Positive Emotion and Reward Disturbance in Mood Disorders

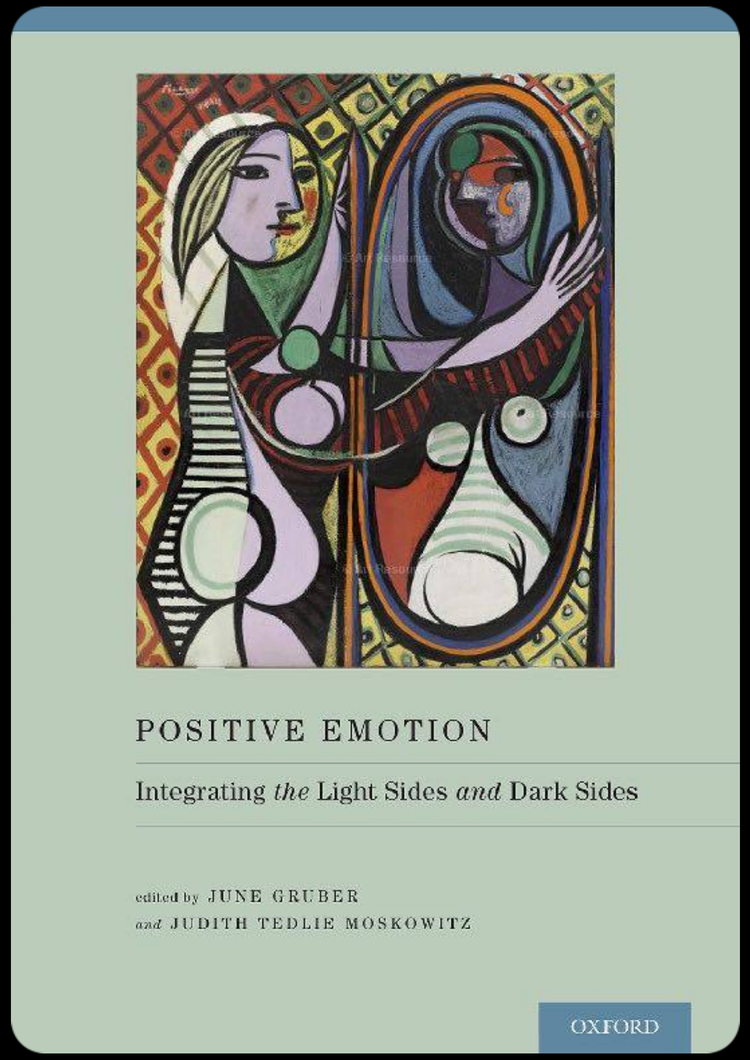
PUZZLES, PRIORITIES, AND A PATH FORWARD

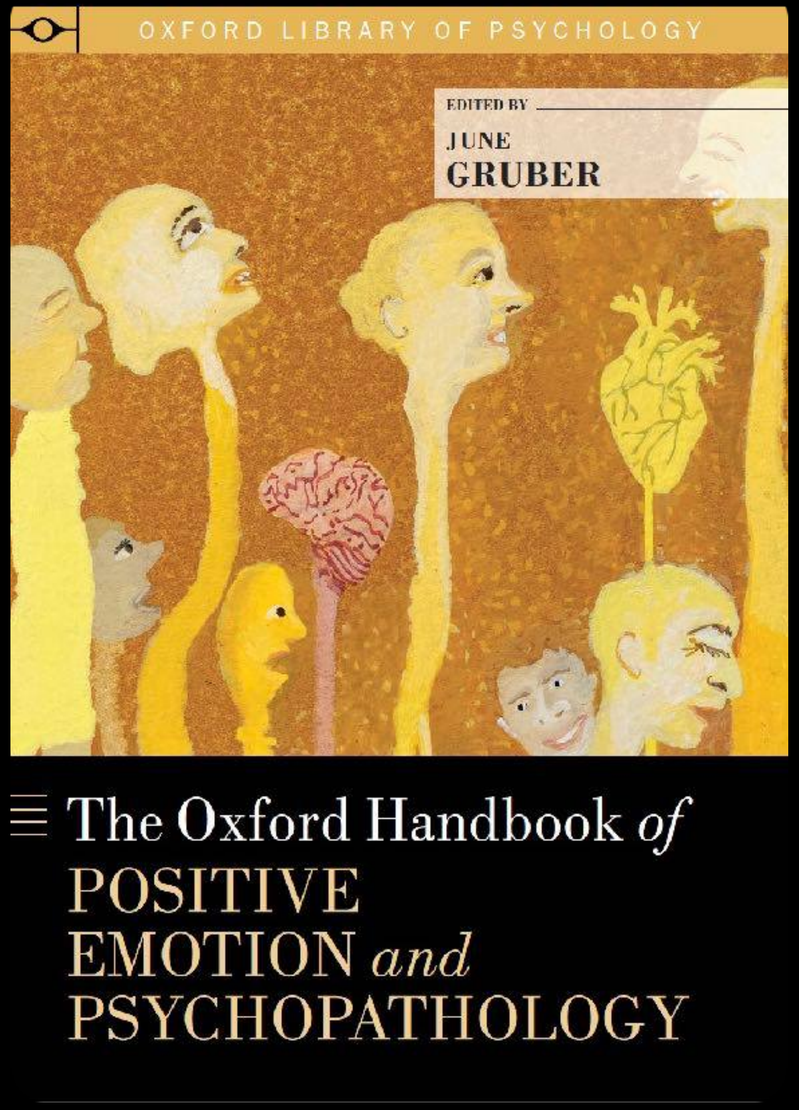
JUNE GRUBER, PH.D.

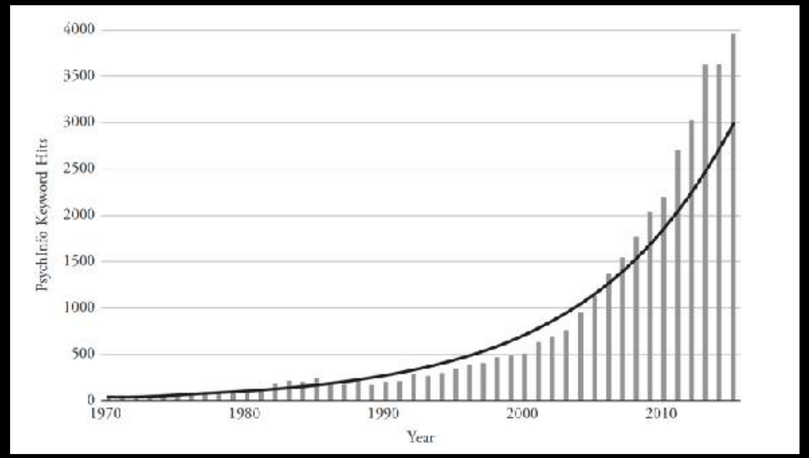
Professor, Department of Psychology and Neuroscience
Director, Positive Emotion & Psychopathology Laboratory
University of Colorado Boulder

Gruber, 2019; Villanueva et al., 2021

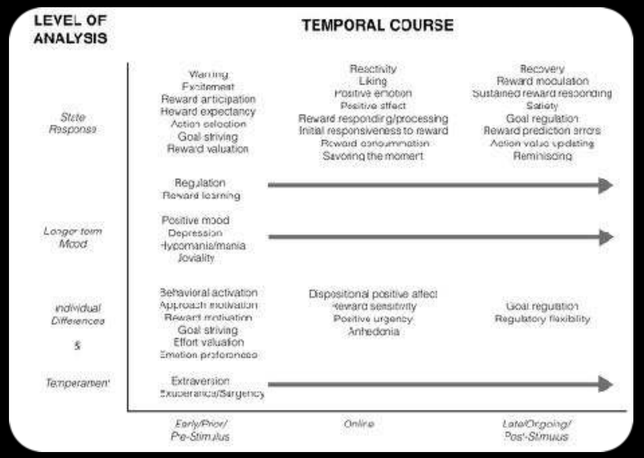
Positive Emotion, Reward, and Psychological Health





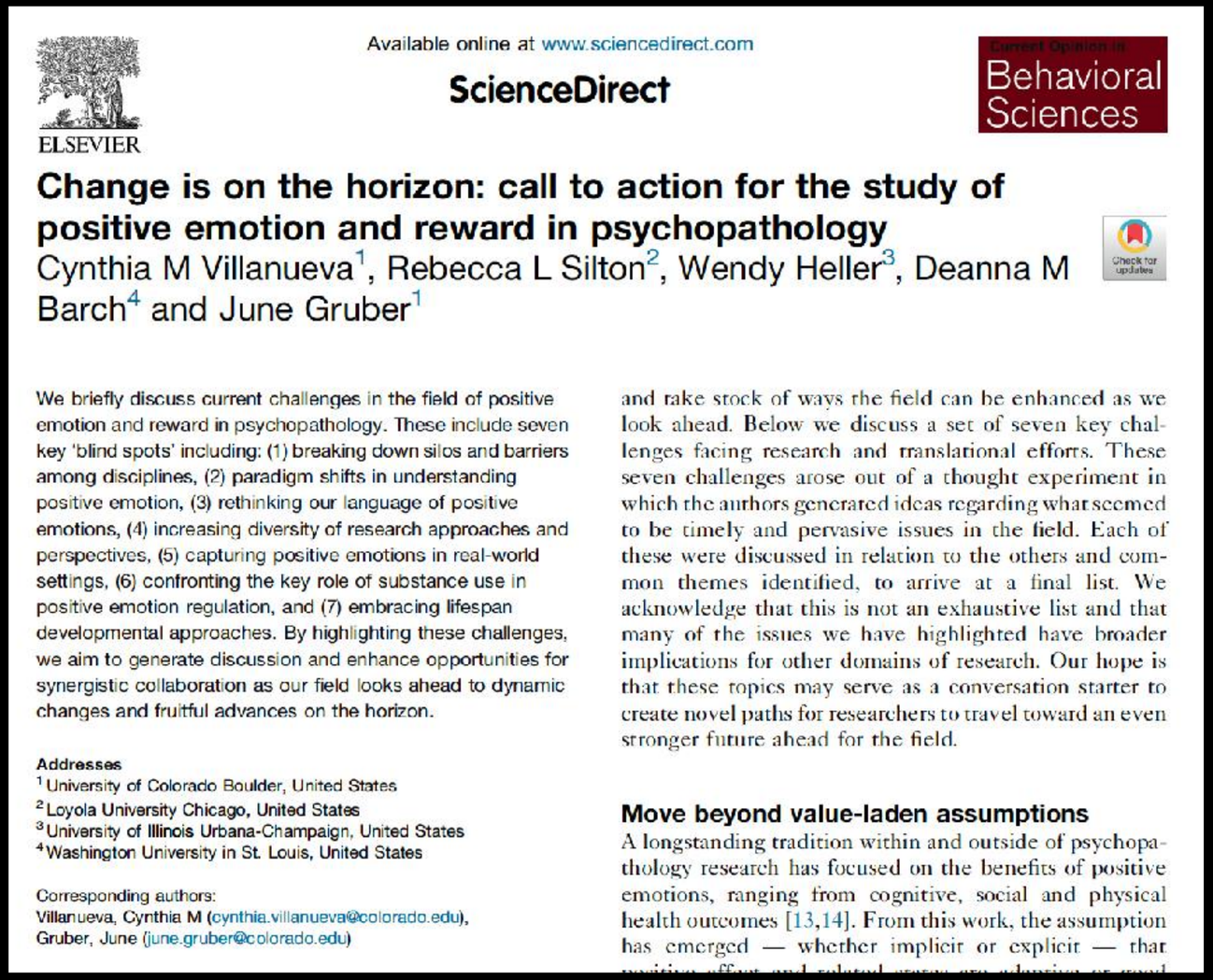


# of articles published using keywords “psychopathology/ psychological disorder/mental disorder/emotional disorder/ affective disorder/transdiagnostic” and “positive emotion/affect” by year. (Gruber, Tobias, Flux, & Gilbert, 2019)



Villanueva, Silton, Heller, Barch & Gruber (2021)

KEY PRIORITIES



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Current Opinion in Behavioral Sciences

Change is on the horizon: call to action for the study of positive emotion and reward in psychopathology

Cynthia M Villanueva[1], Rebecca L Silton[2], Wendy Heller[3], Deanna M Barch[4] and June Gruber[1]

We briefly discuss current challenges in the field of positive emotion and reward in psychopathology. These include seven key 'blind spots' including: (1) breaking down silos and barriers among disciplines, (2) paradigm shifts in understanding positive emotion, (3) rethinking our language of positive emotions, (4) increasing diversity of research approaches and perspectives, (5) capturing positive emotions in real-world settings, (6) confronting the key role of substance use in positive emotion regulation, and (7) embracing lifespan developmental approaches. By highlighting these challenges, we aim to generate discussion and enhance opportunities for synergistic collaboration as our field looks ahead to dynamic changes and fruitful advances on the horizon.

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[1] University of Colorado Boulder, United States
[2] Loyola University Chicago, United States
[3] University of Illinois Urbana-Champaign, United States
[4] Washington University in St. Louis, United States

Corresponding authors:
Villanueva, Cynthia M (cynthia.villanueva@colorado.edu),
Gruber, June (june.gruber@colorado.edu)

and take stock of ways the field can be enhanced as we look ahead. Below we discuss a set of seven key challenges facing research and translational efforts. These seven challenges arose out of a thought experiment in which the authors generated ideas regarding what seemed to be timely and pervasive issues in the field. Each of these were discussed in relation to the others and common themes identified, to arrive at a final list. We acknowledge that this is not an exhaustive list and that many of the issues we have highlighted have broader implications for other domains of research. Our hope is that these topics may serve as a conversation starter to create novel paths for researchers to travel toward an even stronger future ahead for the field.

