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# A Psychological Mediation Framework of Reinforcement Sensitivity

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# RST and Regulatory Focus

- Regulatory focus (Higgins, 1997; 2012)
  - Promotion orientation: preference for reward-based goals
    - Close relationship with BAS
  - Prevention orientation: preference for nonpunishment-based goals
    - Close relationship with BIS
- Goal preferences frame feedback from negative experiences
  - Losses vs nongains (Idson, 2000)
  - Deflating self-evaluation vs inflating self-evaluation (Scholer, 2014)

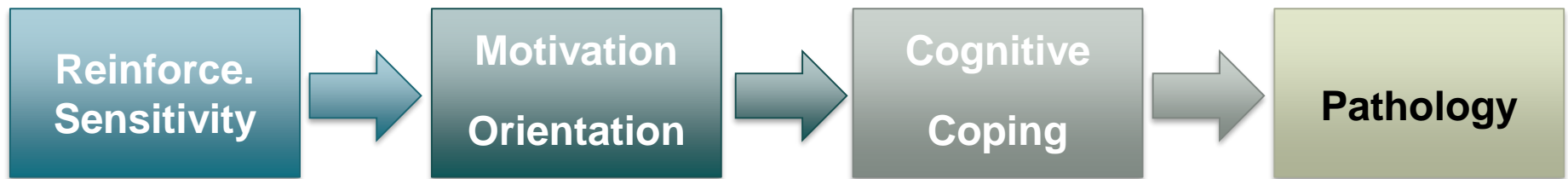


# RST and Affective Pathology

- Meta-analyses found reinforcement sensitivity to predict depression and anxiety (Katz, in prep)
  - BAS: small, negative effect ( $g = -.16$ )
  - BIS: large, positive effect ( $g = 1.10$ )
- Often, direct relationship is emphasized
  - e.g., BAS and anhedonia
  - Can cognitive mechanisms partially account for this relationship as well? (Trew, 2011)



# Cognitive Coping Model of Reinforcement Sensitivity Theory



# Hypotheses

- Higher levels of BAS
  - Approach oriented motivation
  - Positively valanced coping strategies
  - Lower rates of affective disorders
- Higher levels of BIS
  - Avoidance oriented motivation
  - Negatively valanced coping strategies
  - Higher rates of affective disorders

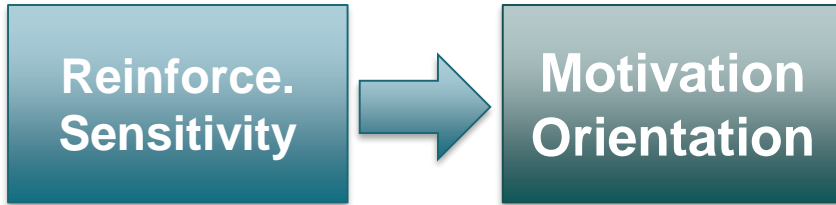


# Method: Participants

- 512 participants (285 females) recruited via Prolific Academic Platform
  - Adults ( $M$  age = 37.3,  $SD$  = 12.3)
  - English-language nationalities
    - UK + Ireland = 280
    - North America = 232



# Method: Materials



- Reinforcement Sensitivity
  - BIS/BAS scales (Carver, 1994)
- Motivation Orientation
  - Promotion/Prevention scale (Lockwood, 2002)



# Method: Materials (cont.)

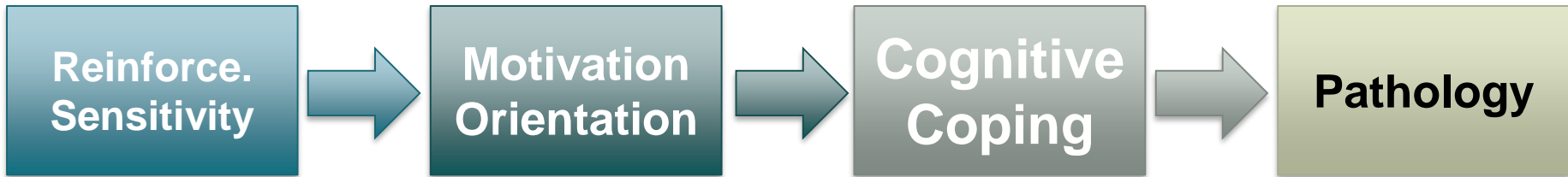


- Reappraisal
  - Emotion Regulation Questionnaire – Reappraisal (Gross, 2013)
- Negative Judgement
  - Five-Factor Mindfulness Questionnaire – Nonacceptance (Baer, 2006)
  - Ruminative Responses Scale – Brooding (Treyner, 2003)





