



## Dissociating Cognitive and Affective Empathy: Implications for Mood Disorders

W. Jake Thompson & Evangelia G. Chrysikou

Department of Psychology, University of Kansas



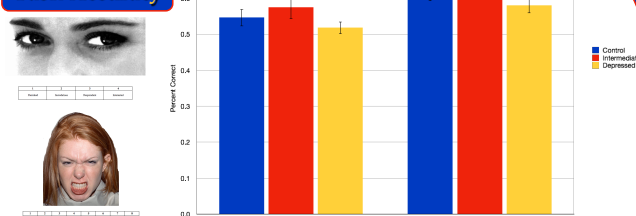
### Background & Objectives

- Empathy is a higher order aspect of social cognition that can be divided into two processes: (a) Cognitive Empathy, which involves recognizing emotions and taking the perspective of others, and (b) Affective Empathy, which involves affective responsiveness and emotional contagion (Hooker et al., 2010).
- Deficits in these empathic abilities have been associated with a number of psychiatric disorders, including major depressive disorder. However no studies have yet examined whether depressed individuals show a dissociation between these abilities (Thoma et al., 2011).
- The most widely used measure of empathy is the Interpersonal Reactivity Index (IRI; Davis, 1980). However this may not accurately measure affective empathy and the two-factor structure of the scale that is most commonly used in the literature has not been supported by statistical evidence (Cliffordson, 2002; Pulos et al., 2004; Yarnold et al., 1996).
- The present project involves two studies the aim of which was to examine (1) the appropriateness of using the IRI as a measure of affective empathy, and (2) a possible dissociation between cognitive and affective empathy in major depression.

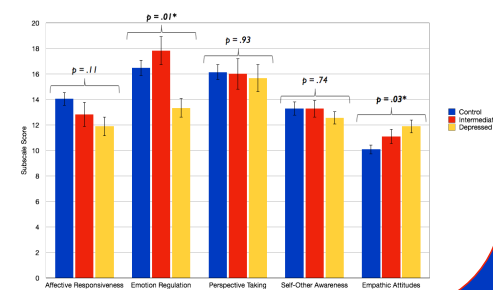
### Study 1

- Participants: 417 participants completed the IRI through Amazon's Mechanical Turk and were paid \$0.10 for their time (Mean Hourly Wage = \$1.71). This is above the site's average hourly pay of \$1.38 (Horton & Chilton, 2010).
- A Confirmatory Factor Analysis (CFA) was conducted to test the validity of the two-factor approach, and a follow-up Exploratory Factor Analysis (EFA) was conducted to determine the best model fit.
- The CFA utilized the diagonally weighted least squares (DWLS) estimator, and found poor model fit for the 2-factor IRI (CFI = 0.69, TLI = 0.67, RMSEA = 0.11, 90% CI = 0.10 - 0.11).
- The EFA utilized the quartimin rotation and found that a 5-factor model provided the best fit (CFI = 0.95, TLI = 0.92, RMSEA = 0.08, 90% CI = 0.07 - 0.08). The structure with the best fit maps closely onto the original model put forth by Davis (1980), with the exception of the Perspective Taking factor, which in our model is split between "Interpersonal Understanding" and "Interpersonal Problem Solving." The other factors consisted of "Emotional Concern," "Situational Placement," and "Negative Emotion Regulation."

### Task Accuracy



### EAI



### Study 2

- Participants: 48 undergraduate students were classified as Depressed (BDI  $\geq 20$ ;  $n = 9$ ), Intermediate (BDI = 11 - 19;  $n = 11$ ) or Control (BDI  $\leq 10$ ;  $n = 28$ ).
- A battery of self-report empathy questionnaires (QMEE, IRI, TEQ, EQ, MDEE, EQN, EAI, QCAE, OCS, and SCS) was administered along with two objective tests of cognitive empathy, the Mind in the Eyes Test (Baron-Cohen et al., 2001) and the NimStim Recognition task (Tottenham et al., 2009), to examine differences in cognitive empathy.
- Results showed that the Empathy Assessment Index (EAI; Lietz et al., 2011) best differentiated depressed and control subjects, with depressed individuals reporting lower levels of affective empathy.
- Additionally, depressed and control subjects did not differ on either measure of cognitive empathy as measured by task accuracy or reaction time.

### Discussion & Future Directions

- The results indicate the presence of a dissociation between cognitive and affective empathy in depression, with depressed individuals showing lower levels of affective empathy, but normal cognitive empathy compared to controls.
- Our ongoing research focuses on developing a valid objective measure of affective empathy and determining the directionality of the depression-empathy relationship to aid in possible treatments.

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### Contact Information

For more information or for reprints please contact:  
W. Jake Thompson & Evangelia G. Chrysikou, Ph.D.  
Department of Psychology  
University of Kansas  
1415 Jayhawk Blvd., 426 Fraser Hall  
Lawrence, KS 66045  
Email: [jlachrysikou@ku.edu](mailto:jlachrysikou@ku.edu)  
[jake.thompson@ku.edu](mailto:jake.thompson@ku.edu)  
[www.chrysikoulab.ku.edu](http://www.chrysikoulab.ku.edu)



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