Move beyond value-laden assumptions

A longstanding tradition within and outside of psychopathology research has focused on the benefits of positive emotions, ranging from cognitive, social and physical health outcomes [13,14]. From this work, the assumption has emerged — whether implicit or explicit — that

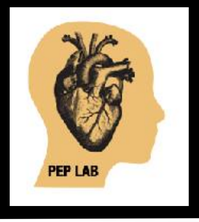
Capture real-world (social) settings

Increase diversity of perspectives

Embrace lifespan approaches




Villanueva, Silton, Heller, Barch & Gruber (2021)



ROADMAP

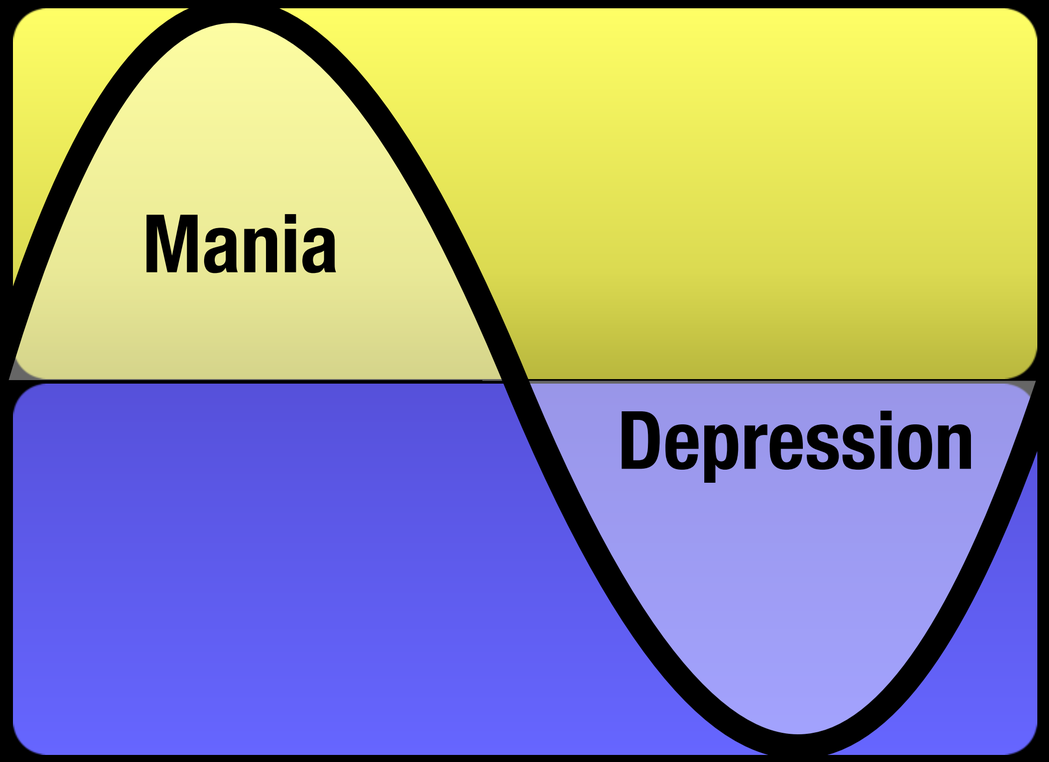
1. Puzzles

2. Priorities

3. Path Forward

Bipolar Disorder as an entry point

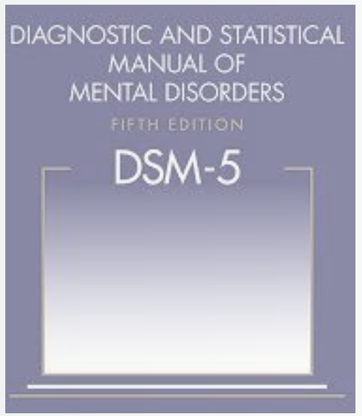
BIPOLAR DISORDER



Significant Impairment

- 1/2 inpatient mental health care costs
- 17% treated for BD experience homelessness in a given year
- 6th leading cause of worldwide disability by World Health Organization

I. Abnormally & Persistently Elevated or Expansive Mood



II. Associated Symptoms

1. Inflated self-esteem or grandiosity
2. Decreased need for sleep
3. More talkative or pressured speech
4. Flight of ideas or racing thoughts
5. Distractibility
6. Increase in goal-directed activity
7. Excessive involvement in pleasurable activities with high risk consequence

III. Causes Impairment

“When you're high it's tremendous. The ideas and feelings are fast and frequent like shooting stars, and you follow them until you find better and brighter ones. Shyness goes, the right words and gestures are suddenly there, the power to captivate others a felt certainty….

The fast ideas are far too fast, and there are far too many; overwhelming confusion replaces clarity. Memory goes. Humor and absorption on friends' faces are replaced by fear and concern.”

-Kay Jamison (2004), *Unquiet Mind*

“It would be hard for me to imagine a more interesting field…it’s a field that is deeply rich in human experience, imagination, and science…”

-Kay Jamison (2020)

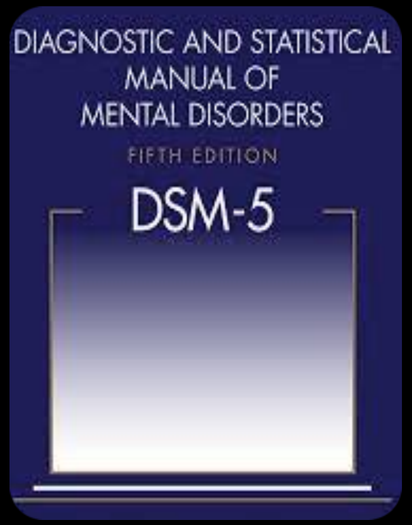
https://www.coursera.org/learn/talkmentalillness

Affective Clinical Science Approach to Bipolar Disorders

Categorical and Dimensional Approaches to Mania

CONTINUUM

DSM-5 Diagnosis
Community Adult Samples



Primary Bipolar Diagnosis

Common Comorbid Diagnoses

Mania Risk
Adolescents & Emerging Adults

HYPOMANIC PERSONALITY SCALE
(HPS; Eckblad & Chapman, 1986)

"I often feel happy and excited for no apparent reason."
"I frequently find that my thoughts are racing."

FAMILY INDEX OF RISK FOR MOOD
(FIRM; Algorta, Youngstrom, et al., 2012)

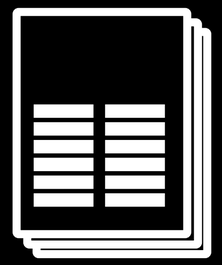
Likelihood rate
for bipolar spectrum disorders

Symptom Severity
Self-Report & Clinician-Rated

Altman Self-Rating Mania Scale
(Altman et al., 1997)

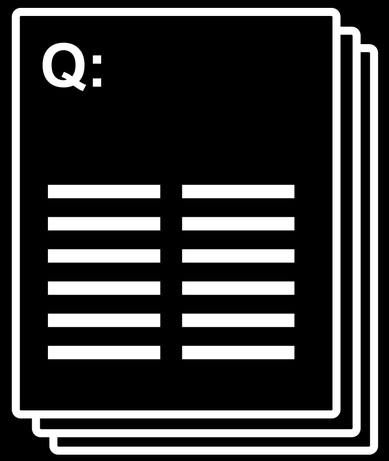
Young Mania Rating Scale (YMRS)
(Young et al, 1978)

Bech-Rafaelsen Mania Scale (BRMS)
(Young et al, 1978)



Multi-Method Assessment of Emotion

Self-Reported Emotion

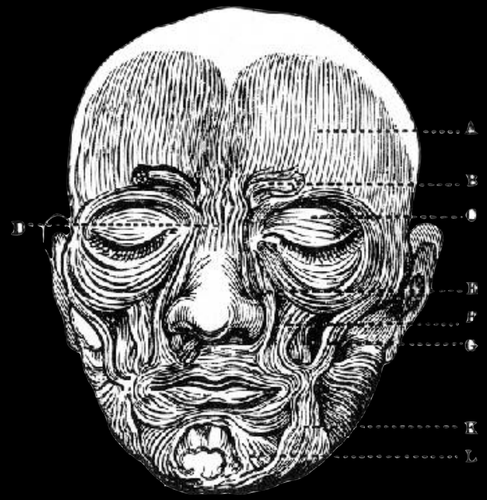


Positive Emotion: Happy, Pride, Amusement, Compassion, Love, Gratitude.

Negative Emotion: Sadness, Fear, Disgust, Anger, Shame, Embarrassment.

Emotional Behavior

(EMFACS; Ekman & Rosenberg, 1997)



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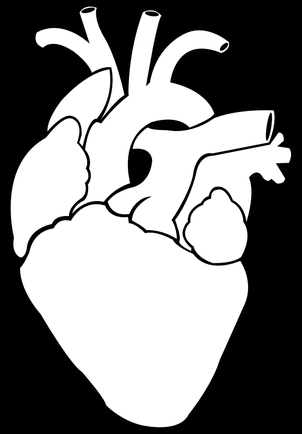
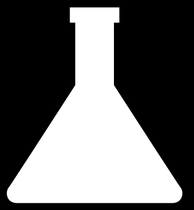
Negative Emotion: Sadness, Fear, Disgust, Anger.

Peripheral & Central Physiology





Heart Rate
Skin Conductance
Cardiac Vagal Tone (RSA)
Finger/ear pulse transit time
Finger/ear pulse amplitude
Systolic & diastolic blood pressure
Pre-ejection period
Stroke volume
Cardiac output
Gross somatic movement

Neuroendocrine
-Cortisol & Testosterone

MRI/fMRI
-Resting state
-Task-based

Multiple Emotion-Eliciting Contexts

EMOTION-ELICITING STIMULUS

Emotion-Eliciting Films
(Gruber, Oveis, Johnson, & Keltner, 2008; Gruber, Harvey, & Purcell, 2011)

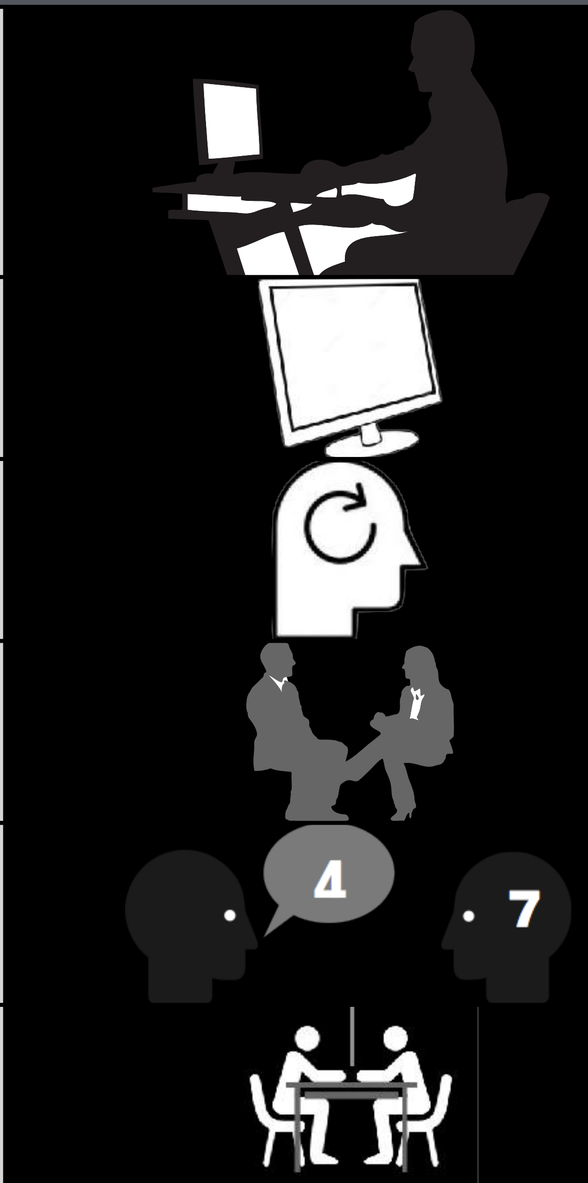
Static Images and Faces
(Gruber, Purcell, Perna & MIkels, 2013; Gruber et al., 2016; Purcell, Musket, Hay, Isaacowitz, & Gruber, 2018)

Autobiographical Memory Recall
(Gilbert & Gruber, 2014; Gruber, Harvey & Johnson, 2009; Gruber, Dutra, Eidelman, Johnson, & Harvey, 2011)

Dyadic Interactions
(Dutra, West, Impett, Oveis, Kogan, & Gruber, 2014)

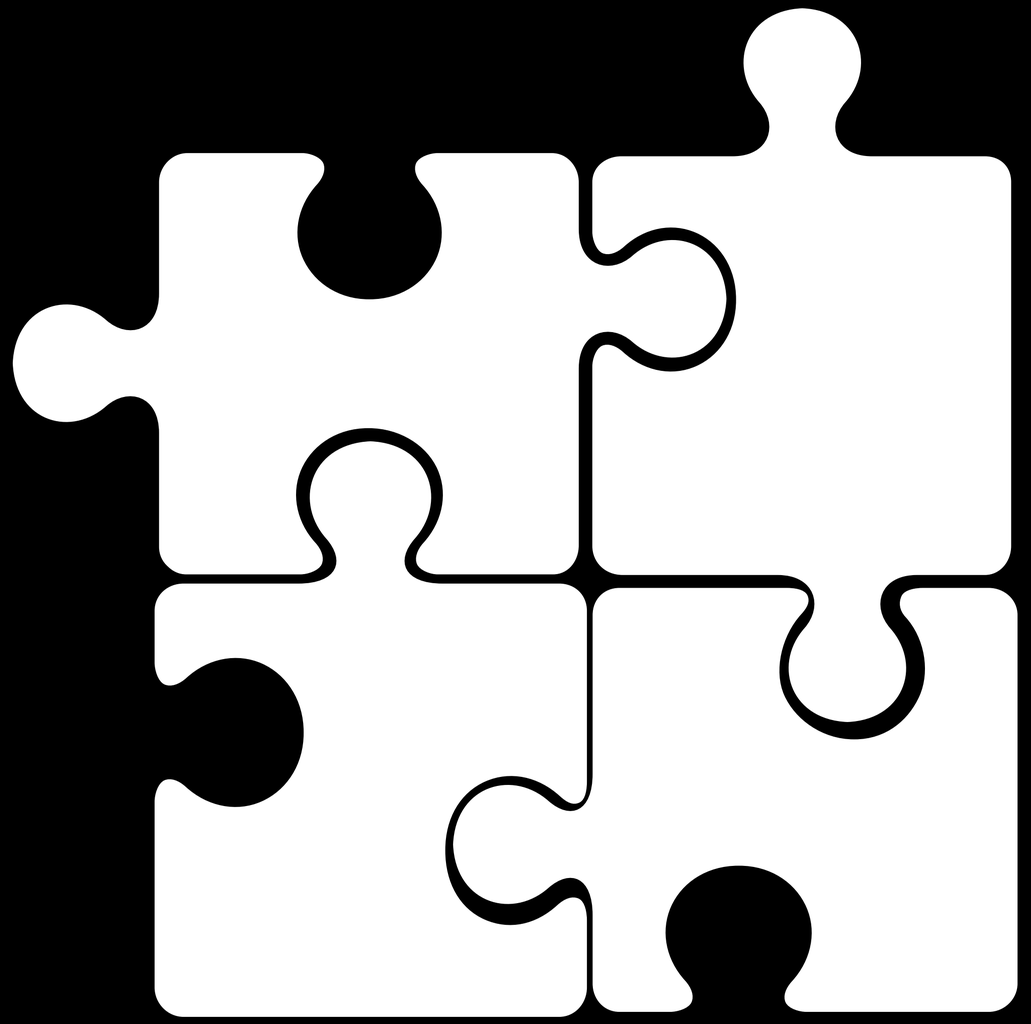
Empathic Accuracy Paradigm
(Devlin, Ong, Zaki, & Gruber, 2014; 2016)

Interpersonal Touch Task
(Piff, Purcell, Gruber, Hertenstein, & Keltner, 2012)



SIZE
Heightened magnitude?