# Method: Materials (cont.)



- **Affective Pathology: Depression, Anxiety and Stress Scales** (Lovibond, 1995)
  - Depression
  - Anxiety

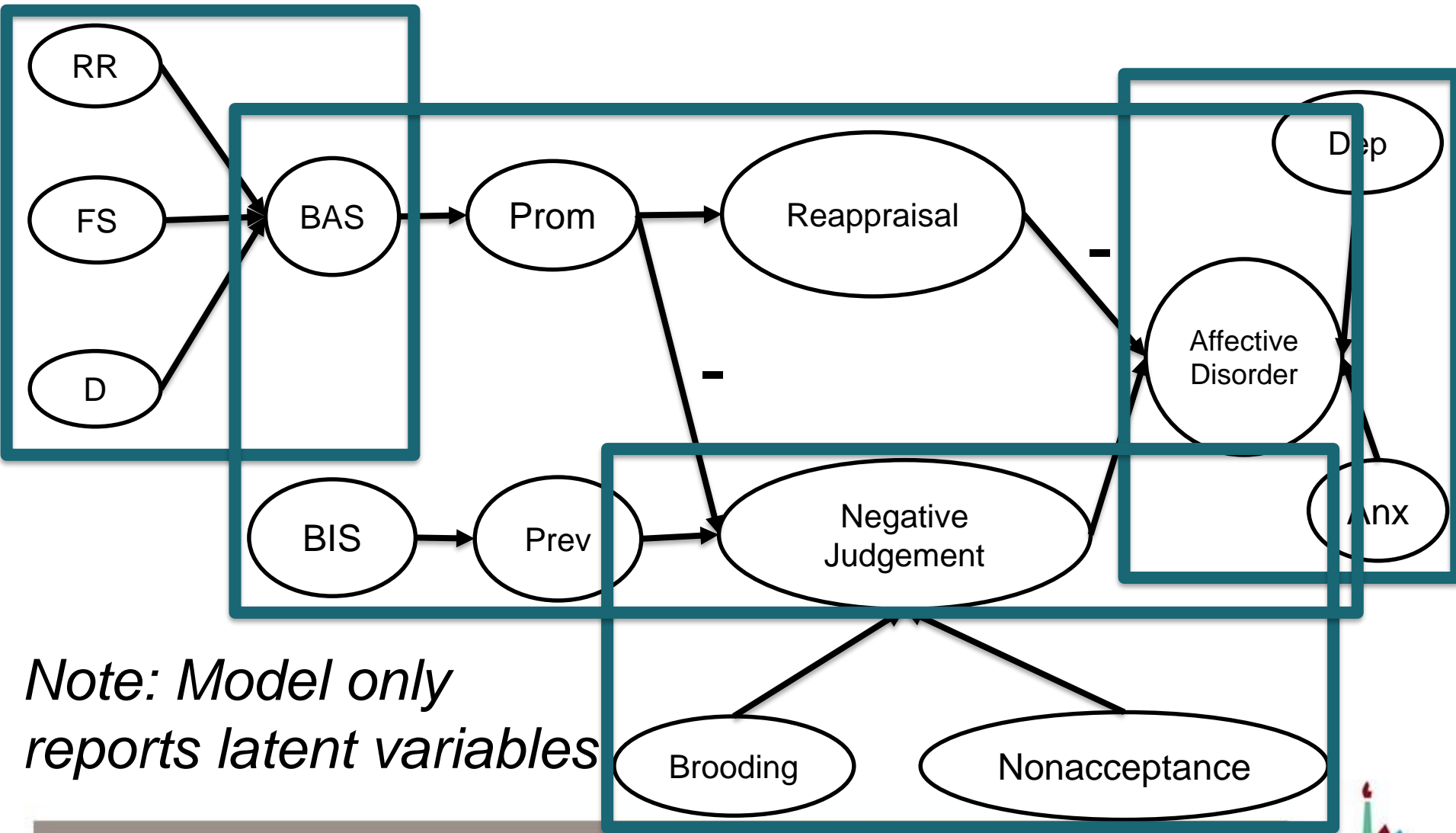


# Analysis Plan

- Structural equation modeling (SEM; Kline, 2015)
- Ps randomly partitioned to two equal groups
  - Model building ( $n = 256$ )
  - Model confirmation ( $n = 256$ )
- Closely related subscales merged to higher-ordered factors
  - e.g., Depression + Anxiety ( $r = .60$ ) > Affective Pathology



