018)
TEMPORAL NETWORKS
(COGNITIVE STYLE & DEPRESSION)

In-Prediction (impact on node A)

Estimate for a node at T2 by all nodes in the other construct at T1

(Rhemtulla, van Bork, & Cramer, 2018)
In-Prediction (impact on node A)

Estimate for a node at T2 by all nodes in the other construct at T1

Out-Prediction (impact of node A)

Estimate for a node at T1 to all other nodes in the other construct at T2

(Rhemtulla, van Bork, & Cramer, 2018)
Discussion
RELATIONSHIPS BETWEEN COMPONENTS OF COGNITIVE STYLE

• Missing information in additive and weakest link scores
RELATIONSHIPS BETWEEN COMPONENTS OF COGNITIVE STYLE

- Missing information in additive and weakest link scores
- Expected influence
  - Stable (vs. temporary) thinking
  - Negative future consequences
RELATIONSHIPS BETWEEN COMPONENTS OF COGNITIVE STYLE

• Missing information in additive and weakest link scores
• Expected influence
  ▶ Stable (vs. temporary) thinking
  ▶ Negative future consequences
• Future directions
  ▶ Longitudinal and experimental data
  ▶ Intervention
NEGATIVE COGNITIVE STYLE & DEPRESSION

• Specific pathways connecting negative cognitive style to depression
NEGATIVE COGNITIVE STYLE & DEPRESSION

• Specific pathways connecting negative cognitive style to depression
• Implications for
  ▶ Prediction
  ▶ Intervention
NEGATIVE COGNITIVE STYLE & DEPRESSION

• Specific pathways connecting negative cognitive style to depression
• Implications for
  ‣ Prediction
  ‣ Intervention
• Causal relationships?
  ‣ Stable and global thinking → depressive symptoms
  ‣ Depressive symptoms → internal attributions
  ‣ Feedback effects?
CONCLUSIONS

• Novel approach for studying cognitive style that fits with theory

• Potential implications for prediction and treatment
THANK YOU!

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