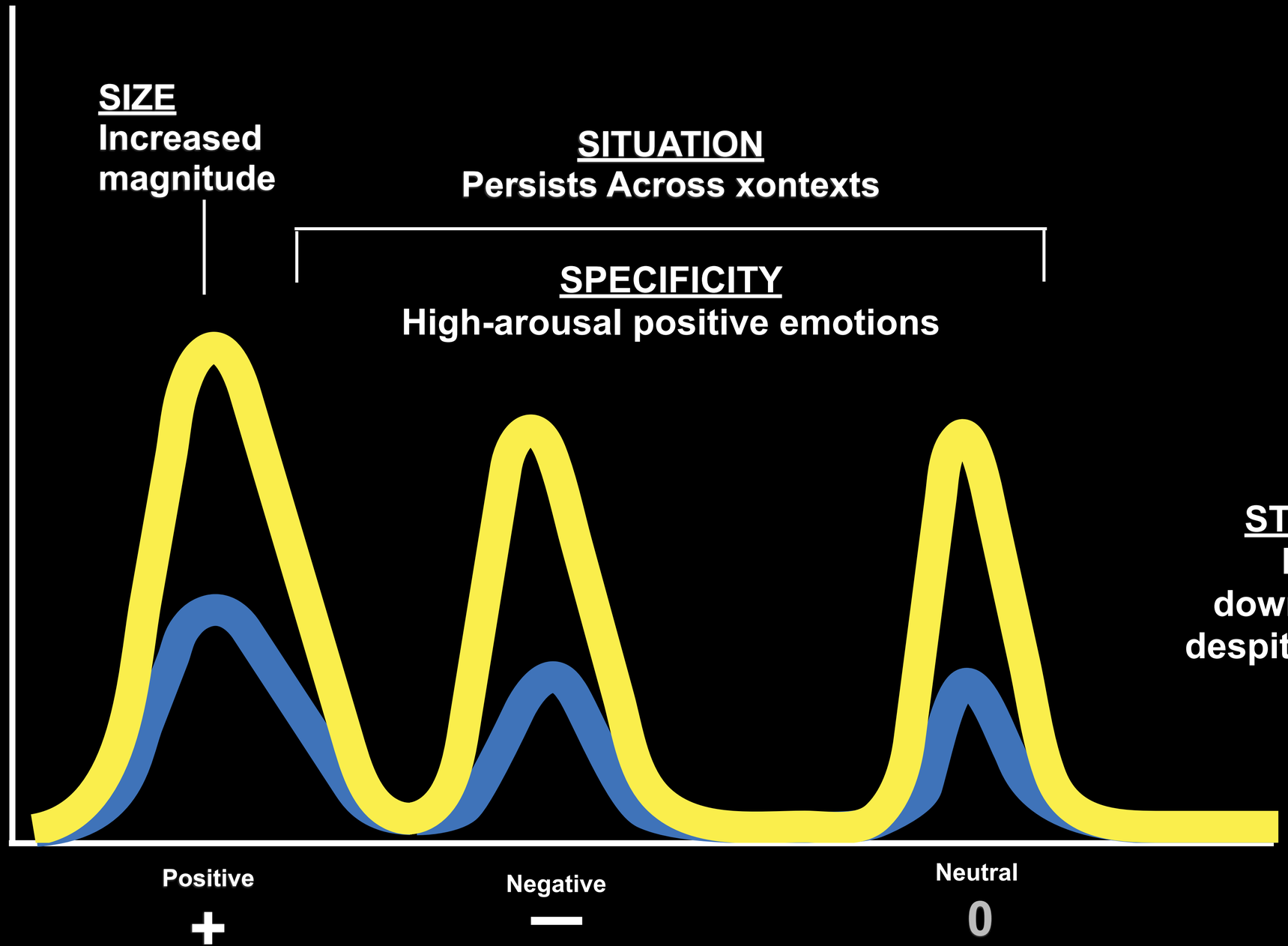
SITUATION
Context insensitive?



SPECIFICITY
Discrete emotions?

STRATEGIES
Emotion regulation difficulties?

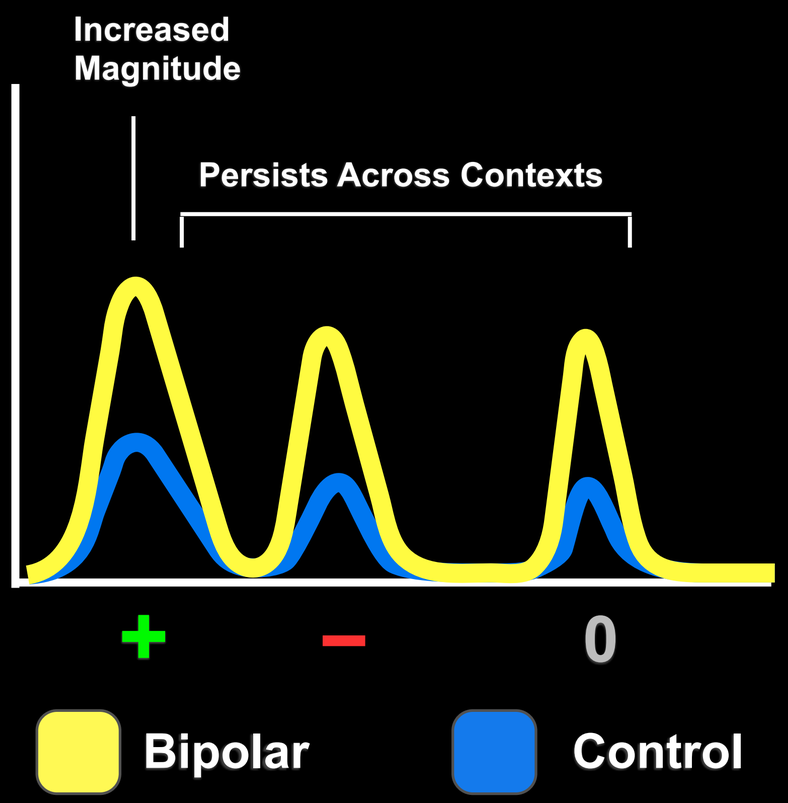
POSITIVE EMOTION PERSISTENCE



Gruber (2011a; 2011b)

DRIVING

POSITIVE EMOTION RESPONSE



MAINTAINING

DRIVING

Bottom-up processing

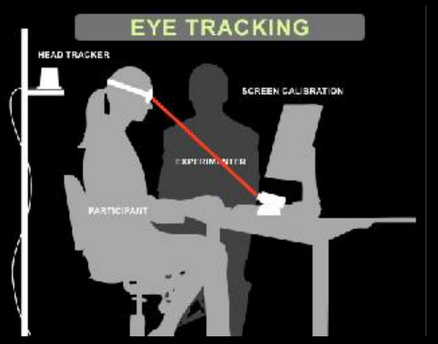
Attentional bias to positive stimuli?

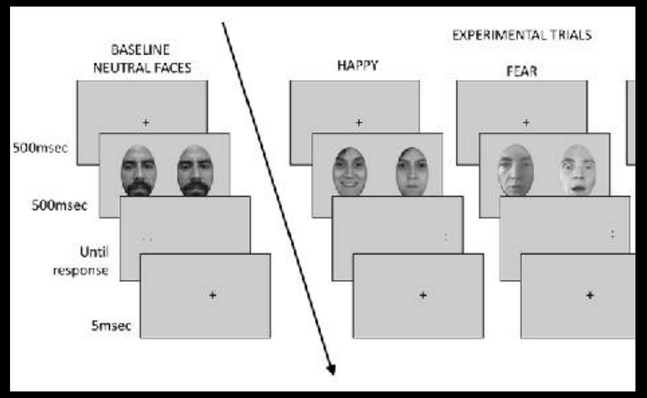
Gruber, Maclaine et al. (2020)
Purcell, Lohani, Musket, Hay, Isaacowitz, & Gruber (2018)
Raila, Scholl, & Gruber (2015)

Reward sensitivity

Increased reward-related systems?

Man, Gruber, Glahn, & Cunningham (2019)
Dutra, Man, Kober, Cunningham, & Gruber (2017)
Dutra, Cunningham, Kober, & Gruber (2015)





ELEVATED STRIATAL REACTIVITY IN BIPOLAR I DISORDER

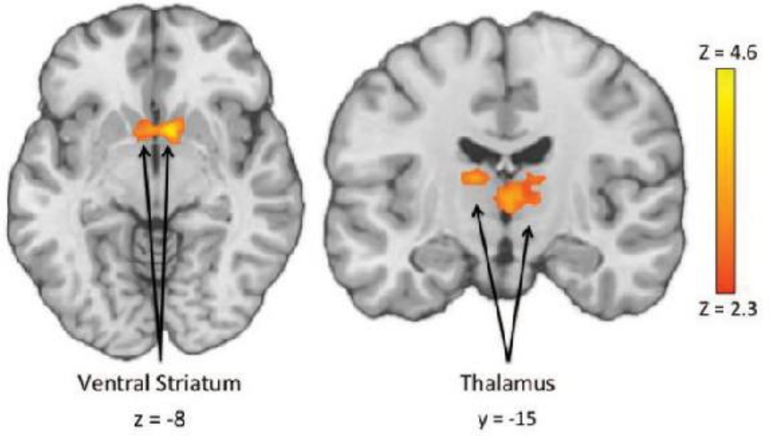
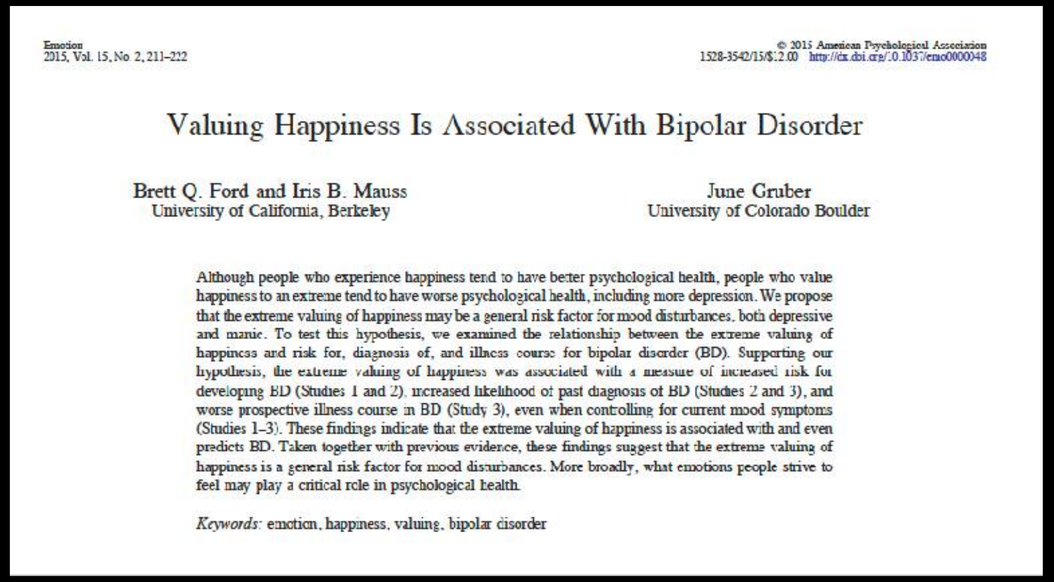


Figure 2. Whole-brain results reflecting main effects of group during reward receipt, using a Bipolar Disorder ([BD] win–no-win) > Healthy Control ([HC] win–no-win) contrast. No significant regions emerged where HC > BD using the same contrast. See the online article for the color version of this figure.



Emotion
2015, Vol. 15, No 2, 211–222

1528-3542/15/$12.00 http://dx.doi.org/10.1037/emo0000048

Valuing Happiness Is Associated With Bipolar Disorder

Brett Q. Ford and Iris B. Mauss
University of California, Berkeley

June Gruber
University of Colorado Boulder

Although people who experience happiness tend to have better psychological health, people who value happiness to an extreme tend to have worse psychological health, including more depression. We propose that the extreme valuing of happiness may be a general risk factor for mood disturbances, both depressive and manic. To test this hypothesis, we examined the relationship between the extreme valuing of happiness and risk for, diagnosis of, and illness course for bipolar disorder (BD). Supporting our hypothesis, the extreme valuing of happiness was associated with a measure of increased risk for developing BD (Studies 1 and 2), increased likelihood of past diagnosis of BD (Studies 2 and 3), and worse prospective illness course in BD (Study 3), even when controlling for current mood symptoms (Studies 1–3). These findings indicate that the extreme valuing of happiness is associated with and even predicts BD. Taken together with previous evidence, these findings suggest that the extreme valuing of happiness is a general risk factor for mood disturbances. More broadly, what emotions people strive to feel may play a critical role in psychological health.

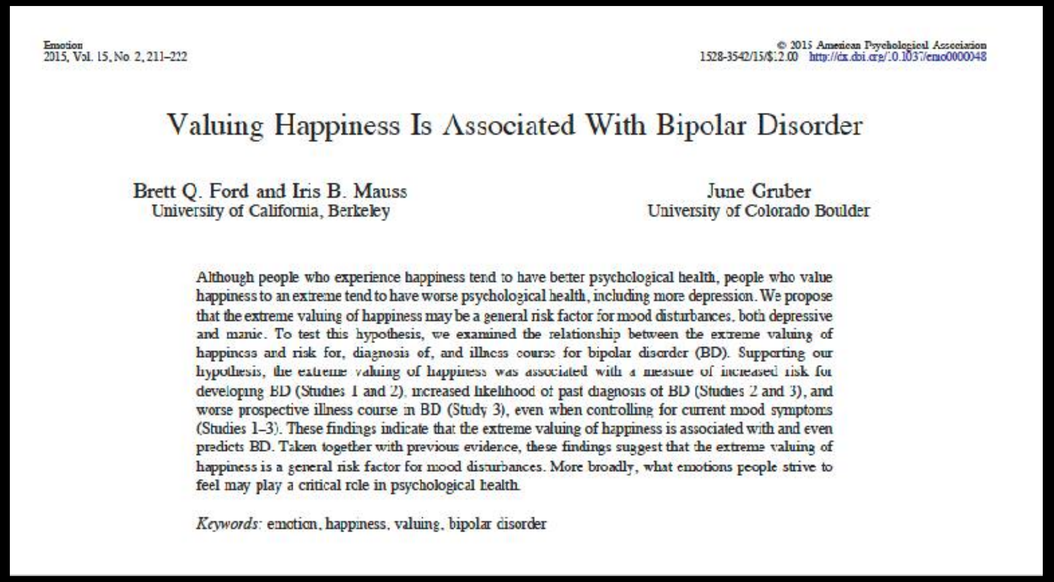
Keywords: emotion, happiness, valuing, bipolar disorder

MAINTAINING

Top-down emotion goals

Amplifying positive emotion?

Millgram, Gruber, Villanueva & Tamir (2021)
Musket, Hansen, Welker, Gilbert, & Gruber (2021)
Ford, Mauss & Gruber (2015)
Gilbert, Nolen-Hoeksema, & Gruber (2013)
Gruber et al (2011)



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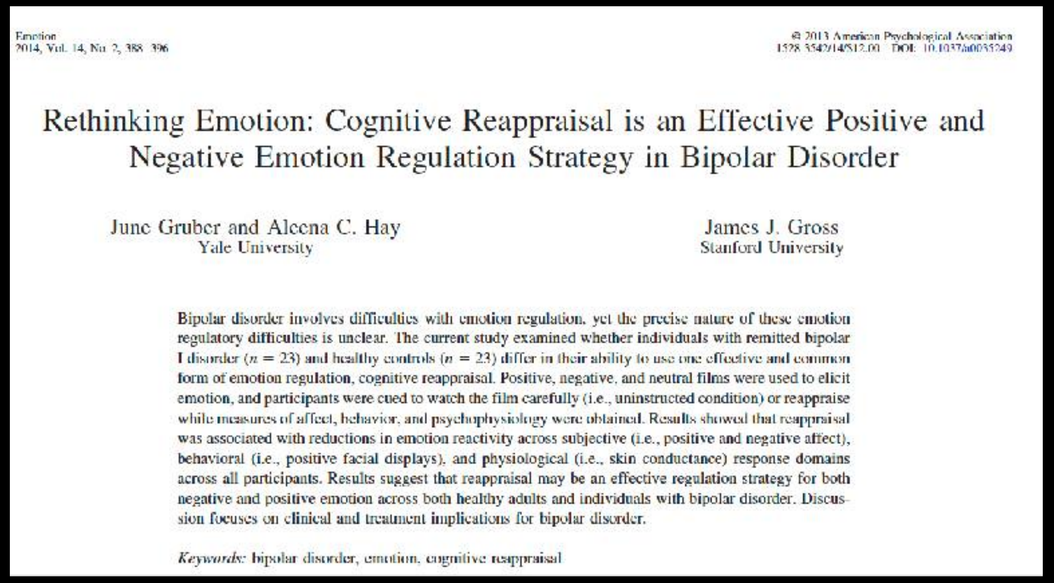

Emotion
2014, Vol. 14, No. 2, 388–396

1528-3542/14/$12.00 DOI: 10.1037/a0035249

Rethinking Emotion: Cognitive Reappraisal is an Effective Positive and Negative Emotion Regulation Strategy in Bipolar Disorder

June Gruber and Aleena C. Hay
Yale University

James J. Gross
Stanford University

Bipolar disorder involves difficulties with emotion regulation, yet the precise nature of these emotion regulatory difficulties is unclear. The current study examined whether individuals with remitted bipolar I disorder ($n = 23$) and healthy controls ($n = 23$) differ in their ability to use one effective and common form of emotion regulation, cognitive reappraisal. Positive, negative, and neutral films were used to elicit emotion, and participants were cued to watch the film carefully (i.e., uninstructed condition) or reappraise while measures of affect, behavior, and psychophysiology were obtained. Results showed that reappraisal was associated with reductions in emotion reactivity across subjective (i.e., positive and negative affect), behavioral (i.e., positive facial displays), and physiological (i.e., skin conductance) response domains across all participants. Results suggest that reappraisal may be an effective regulation strategy for both negative and positive emotion across both healthy adults and individuals with bipolar disorder. Discussion focuses on clinical and treatment implications for bipolar disorder.