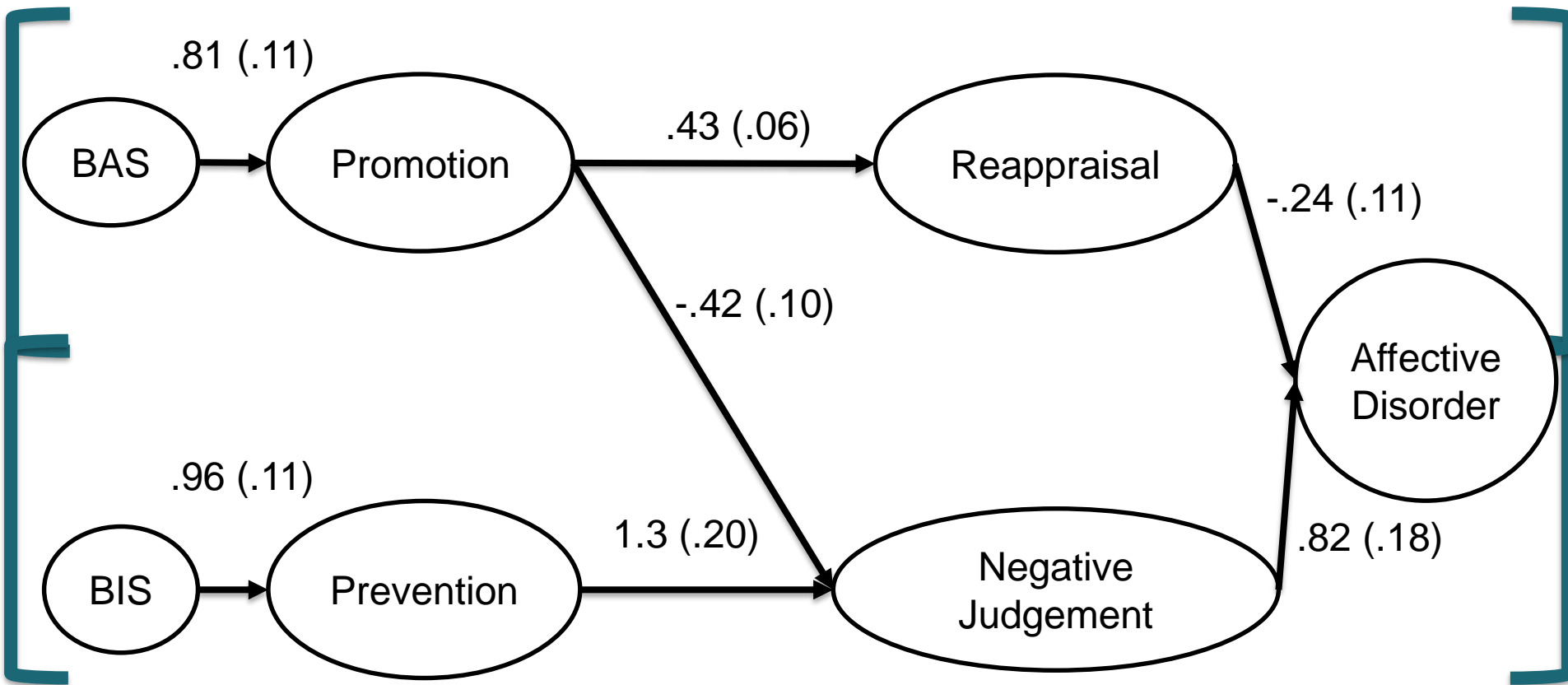
# Fully Expanded Model



*Note: Model only reports latent variables*



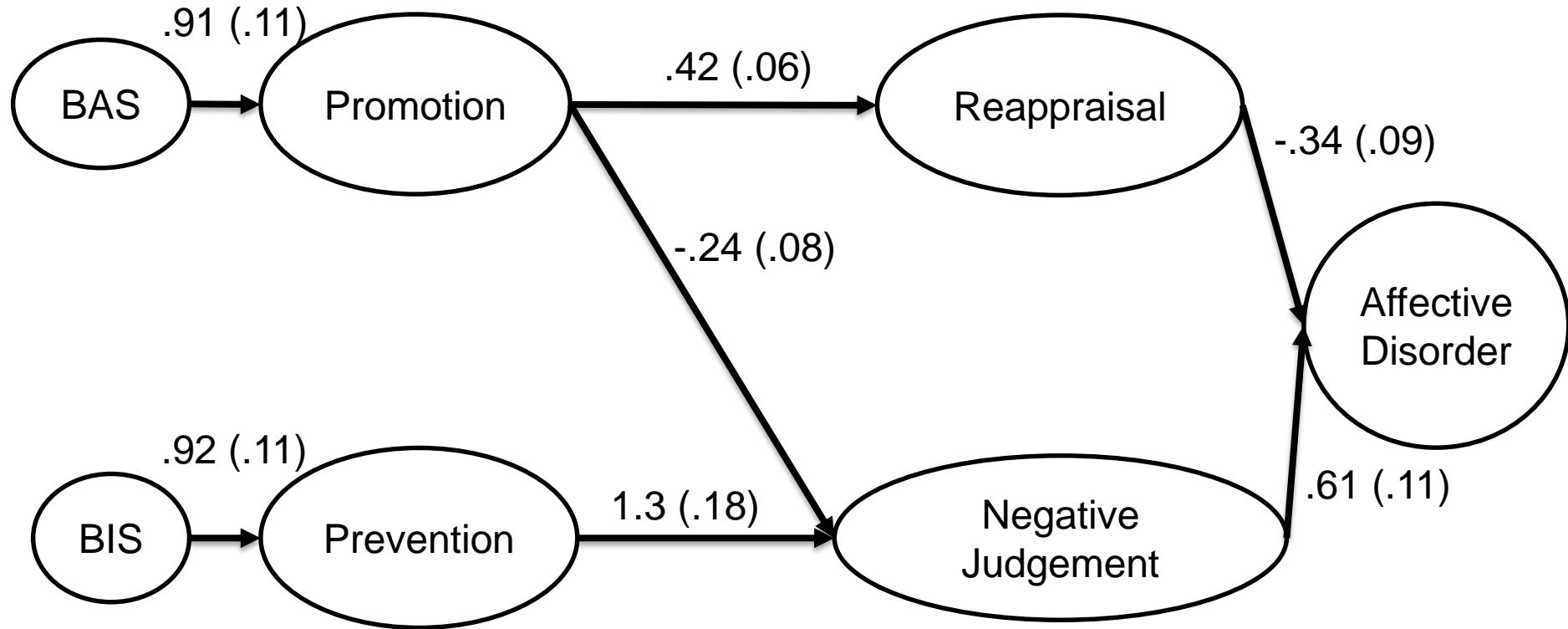
# Results: Group 1 (Model building)



$\chi^2_{(2900)} = 5330, p < .0001$ ; Adj  $\chi^2 = 1.8$ , RMSEA = .057 [.055; .060], SRMR = .097



# Results: Group 2 (Model Confirmation)



$\chi^2_{(2900)} = 5356, p < .0001$ ; Adj  $\chi^2 = 1.8$ , RMSEA = .058 [.055; .060], SRMR = .101



# Clinical Reinforcement Sensitivity Theory

- RST may have multiple points of direct and indirect impact on affective psychopathology:
  - Stress – high BIS as transdiagnostic stressor
  - Coping – motivation orientation impacts coping strategies
  - Disorder – direct relationship with symptoms
- How do these points of impact influence the development and course of disorders?



# Approach/Avoidance and Emotion Regulation

- Promotion and prevention predict adaptive and maladaptive coping
  - BAS/Promotion predict adaptive reappraisal
  - BIS/Prevention *and* (-) BAS/Promotion predict maladaptive negative judgement
- How do reinforcement sensitivity and motivation orientation relate to other common regulatory strategies (e.g., distraction, acceptance, etc.)?





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# ADDITIONAL SLIDES



# Sample items

- **BIS/BAS** (Carver, 1994)
  - **BAS**
    - Fun Seeking ( $\alpha = .75$ ) - I crave excitement and new sensations.
    - Reward Responsiveness ( $\alpha = .78$ ) - When good things happen to me, it affects me strongly.
    - Drive ( $\alpha = .83$ ) - When I want something I usually go all-out to get it
  - **BIS** ( $\alpha = .86$ ) - If I think something unpleasant is going to happen I usually get pretty "worked up."
- **Promotion/Prevention scale** (Lockwood, 2002)
  - Promotion ( $\alpha = .92$ ) - I am more oriented toward achieving gains than I am toward preventing losses.
  - Prevention ( $\alpha = .87$ ) - I am more oriented toward achieving gains than I am toward preventing losses.