Keywords: bipolar disorder, emotion, cognitive reappraisal

MAINTAINING

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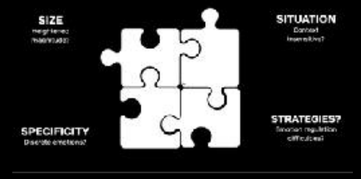
Ford, Mauss & Gruber (2015)
Gilbert, Nolen-Hoeksema, & Gruber (2013)

Emotion regulation strategies

Trouble despite ability to regulate?

Gruber, Hagerty, Mennin, & Gross (2023)
Gruber et al., (2019)
Weinstock, Chou, Celis-deHoyos, Miller, & Gruber (2018)
Hay, Gross, & Gruber, (2015)
Gruber, Hay, & Gross (2014)
Gruber, Harvey & Gross (2012)



TAKE-AWAY

SIZE: Positive emotion intensity in moderation, not maximization

SITUATION: Context-sensitivity of positive emotion key (not all the time, nor in every context)

SPECIFICITY: Consider specificity of discrete emotions (high versus low arousal, sociality, function)

STRATEGIES: Ability versus achievement gap (intact ability, despite trouble down-regulating positive emotions spontaneously)

THEMES IN POSITIVE EMOTION DISTURBANCE

Size

Situation

Specificity

Strategies

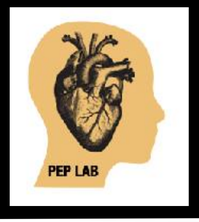
Stability

Spice

Sociality

Striving

Gruber, Purcell & Villanueva (in prep); Gruber, Villanueva, Burr, Purcell, & Karoly (2019)'; Gruber & Purcell (2015);



ROADMAP

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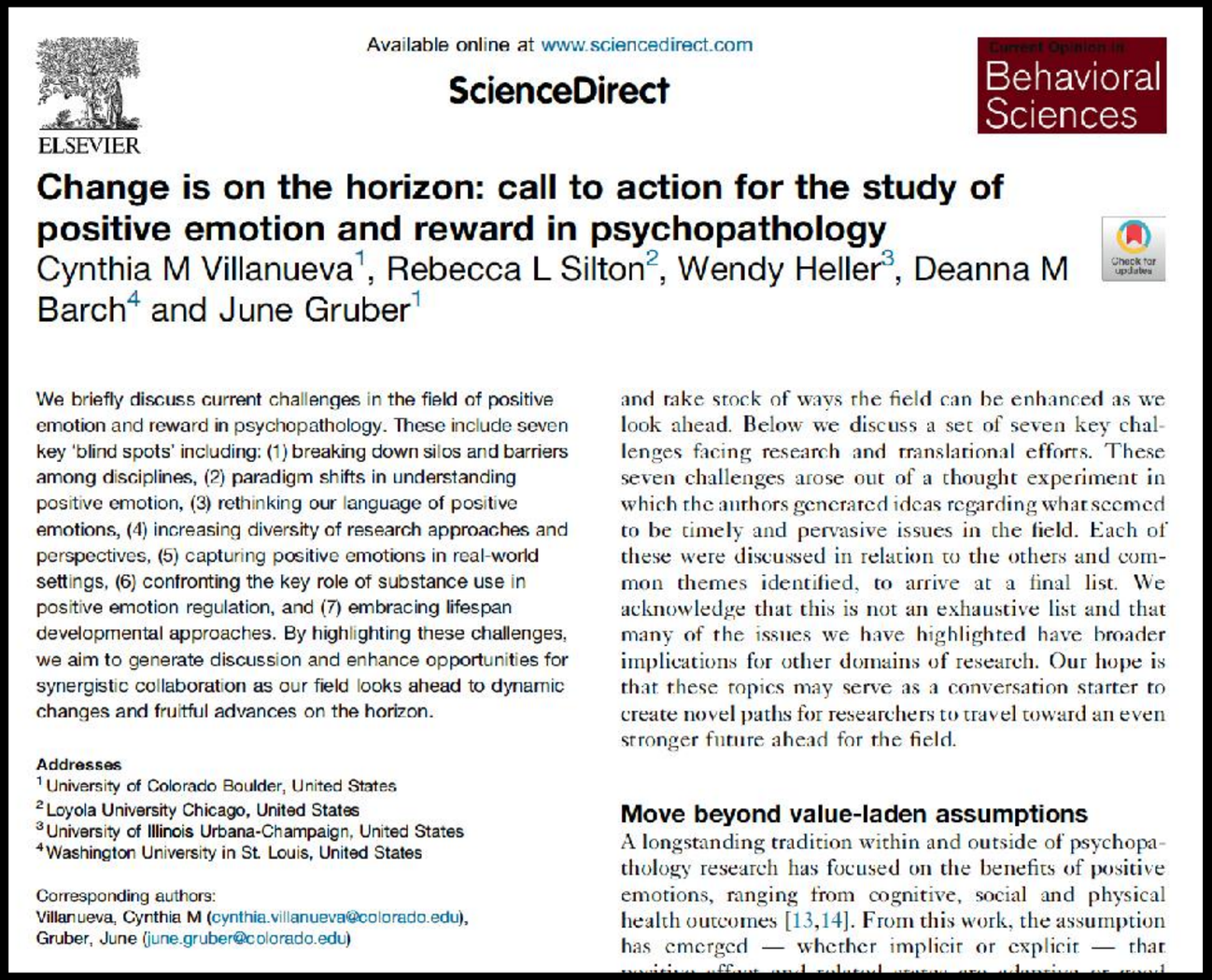
2. Priorities

3. Path Forward

KEY PRIORITIES



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and take stock of ways the field can be enhanced as we look ahead. Below we discuss a set of seven key challenges facing research and translational efforts. These seven challenges arose out of a thought experiment in which the authors generated ideas regarding what seemed to be timely and pervasive issues in the field. Each of these were discussed in relation to the others and common themes identified, to arrive at a final list. We acknowledge that this is not an exhaustive list and that many of the issues we have highlighted have broader implications for other domains of research. Our hope is that these topics may serve as a conversation starter to create novel paths for researchers to travel toward an even stronger future ahead for the field.

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Increase diversity of perspectives

Embrace lifespan approaches




Villanueva, Silton, Heller, Barch & Gruber (2021)

THEMES IN POSITIVE EMOTION DISTURBANCE

Size

Situation

Specificity

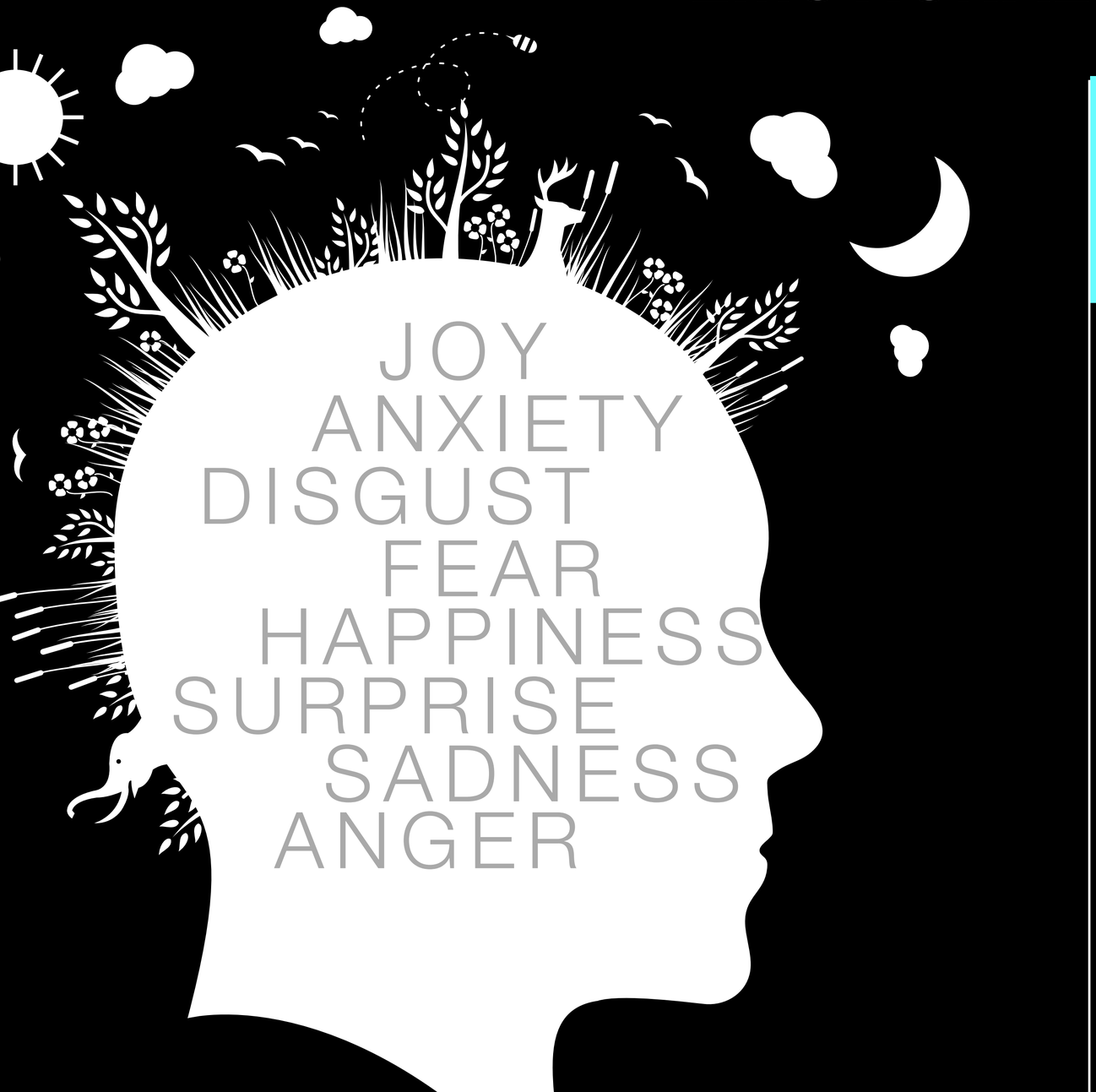
Strategies

Spice

Striving

Gruber, Purcell & Villanueva (in prep); Gruber, Villanueva, Burr, Purcell, & Karoly (2019); Gruber & Purcell (2015);

EMOTIONAL DIVERSITY



$$\text{EMODIVERSITY} = \sum_{i=1}^{s} (P_i \times 1nP_i)$$

RICHNESS

 # specific emotions

EVENNESS

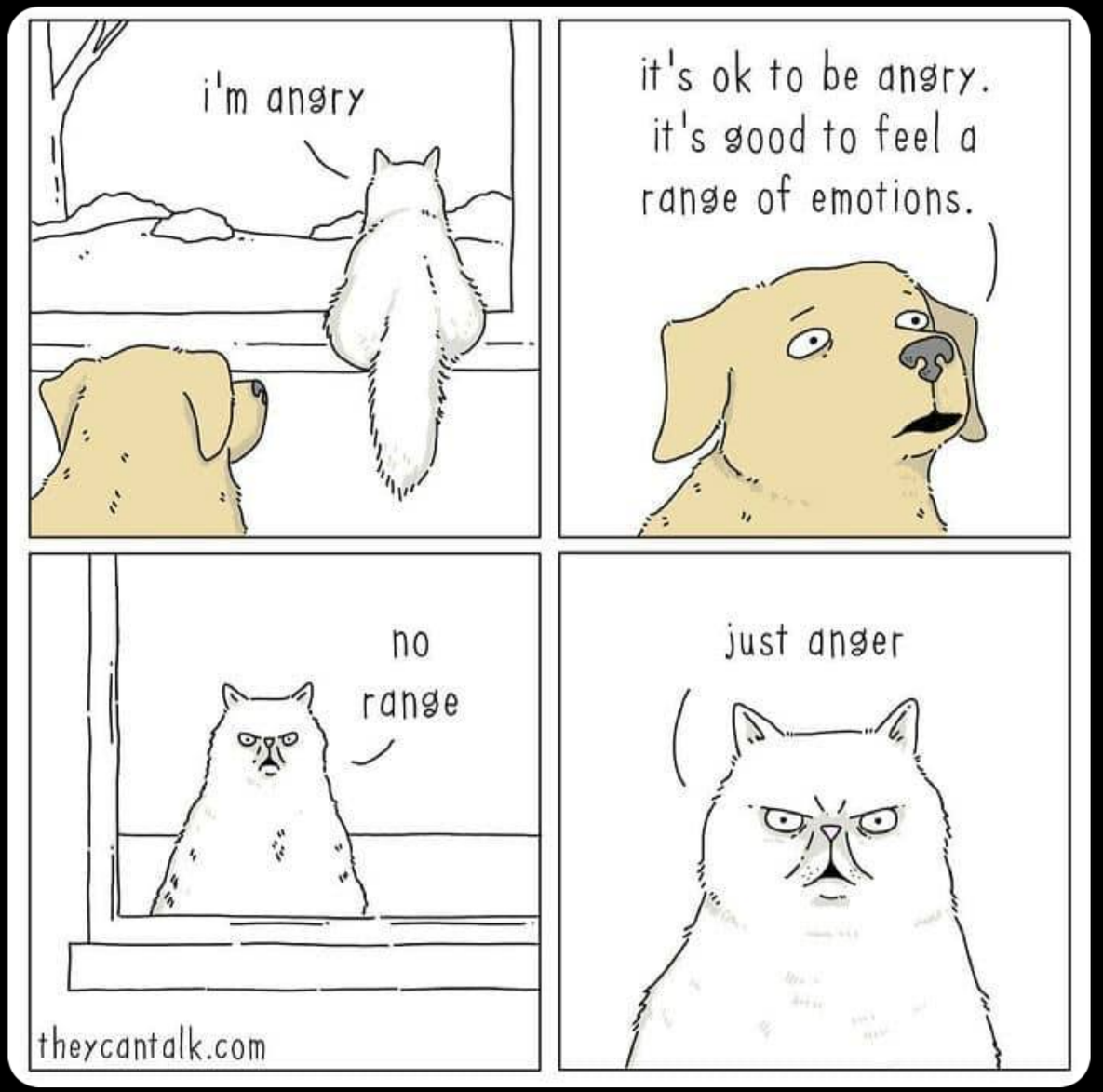
Extent to which emotions experienced in same proportion

Quoidbach, Gruber, Mikolajczak, Kogan, Kotsou, & Norton, 2018; 2014

Emotion Diversity Predicts Positive Clinical Health Outcomes

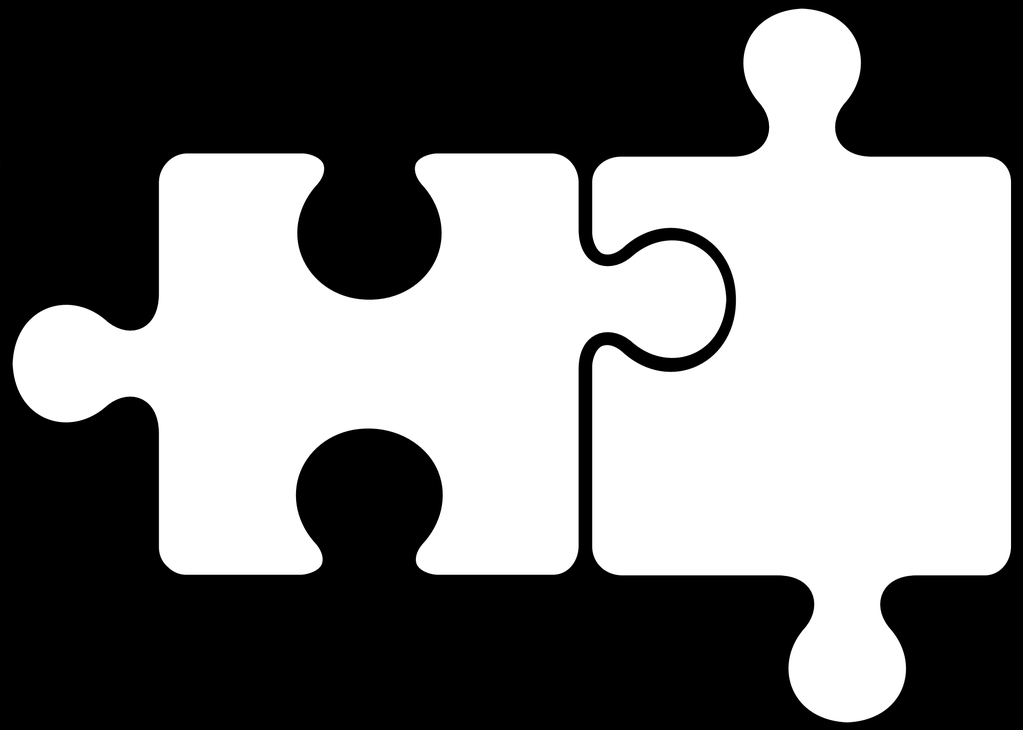
	CLINICAL HEALTH OUTCOMES **STUDY 1** (n = 35,844)	PHYSICAL HEALTH OUTCOMES **STUDY 2** (n = 1,310)
Depression (MADRS)	β = -0.07**	—
# Visits to Family Doctor	—	β = -0.13*
Hospital-related costs	—	β = -0.10*
# Days Spent in Hospital (past year)	—	β = -0.14**

Quoidbach, Gruber, Mikolajczak, Kogan, Kotsou, & Norton, 2014; Quoidbach et al., 2018


i'm angry
it's ok to be angry.
it's good to feel a
range of emotions.
no
range
just anger
theycantalk.com

EXPERIENCE

Emotional
Diversity



STRATEGIES

Emotion Regulation
Diversity

Katie Daniel

Bryn Manns

Cynthia Villanueva

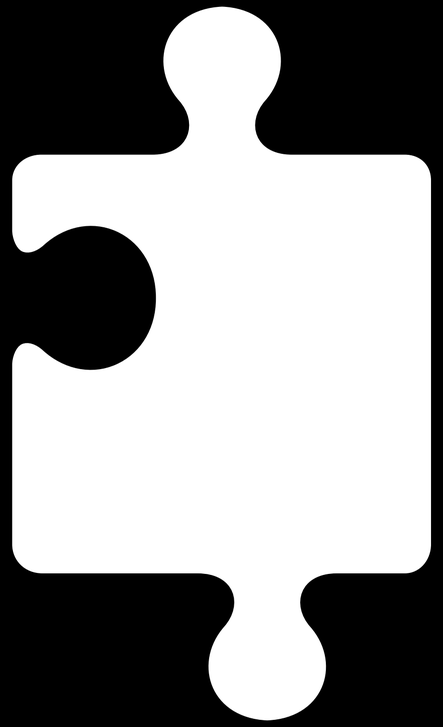
Stevi Ibonie

Sidney D'Mello

Doug Mennin

Greg Murray

Bethany Teachman



STRATEGIES

Emotion Regulation

Diversity

2-STUDY APPROACH

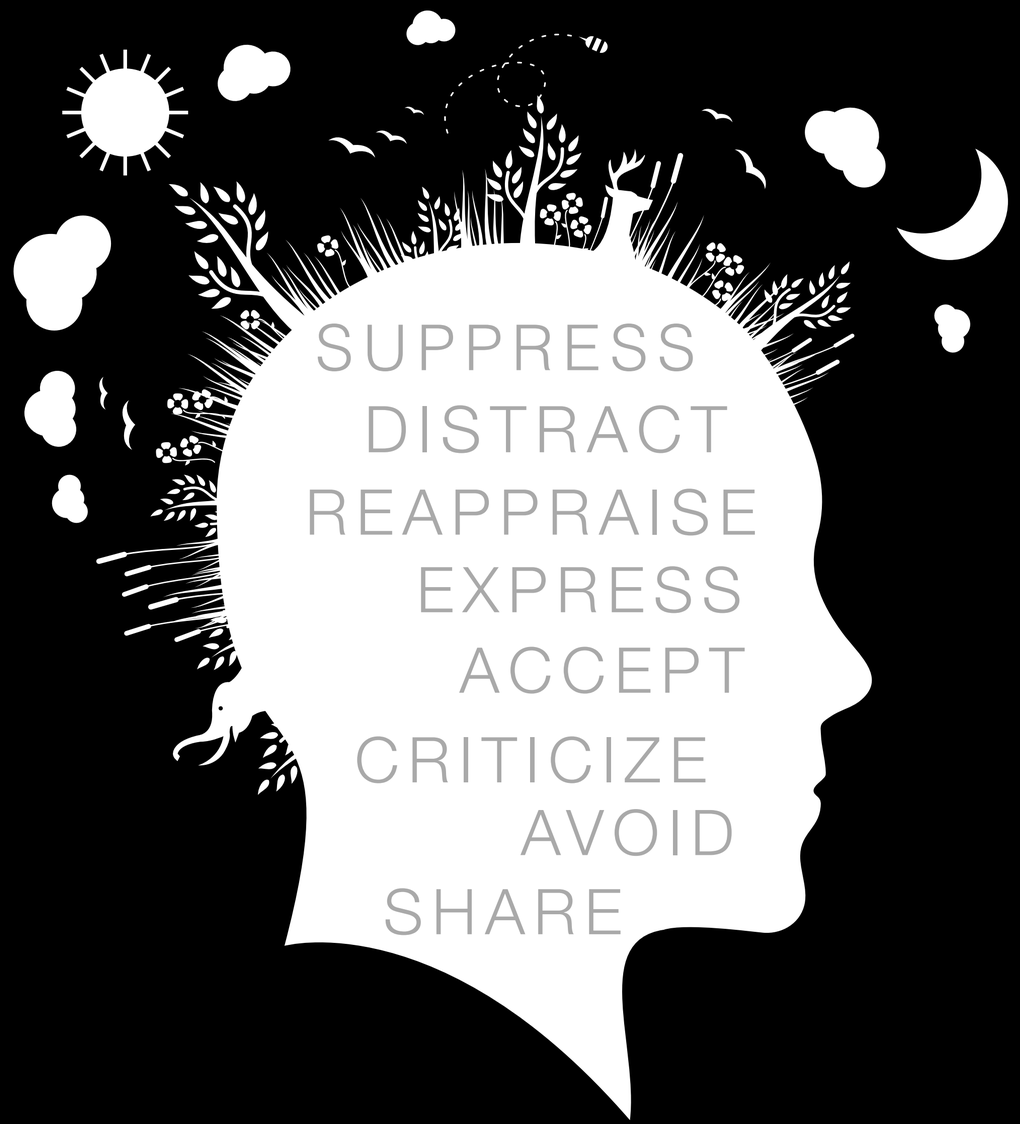
Study 1: Emerging Adults

Study 2: Clinically Diagnosed

OSF

Daniel, Manns, Villanueva, Ibonie, D'Mello, Mennin, Murray, Teachman & Gruber (n prep). https://osf.io/9cpe3/

Emotion Regulation (ER) Diversity



EMOTION REGULATION (ER) DIVERSITY

$$-\sum_{i=1}^{k} p_i * ln(p_i)$$

Variety, frequency and evenness of a person's ER strategy use

Flexible menu: choose strategies that match goal of a given moment

Daniel et al., 2023; 2025; Wen et al., 2021

STUDY 1:
Emotion Regulation Diversity (ER-Diversity) and Mood Disorder Dimensions in Emerging Adults

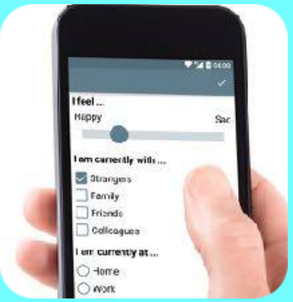
STUDY 1

14 consecutive days

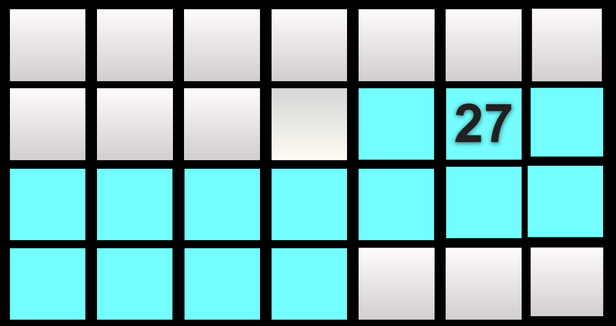
	Emerging Adults *N* = 149
Age	18.00 (0.62)
Sex (%)	Female: 79.9%; Male: 19.5% Other: 0.7%
Race & Ethnicity	75.8% White 18.1% Asian/Pacific Islander 12.1% Hispanic/Latino/a/e 1.3% Black/African-American 2.0 Native American 2.7% Other

BASELINE MOOD DIMENSIONS

Bipolar risk (HPS)
Mania symptoms (ASRM)
Mania symptoms (DSM5 CCSM)
Depression symptoms (BDI-SF)
Depression symptoms (DSM CCSM)



ExpiWell



Daniel, Manns, Villanueva, Ibonie, D'Mello, Mennin, Murray, Teachman & Gruber (n prep)
https://osf.io/9cpe3/

STUDY 1
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EMOTION REGULATION STRATEGIES

1 (not at all) to 5 (extremely)

ENGAGEMENT/ APPROACH

FOCUSING
AWARENESS
REAPPRAISAL
EXPRESSION
SELF-CRITICISM
ACCEPTANCE

DISENGAGEMENT/ AVOIDANT

DISTRACTION
RELAXTION
SUPPRESSION
AVOIDANCE

(Gruber et al., 2013)

EMOTION EXPERIENCE

0 (not at all) to 6 (extremely)

POSITIVE EMOTION

HAPPY
COMPETENT/CAPABLE
WARM/FRIENDLY
ENJOYING MYSELF
OPTIMISTIC/HOPEFUL

NEGATIVE EMOTION

FRUSTRATED/ANNOYED
DEPRESSED/BLUE
HASSLED/PUSHED AROUND
ANGRY/HOSTILE
WORRIED/ANXIOUS
IMPATIENT FOR IT TO END
LONELY

(modified from Kahneman et al., 2004)

Daniel, Manns, Villanueva, Ibonie, D'Mello, Mennin, Murray, Teachman & Gruber (n prep). https://osf.io/9cpe3/

ER-Diversity Associated with Increased Bipolar Disorder Risk But Not Current Mood Symptoms

	ER-Diversity OVERALL	ER-Diversity DISENGAGEMENT/ AVOIDANT	ER-Diversity ENGAGEMENT/ APPROACH
Bipolar Disorder Risk (HPS)	**2.93***	**4.44***	2.66
Mania (DSM5-CCSM)	0.75	0.51	1.05
Mania (ASRM)	0.00	0.00	0.00
Depression (DSM5-CCSM)	-0.10	0.00	-0.11
Depression (BDI-SF)	-2.35	1.19	-0.31

Values reflect unstandardized Beta coefficients **$p<.001$, *$p<.05$

Daniel, Manns, Villanueva, Ibonie, D'Mello, Mennin, Murray, Teachman & Gruber (n prep). https://osf.io/9cpe3/

STUDY 2:
Emotion Regulation Diversity (ER-Diversity) in Mood Disordered Community Sample

PARTICIPANTS

	BD I (n = 31)	MDD (n = 21)	Control (n = 32)
Age	31.58 (10.52)	31.45 (11.73)	31.39 (8.83)
Female (%)	57.7%	66.7%	66.7%
Caucasian (%)	96.2%	90.5%	92.1%
Education (Yrs)	15.08 (2.21)	15.55 (2.58)	16.02 (2.42)
Employed (%)	50.0%	47.6%	68.9%
Mania (YMRS)	2.10 (2.23)	1.18 (2.11)	1.13 (1.07)
Depression (IDS-C)	4.74 (5.26)	5.48 (2.77)	1.84 (1.80)
Illness Duration (Yrs)	13.86 (11.85)	21.44 (13.73)	--

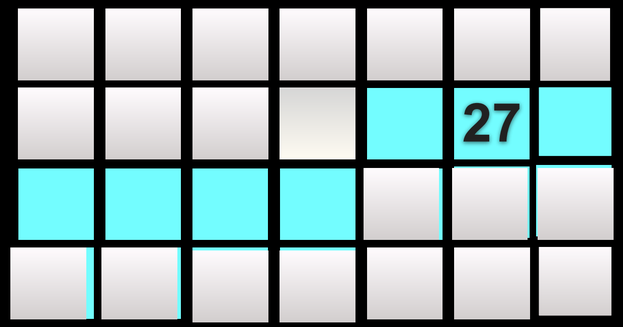
Gruber et al., 2013

STUDY 2

7 **consecutive days**

LAB VISIT → **ESM STUDY:**

SEPTEMBER



PALM PILOT M500

Experience Sampling Program (ESP)

EMOTION REGULATION STRATEGIES

1 (not at all) to 5 (extremely)

ENGAGEMENT/ APPROACH

FOCUSING
AWARENESS
REAPPRAISAL
EXPRESSION
SELF-CRITICISM
ACCEPTANCE

DISENGAGEMENT/ AVOIDANCE

DISTRACTION
RELAXTION
SUPPRESSION
AVOIDANCE

(Gruber et al., 2013)

EMOTION EXPERIENCE

1 (not at all) to 6 (extremely)

POSITIVE EMOTION

AMUSEMENT
AWE
COMPASSION
CONTENTMENT
GRATITUDE
HOPE
INTEREST
JOY
LOVE
PRIDE

NEGATIVE EMOTION

ANGER
CONTEMPT
DISGUST
EMBARRASSMENT
FEAR
GUILT
SADNESS
SHAME

(Cohn et al., 2009)

Daniel, Manns, Villanueva, Ibonie, D'Mello, Mennin, Murray, Teachman & Gruber (n prep). https://osf.io/9cpe3/

ER-Diversity Associated with Increased BD Group, But Not MDD or Healthy Controls

	ER-Diversity OVERALL	ER-Diversity DISENGAGEMENT/ AVOIDANT	ER-Diversity ENGAGEMENT/ APPROACH
BD (vs. Control)	**2.66***	**4.98***	1.76
BD (vs. MDD)	1.38	1.55	1.66
MDD (vs. Control)	1.28	3.43	0.10

Wald > 2 = p < .05. Values are unstandardized Bs.