# Sample items

- Reappraisal; Emotion Regulation Questionnaire ( $\alpha = .90$ ; Gross, 2013)
  - When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.
- Non-Judgement (R); Five-Factor Mindfulness Questionnaire ( $\alpha = .95$ ; Baer, 2006)
  - I tell myself that I shouldn't be thinking the way I'm thinking.
- Brooding; Ruminative Responses Scale ( $\alpha = .95$ ; Treynor, 2003)
  - I always seem to be "re-hashing" in my mind recent things I've said or done.

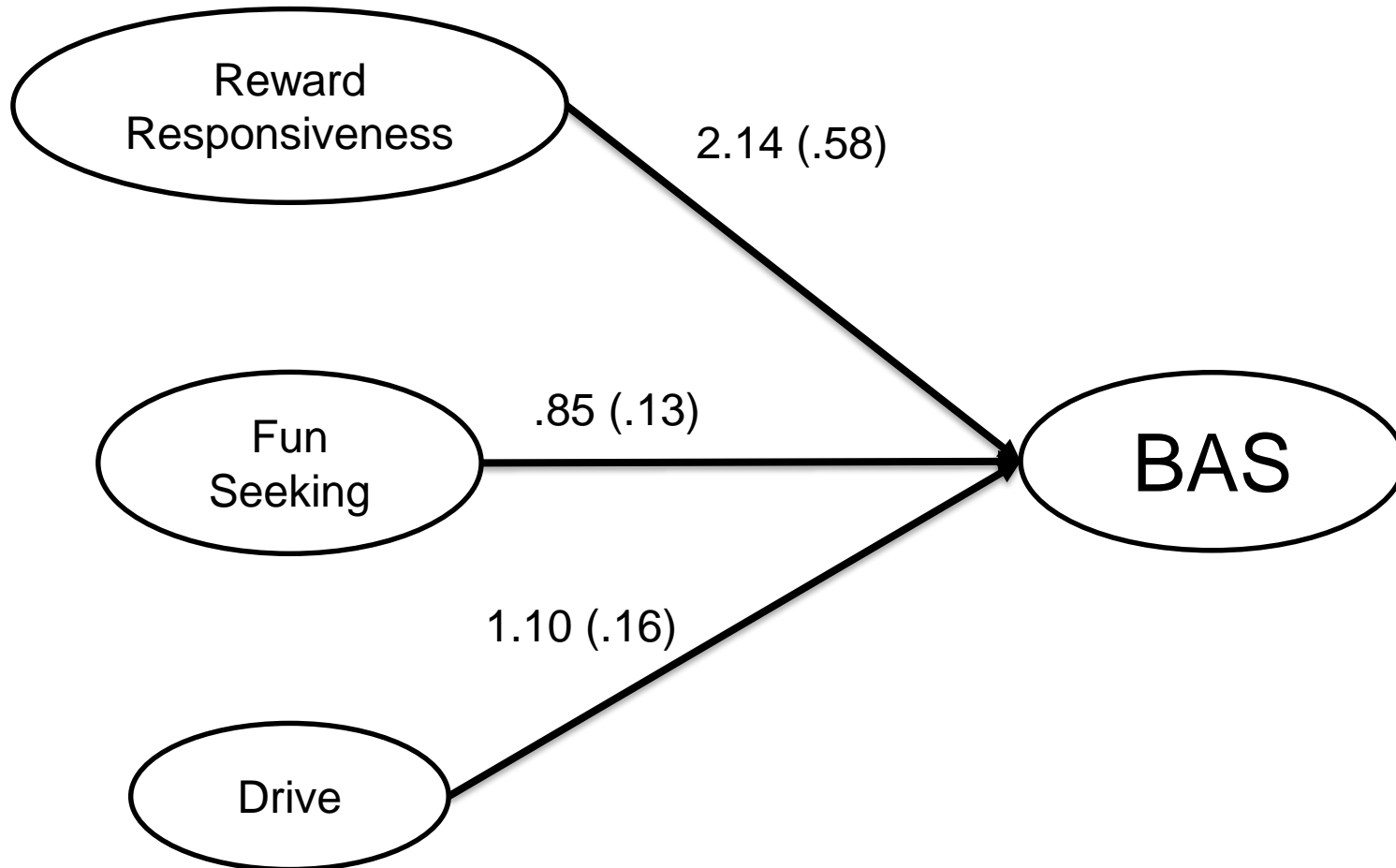


# Sample items

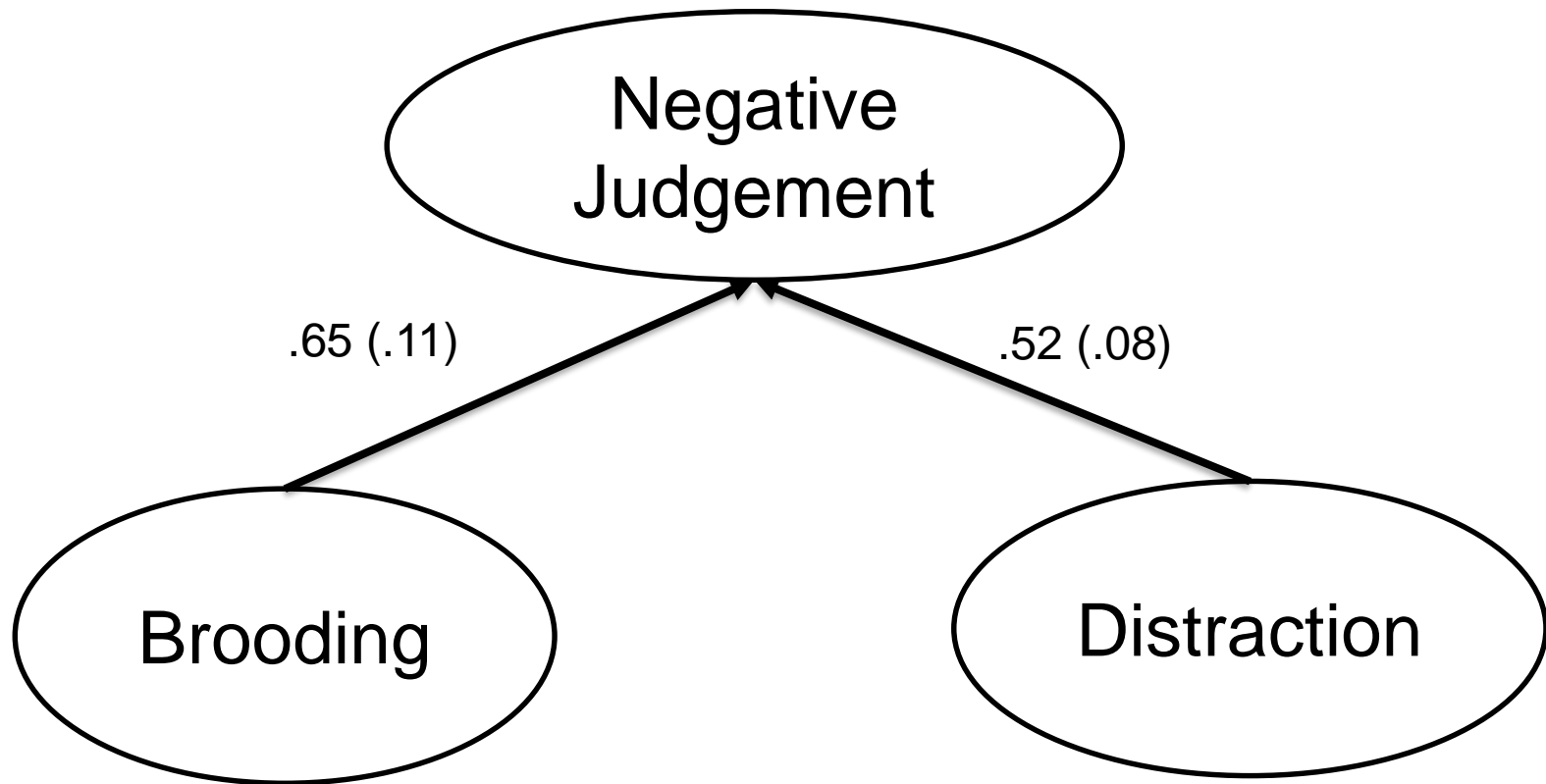
- Depression, Anxiety & Stress Scales  
(Lovibond, 1995)
  - Depression ( $\alpha = .94$ )
    - I felt that life was meaningless
  - Anxiety ( $\alpha = .87$ )
    - I felt I was close to panic



# Loading on BAS



# Loading on Negative Judgement



# Loading on Affective Disorder