Daniel, Manns, Villanueva, Ibonie, D'Mello, Mennin, Murray, Teachman & Gruber (n prep). https://osf.io/9cpe3/

TAKE-AWAY MESSAGE

More Isn't Always Better: Greater ER Diversity associated with more severe bipolar mood dimensions. Diverges from findings on diversity of emotion experience

Specificity Matters: Distinct ER diversity subtypes (disengagement/ avoidance) associated with mood dimensions

Trait (vs State) Marker: ER Diversity may be tied to more trait-like risk or diagnostic histories than current or phasic mood symptom severity

THEMES IN POSITIVE EMOTION DISTURBANCE

Size

Situation

Specificity

Strategies

Spice

Striving

Gruber, Purcell & Villanueva (in prep); Gruber, Villanueva, Burr, Purcell, & Karoly (2019)'; Gruber & Purcell (2015);

HAPPINESS VALUATION AND MOOD DIMENSIONS

(*N* = 789 emerging adults)


Stevi Ibonie


Montana Ploe


Gerald Young


Iris Mauss


Jessica Borelli


Robin Nusslock


Joelle LeMoult


Ellen Jopling


Sarah Holley


Daniel Moriarty


Robb Rutledge


Liam Mason


Shanmukh Kamble


Ben Bullock


Gregory Strauss


Lauren Alloy


Cynthia Villanueva


Amie Okuma

BRAIN & BEHAVIOR RESEARCH FOUNDATION
Awarding NARSAD Grants

University of Colorado Boulder
Office of Undergraduate Education

Alan Gornick EMERGE Project Research Fund
University of Colorado
Boulder | Colorado Springs | Denver | Anschutz Medical Campus
ADVANCEMENT | CU FOUNDATION

University of Colorado Boulder
Center to Advance Research and Teaching in the Social Sciences
COLLEGE OF ARTS AND SCIENCES

Villanueva et al. (in prep)

HAPPINESS VALUATION AND MOOD DIMENSIONS

(*N* = 789 emerging adults)

Demographics	
Age	18.32 (0.58)
Female (%)	73.8%
Ethnicity	
Caucasian (%)	57%
African-American	5.4%
Asian-American	31.9%
Latinx	12.3%
Native American	0.9%
Other	3.0%
Relationship Status	
Single (not in current relationship)	70.8%
Single (in current relationship)	28.6%
Live in partner	0.5%
Married	0.1%
Separated	0.1%
First Generation	22.9%
Socio economic status	6.58 (1.54)

Villanueva et al. (in prep)

HAPPINESS VALUATION IN COMMUNITY DIAGNOSED SAMPLES

Happiness Valuation Scale

(Mauss et al., 2011)

"Feeling happy is extremely important to me."
"If I don't feel happy, there is something wrong with me."

HAPPINESS VALUATION (BD = MDD > CTL)		
BD I (*n* = 32)	**MDD (*n* = 31)**	**CTL (*n* = 30)**
4.11* (1.07)	**3.97* (1.01)**	**3.18* (0.91)**

Ford, Mauss, & Gruber (i2015) Ford, Shallcross, Mauss, Floerke, & Gruber (2014)

“Those are only happy who have their minds fixed on some object other than their own happiness.”

-John Stuart Mill

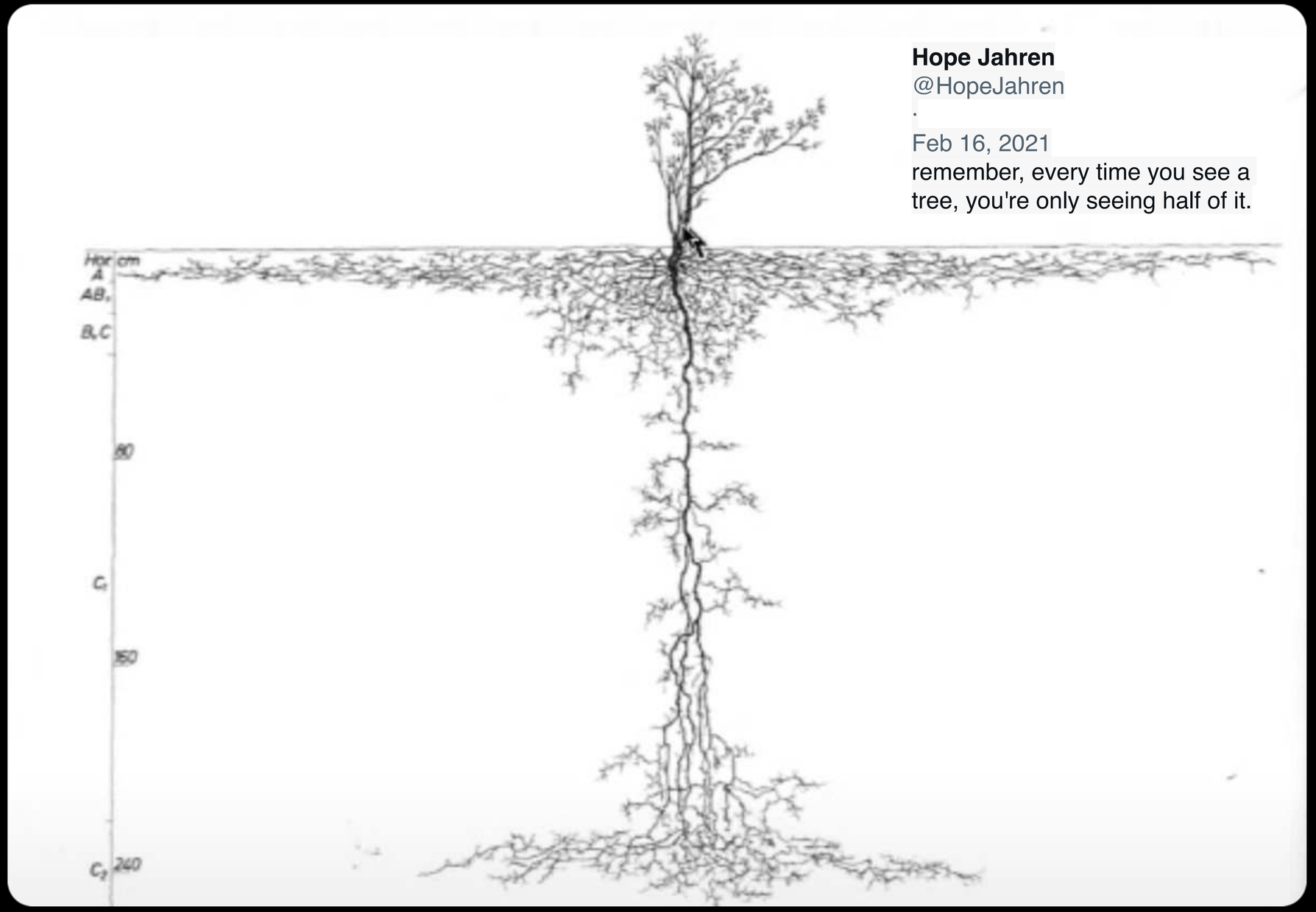
CAVEATS

Positive emotion cannot be studied in isolation:
Only 1 piece of bigger emotion puzzle

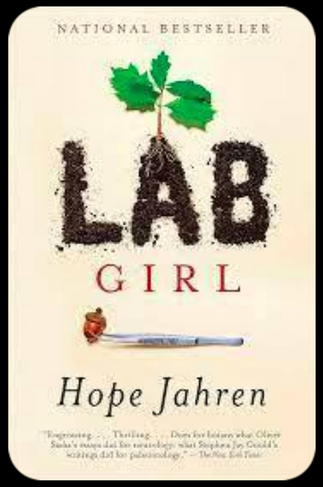
More work needed:
Replications, multi-site studies, more translational work

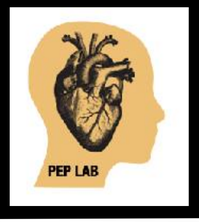
(Still) scratching the surface:
Multiple types of positive emotion disturbance, populations, and contexts to be further studied

CAVEATS



Hope Jahren
@HopeJahren
.
Feb 16, 2021
remember, every time you see a tree, you're only seeing half of it.





ROADMAP

1. Puzzles

2. Priorities

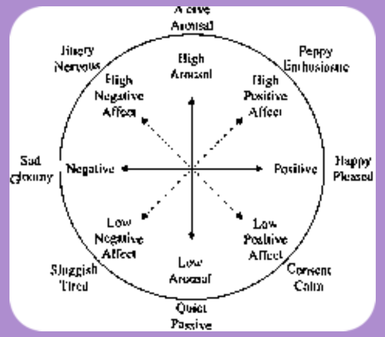
3. Path Forward

PATH FORWARD

DIVERSE PERSPECTIVES & CONTEXTS

Cultural Influences on Positive Emotion and Mood Risk

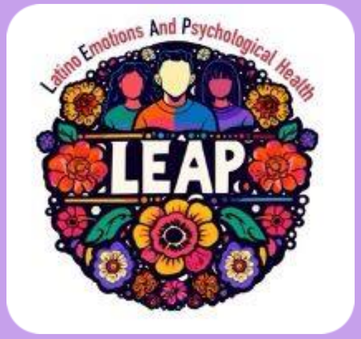
CHINA (Beijing, HK)
Jeanne Tsai







MEXICAN-AMERICAN ADULTS
Cynthia Villanueva



BRASIL (São Paulo, Alagoas)
Paulo Boggio


Gruber, Raila & Tsai (revising for resubmission); Kathuria et al. (in prep)
Villanueva, Silton, Barch, Heller & Gruber (2021); Hechtman, Raila, Chiao, & Gruber (2013)

PATH FORWARD

DIVERSE PERSPECTIVES & CONTEXTS

CLINICAL NEUROSCIENCE & TRANSLATIONAL OPPORTUNITIES

BRAIN PREDICTORS OF EMPATHIC ACCURACY IN BIPOLAR AND DEPRESSIVE MOOD DISORDERS

"*Please rate how positive or negative this person is feeling moment to moment.*" (0 neg - 100 pos)

NIMH 5 R01 MH112560-03, *Computational and brain predictors of emotion cue integration* (J. Zaki, PI)
J. Gruber (Co-Investigator/Principal Investigator on CU Boulder Subcontract)

POSITIVE EMOTION AS PROSPECTIVE PREDICTOR OF MOOD ONSET

NIMH 1R01MH131803-01A1 (J. Gruber and S. Johnson, PIs, Multiple PI Mechanism
(all data collection in Boulder/Denver)

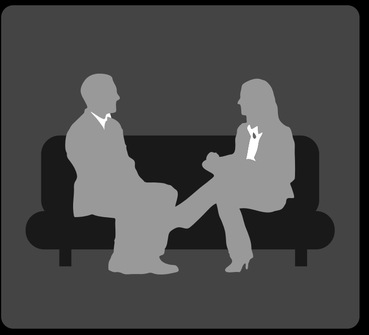
BEHAVIORAL EMOTION MEASURES

fMRI TASKS

Positive emotion regulation

Negative emotion regulation

2-Year Longitudinal Monitoring (Quarterly Assessments)



CLINICAL ASSESSMENT

Symptoms, Mood Onset

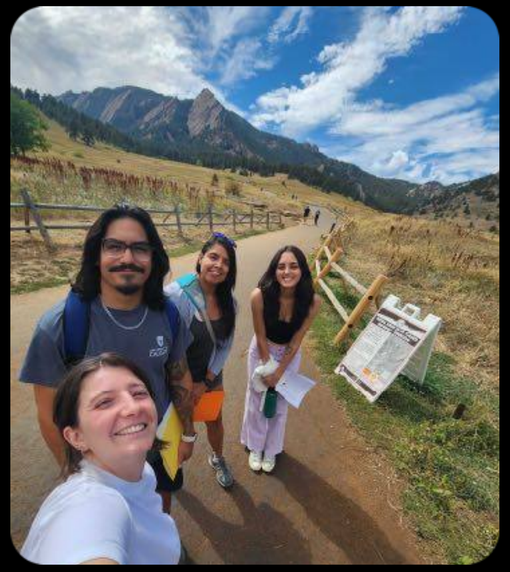
Social functioning

Social networks

POSITIVE EMOTION-FOCUSED QUASI-INTERVENTIONS

Naturalistic and scalable compliments to evidence-based treatments

AWE WALK
(OR SKI)



Baseline Survey

MOOD SYMPTOMS
EMOTION
WELL-BEING

Post-Awe Survey

MOOD SYMPTOMS
EMOTION
WELL-BEING

PATH FORWARD

DIVERSE PERSPECTIVES & CONTEXTS

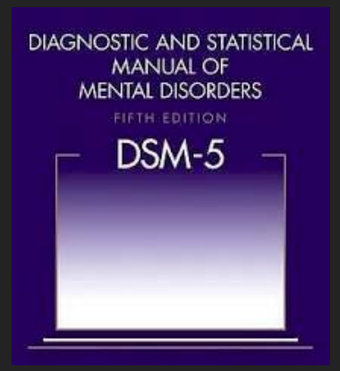
CLINICAL NEUROSCIENCE & TRANSLATIONAL OPPORTUNITIES

STUDYING the “POSITIVES”
OF MOOD DISORDERS

TALE OF TWO VIEWS

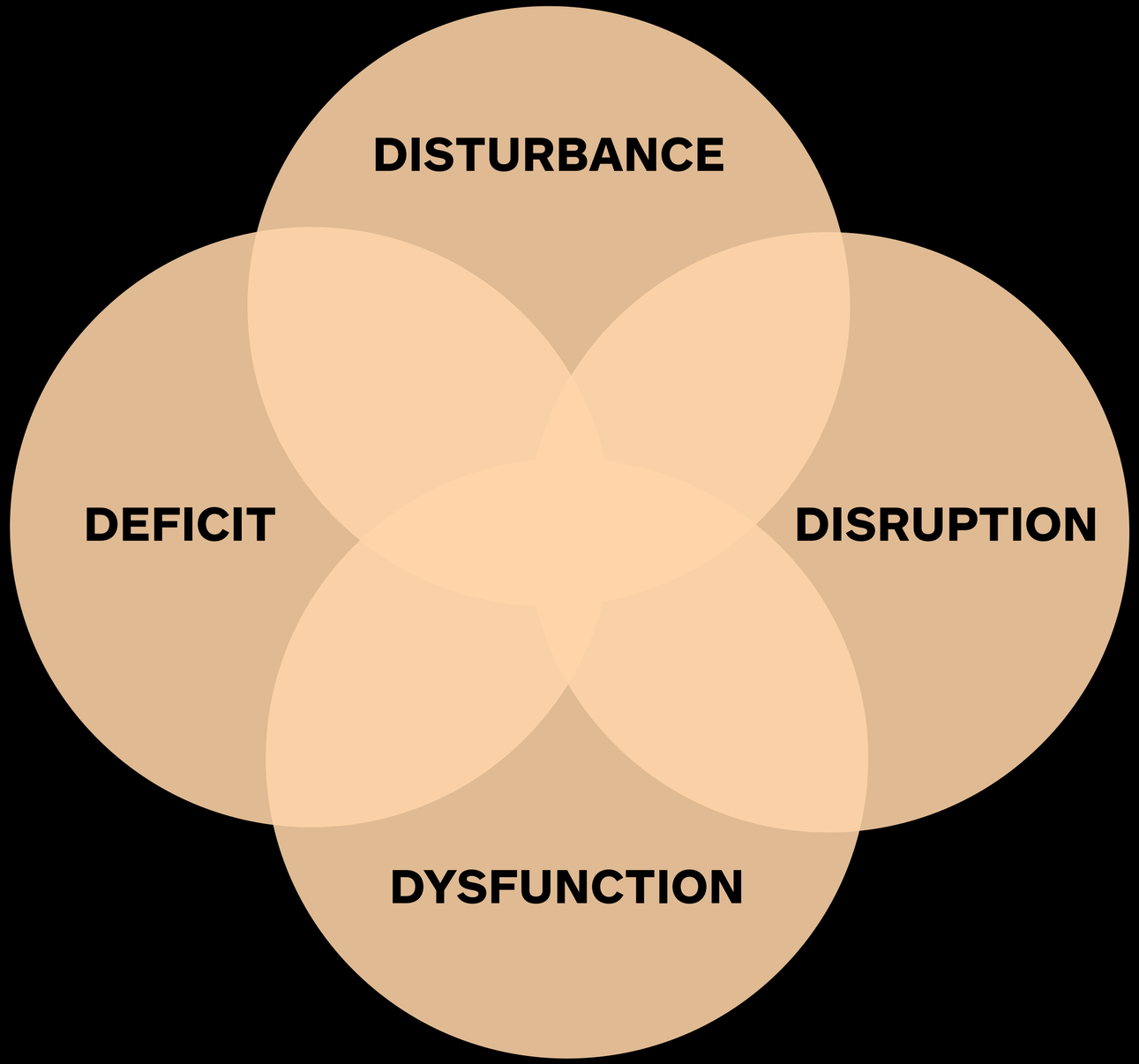
DEFICIT APPROACH

Psychological disorders are chronic, painful, and often disabling



Identify etiology and mechanisms underlying symptoms

THE FOUR D's



Singular view

Negative bias

Perpetuates stigma

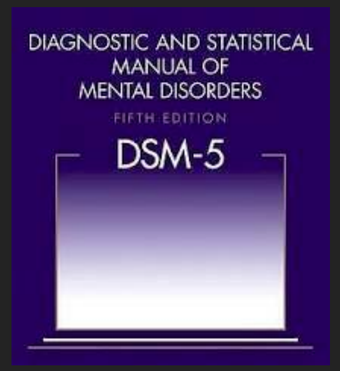
Neglects silver linings?

Gruber, Lyman, Plaisance & Rottenberg (2025)

TALE OF TWO VIEWS

DEFICIT APPROACH

Psychological disorders are chronic, painful, and often disabling



Identify etiology and mechanisms underlying symptoms

SILVER LININGS APPROACH

Psychological disorders *can also* have positive characteristics

Precede, co-occur, or follow from experience

Occur across multiple domains

Gruber, Lyman, Plaisance & Rottenberg (2025)

aps
ASSOCIATION FOR PSYCHOLOGICAL SCIENCE

Silver Linings in Psychological Disorders: An Agenda for Research and Social Change

Current Directions in Psychological Science
1–7

DOI: 10.1177/09637214251360738
www.psychologicalscience.org/CDPS
Sage

June Gruber[1], Cassondra Lyman[2], Chloe Plaisance[1], and Jonathan Rottenberg[2]
[1]Department of Psychology and Neuroscience, University of Colorado Boulder, and [2]Department of Psychology, Cornell University

Abstract

Conventional research on people with psychological disorders is negatively focused, concentrating on what is aberrant and harmful about psychopathology. Characterizing patterns of emotional and behavioral disturbances has helped illuminate the origins of psychopathology and led to useful treatments. Yet we argue that the conventional approach to psychopathology is factually incomplete and may also inadvertently perpetuate the deeply entrenched stigma surrounding mental disorders. In this article, we make the case for considering the positive experiences of people with psychopathology—silver linings—and integrating them into psychopathology research. In our research agenda for studying silver linings in psychopathology (SLIP), we acknowledge that psychopathology may afford individuals both sources of difficulty and opportunities for positive transformation. We illustrate SLIP in cognitive, social, and resilience domains. We close by considering implications for future research promoting a more balanced conceptualization of psychological disorders and mental well-being.

Silver Linings in Psychopathology

Resonates with strengths-based approach

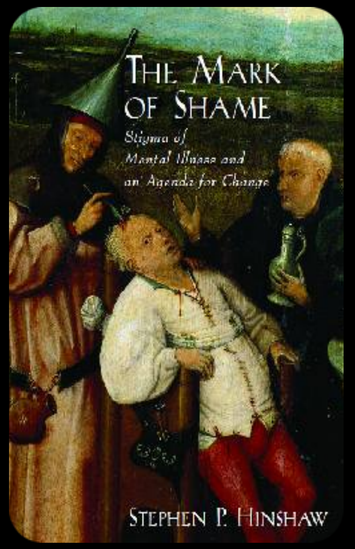
(Boardman et al., 2011; Victor et al., 2022)

Builds upon dual-continuum model

(Keyes, 205)

Antidote to stigma and psychopathology

(Hinshaw & Stier, 2008)



Gruber, Lyman, Plaisance & Rottenberg (2025)

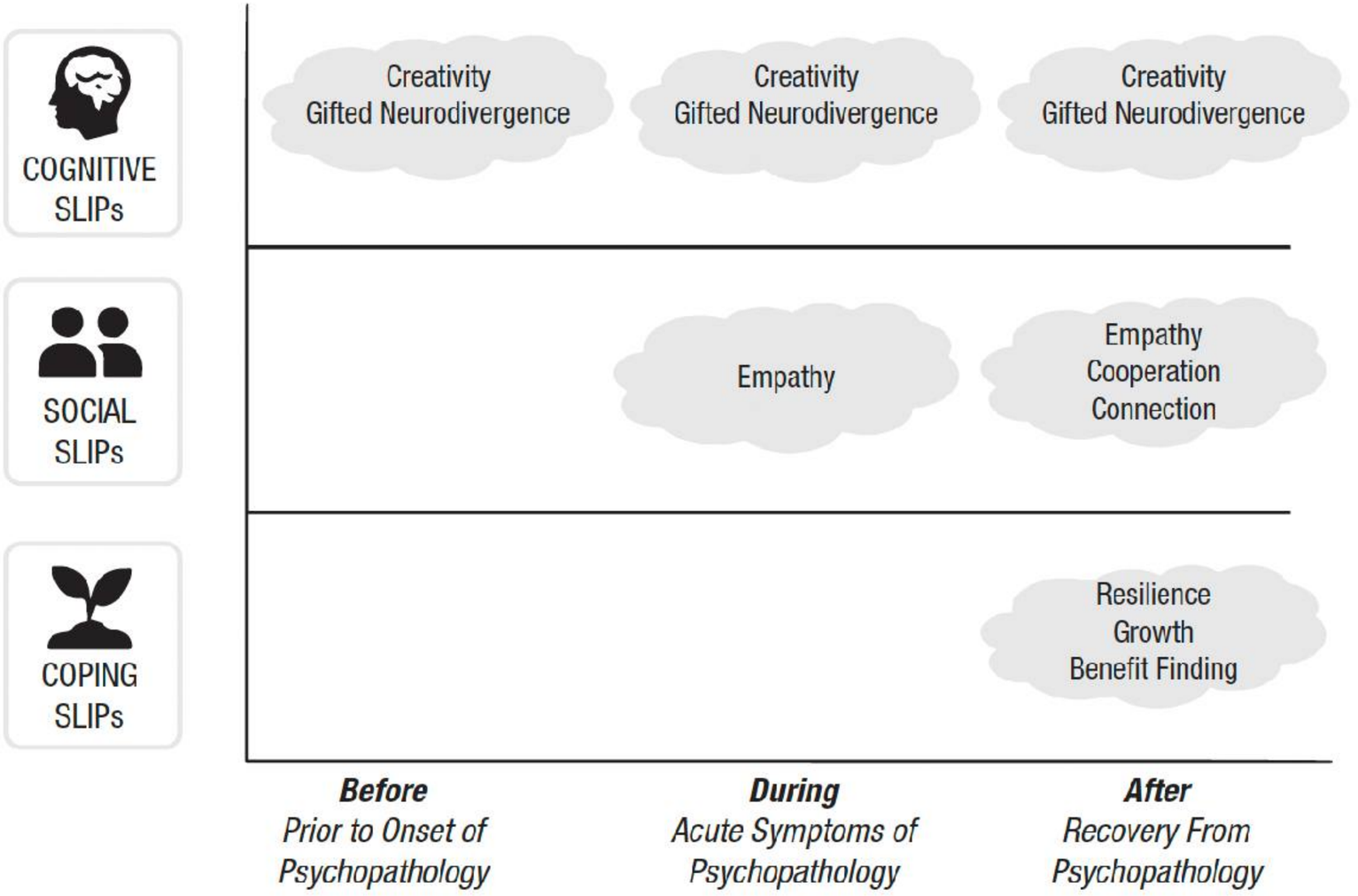


Figure 1. SLIP domains. The example social, cognitive, and coping domains include SLIP prior to the onset of psychopathology, during or acute or active symptoms of psychopathology, and after recovery or remission from psychopathology. SLIP = silver linings in pathology.

Silver Linings in Mood Disorders

Cooperation

Connection

Empathy

BEHAVIORAL ECONOMIC COOPERATION GAME

(*N* = 87 Community Mood-Disordered vs. Control Adults)

Journal of Abnormal Psychology
2017, Vol. 126, No. 1, 1–7

0021-843X/17/$12.00 http://dx.doi.org/10.1037/abn0000239

Increased Cooperative Behavior Across Remitted Bipolar I Disorder and Major Depression: Insights Utilizing a Behavioral Economic Trust Game

Desmond C. Ong and Jamil Zaki
Stanford University

June Gruber
University of Colorado Boulder

Mood disorders impact social functioning, but might contribute to experiences—like affective distress—that might result in increased cooperative behavior under certain circumstances. We recruited participants with a history of bipolar I disorder (n = 28), major depressive disorder (n = 30), and healthy controls (n = 27)—to play a well-validated behavioral economic Trust Game, a task that provides a well-controlled experimental scenario, to measure cooperative behavior for the first time across both groups. Both remitted mood-disordered groups cooperated significantly more than the control group, but did not differ from one another. These results suggest that, in some contexts, a history of mood disturbance can produce enhanced cooperation, even in the absence of current mood symptoms. We discuss the clinical significance of enhanced cooperation in mood disorders and point to key directions for future research.

General Scientific Summary
Individuals with mood disorders suffer disruptions in social functioning, but under the right circumstances, might also display *more* prosocial behaviors. We find that individuals in remission from bipolar I disorder and major depressive disorder cooperated more in an economic game than individuals with no such history. The results suggest that in some contexts, a history of clinical mood disturbance generates increases in some forms of prosocial behavior, even in the absence of current mood symptoms.

Keywords: cooperation, trust, bipolar disorder, major depressive disorder

Ong, Zaki, & Gruber (2017)

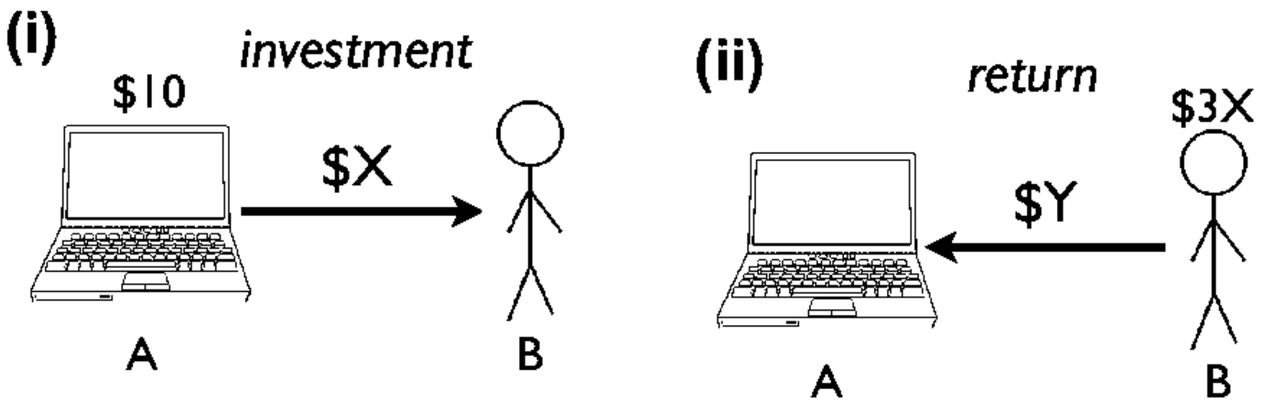
BEHAVIORAL ECONOMIC COOPERATION GAME

(*N* = 87 Community Mood-Disordered vs. Control Adults)

DIAGNOSTIC INTERVIEW

TRUST GAME

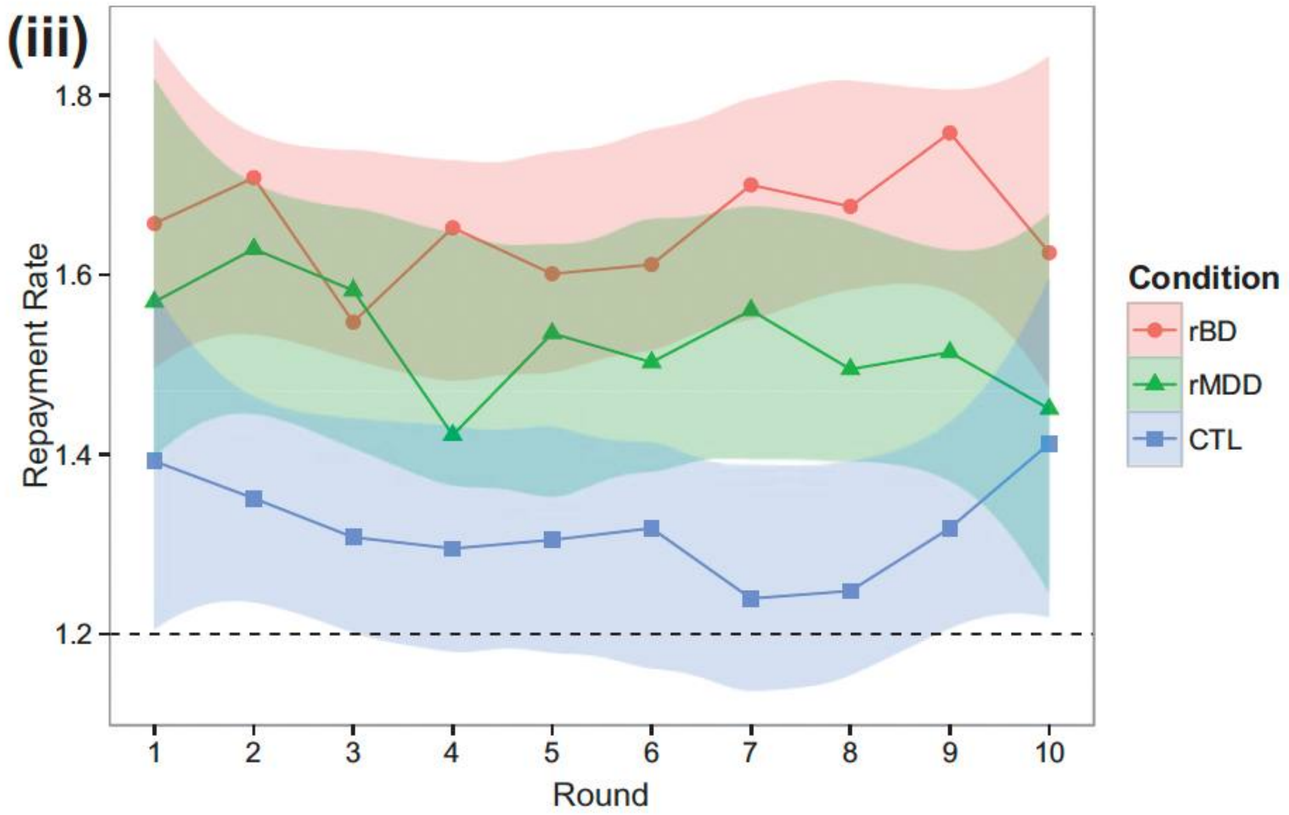
(Berg, Dickhaut, & McCabe, 1995;
McCabe, Houser, Ryan, Smith, & Trouard, 2001; Sripada et al., 2009)



Ong, Zaki, & Gruber (2017)

BEHAVIORAL ECONOMIC COOPERATION GAME

(*N* = 87 Community Mood-Disordered vs. Control Adults)



Mean repayment rates ($Y/$X) over rounds, colored by condition. Shaded regions indicate LOWESS-smoothed 95% confidence intervals. The dashed line at 1.2 indicates the expected repayment rate (details in text).

TAKE AWAY

Mood disordered groups INCREASED cooperative behavior

(repaid more to investor)

Ong, Zaki, & Gruber (2017)

Social Silver Linings

Cooperation

Connection

Empathy

SOCIAL NETWORK CONNECTIONS IN EMERGING ADULTS


Stevi Ibonie


Montana Ploe


Gerald Young


Iris Mauss


Jessica Borelli


Robin Nusslock


Joelle LeMoult


Ellen Jopling


Sarah Holley


Daniel Moriarty


Robb Rutledge


Liam Mason


Shanmukh Kamble


Ben Bullock


Gregory Strauss


Lauren Alloy


Cynthia Villanueva


Amie Okuma


Journal of Social and Clinical Psychology, Vol. 44, No. 1, 2025, pp. 1–28
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Bipolar spectrum risk and social network dimensions in emerging adults: Two social sides?

Stevi G. Ibonie, *University of Colorado, Boulder, USA*; Gerald Young, *University of California, Berkeley, USA*; Montana L. Ploe, *Washington State University, Pullman, WA, USA*; Iris B. Mauss, *University of California, Berkeley, USA*; Lauren B. Alloy, *Temple University, Philadelphia, PA, USA*; Jessica L. Borelli, *University of California, Irvine, USA*; Ben Bullock, *Swinburne University of Technology, Melbourne, Australia*; Sarah R. Holley, *San Francisco State University, San Francisco, USA*; Ellen Jopling, *University of British Columbia, Vancouver, Canada*; Shanmukh Kamble, *Karnatak University, Dharwad, India*; Joelle LeMoult, *University of British Columbia, Vancouver, Canada*; Liam Mason, *University College London, UK*; Daniel F. Moriarty, *University of California, Los Angeles, USA*; Robin Nusslock, *Northwestern University, USA*; Amie Okuma, *University College London, UK*; Robb B. Rutledge, *University College London, UK*; *Yale University, New Haven, CT, USA*; Gregory Strauss, *University of Georgia, Athens, GA, USA*; Cynthia M. Villanueva, *University of Colorado, Boulder, USA*; June Gruber, *University of Colorado, Boulder, USA*

Introduction: Bipolar spectrum disorders (BSDs) encompass severe and chronic

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Ibonie et al .(2025)

SOCIAL NETWORK CONNECTIONS IN EMERGING ADULTS

(*N* = 1,934 emerging adults in USA, Canada and UK)

TABLE 1. Demographics for the full sample and each site at study entry

	Full Sample (*N* = 1934)	CU Boulder (*n* = 679)	UBC (*n* = 197)	UC Berkeley (*n* = 836)	UC Irvine (*n* = 117)	UCL (*n* = 105)
Age *M* (*SD*)	19.25 (2.14)	18.32 (0.64)	18.21 (0.49)	20.47 (2.73)	18.19 (0.39)	18.67 (0.78)
Year in university (%)	63.6 first	100 first	100 first	15.8 first	100 first	100 first
	8.8 second			20.3 second		
	13.7 third			31.7 third		
	12.0 fourth			27.8 fourth		
	1.2 fifth			2.9 fifth		
	0.7 sixth			1.6 sixth		
Gender (%)	76 female	74 female	85 female	74 female	82 female	87 female
	23 male	26 male	15 male	25 male	17 male	13 male
	.7 trans/NB/other	.6 trans/NB/other	.5 trans/NB/other	.8 trans/NB/other	.8 trans/NB/other	
SES *M* (*SD*)	6.63 (1.60)	6.8 (1.43)	6.53 (1.36)	6.61 (1.77)	5.91 (1.51)	N/A
First-Gen (%)	25 yes	17 yes	26 yes	29 yes	49 yes	25 yes
	75 no	83 no	74 no	71 no	51 no	75 no
Ethnicity (%)	46.3 White	83.1 White	28. White	26.3 White	11.1 White	40 White
	38.1 Asian	12.7 Asian	62.9 Asian	47.0 Asian	69. Asian	50.5 Asian
	11.1 Latinx	12.5 Latinx	2 Latinx	12 Latinx	21.4 Latinx	7.6 other
	2.6 Black	3.4 Black	.5 Black	2.8 Black	2.6 Black	
	.7 Native American	1.6 Native American	10.7 other	.2 Native American	0 Native American	
	8.3 other	1.8 other		13.8 other	3.4 other	

Note. SES = Socioeconomic status; NB = Non-binary; CU Boulder = University of Colorado Boulder; UC Berkeley = University of California, Berkeley; UBC = University of British Columbia; UC Berkeley = University of California, Irvine; UCL = University College London.

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QUANTITY

Consider the people with whom you like to spend your free time. Since you arrived at *[Your University]*, who are the classmates you have been with most often for informal social activities, such as going out to lunch, dinner, drinks, films, visiting one another's homes, and so on? **Please list the first and last names of as many *[Your University]* first-year Freshmen students as you would like below**.

Adapted from Parkinson, Kleinbaum & Wheatley (2018)

QUALITY

In response to each of the following questions, please type in the names of up to 8 *[Your University]* FIRST-YEAR FRESHMEN students ONLY. Please do NOT list any names of people outside of *[Your University]* (e.g., family, significant other, other friends on/off campus).

*Who do you share **good news** with?*

*Who do you turn to when something **bad** happens?*

Adapted from Morelli et al. (2017)

Ibonie et al .(2025)

Social Silver Linings

Cooperation

Connection

Empathy

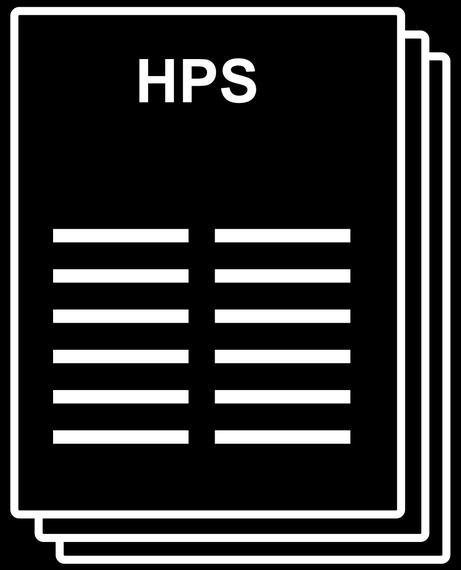
POSITIVE EMPATHIC ACCURACY & ATTUNEMENT

(*N* = 121 emerging adults)

Age	19.31 (8.58)
Female (%)	57.0%
BD risk (HPS)	22.64 (4.19)
Mania (ASRM)	2.38 (0.80)
Depression (BDI)	5.00 (4.03)

HYPOMANIC PERSONALITY SCALE (HPS)

(Eckblad & Chapman, 1986)



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ORIGINAL ARTICLE

Tracking the Emotional Highs but Missing the Lows: Hypomania Risk is Associated With Positively Biased Empathic Inference

Hillary C. Devlin[1] · Jamil Zaki[2] · Desmond C. Ong[2] · June Gruber[1,3]

Published online: 5 October 2015

Abstract Empathy plays a vital role in emotional and social functioning. Research suggests that empathy may be disrupted in disorders of negative emotion (e.g., depression, anxiety), though less work has examined how empathy is impacted in disorders of positive emotion (e.g., mania), which are associated with positive biases in emotion experience and perception. The present research explored how variation in self-reported hypomania risk was associated with performance on an objective empathic accuracy task with real-world targets. Risk for hypomania was associated with heightened moment-by-moment detection of emotional up-shifts (i.e., increases in positive emotion) for targets describing positive events; however, it was also associated with overly-positive retrospective ratings (i.e., overestimating global positive emotion) for targets describing negative events. These findings suggest that hypomania risk may lead to positive biases in detecting others' emotion across both positive and negative life events when using both micro-level continuous and global retrospective emotion measures.

Keywords Hypomania risk · Empathic accuracy · Positive emotion

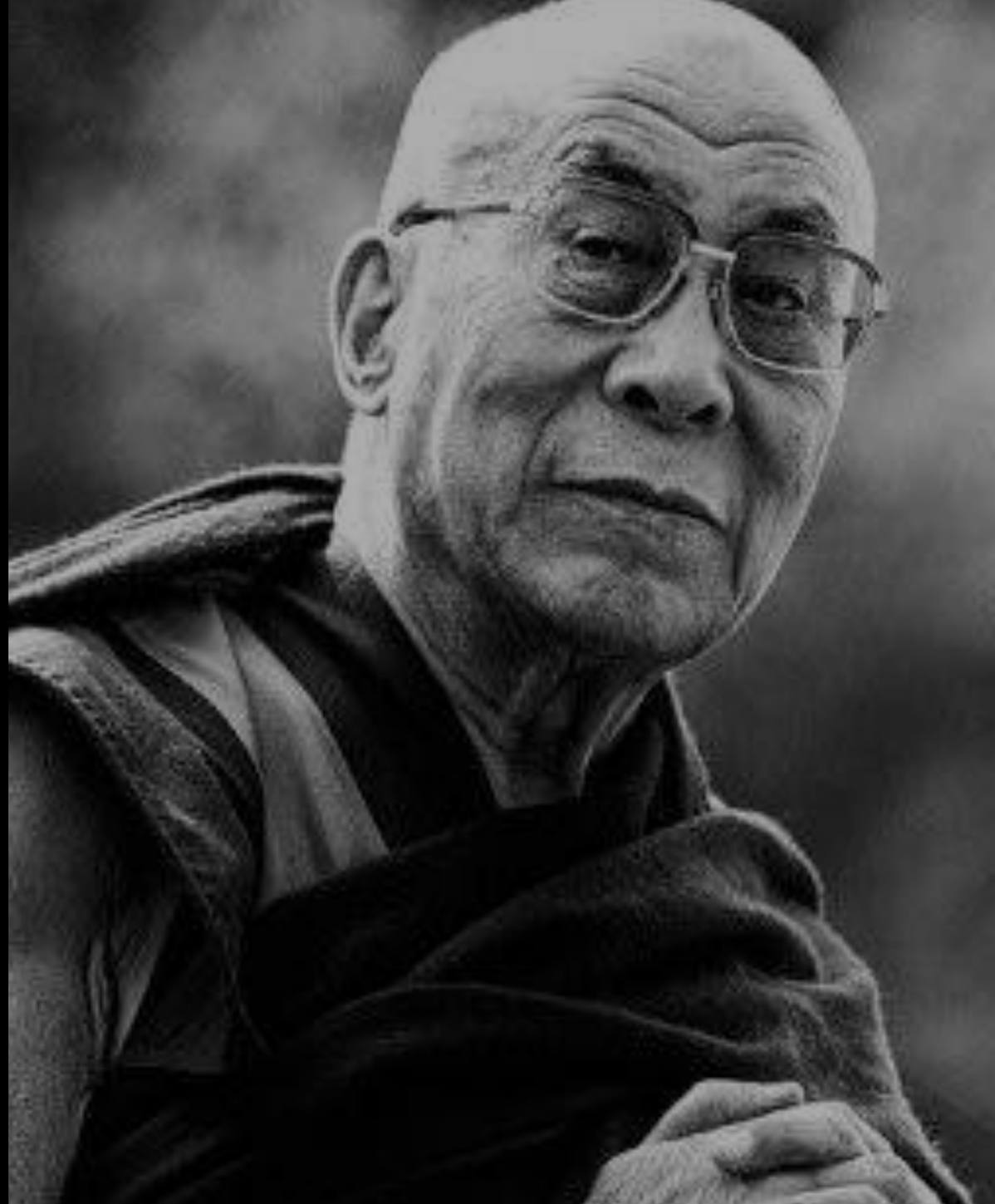
Although positive emotions are vital to many core social processes, overly intense or frequent positive states can also produce social costs (e.g., Gruber 2011; Gruber et al. 2011). Such social costs have been demonstrated in populations characterized by heightened and persistent positive emotion, including individuals at risk for or with a clinical history of mania (Gruber 2011). For example, individuals with a clinical history of mania report less social support from close and distant relationship ties, and reduced quality of social interactions (e.g., Romans and McPherson 1992). As such, understanding social effects of hypomania risk can critically inform our understanding and treatment of affected individuals (e.g., Miklowitz and Johnson 2006).

One key component in the development and maintenance of social relationships is empathy, which includes attending to, sharing in, and accurately perceiving others' subjective experiences (Zaki and Ochsner 2012). Although empathy has often been studied in populations that experience heightened negative emotion (e.g., major depressive disorder; Wright et al. 2009), less is known about empathic processes among individuals who experience abnormally elevated positive emotion levels, such as those at risk for or with a clinical history of mania (e.g., Gruber 2011). Among this population, prior research has suggested that empathic deficits are associated with impair-

Devlin, Zaki, Ong, & Gruber, 2014; 2016

"We humans are social beings. We come into the world as the result of others' actions. We survive here in dependence on others....For this reason it is hardly surprising that most of our happiness arises in the context of our relationships with others."

- Dalai Lama XIV



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How Can Psychological Science Contribute to a Healthier, Happier, and More Sustainable World?

June Gruber[1], Darby Saxbe[2], Brad J. Bushman[3], Timothy McNamara[4], and Marjorie Rhodes[5]

[1]Department of Psychology and Neuroscience, University of Colorado Boulder; [2]Department of Psychology, University of Southern California; [3]School of Communication and Department of Psychology, The Ohio State University; [4]Department of Psychological Sciences, Vanderbilt University; and [5]Department of Neural Sciences, New York University

> Act as if what you do makes a difference. It does.
>
> —William James

public directly, psychological science is well positioned to contribute to cultivating a healthier, happier, and more sustainable world.

THANK YOU!

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june.gruber@colorado.edu | www.gruberpeplab.com