

The Role of Positive and Negative Aspects of Life Events in Depressive and Anxiety Symptoms



Julia S. Yarrington¹, Allison V. Metts¹, Richard E. Zinbarg^{2,3}, Robin Nusslock², Kate Wolitzky-Taylor⁴, Constance L. Hammen¹, Nicholas J. Kelley⁵, Susan Bookheimer⁴, and Michelle G. Craske¹

¹Department of Psychology, University of California, Los Angeles; ²Department of Psychology, Northwestern University; ³The Family Institute at Northwestern University; ⁴Department of Psychiatry and Biobehavioral Sciences, University of California, Los Angeles; and ⁵Department of Psychology, University of Southampton

Clinical Psychological Science
2023, Vol. 11(5) 910–920
© The Author(s) 2023
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/21677026221141654
www.psychologicalscience.org/CPS



Abstract

Negative or stressful life events are robust risk factors for depression and anxiety. Less attention has been paid to the positive aspects of events and whether positivity buffers the impact of the negative aspects of events. In this study, we examined the positivity and negativity of interpersonal and noninterpersonal episodic life events in predicting anxiety and depressive symptoms in a sample of 373 young adults. Regressions tested the main and interactive effects of positivity and negativity ratings of events in predicting symptom factors (fears, anhedonia-apprehension, general distress) relevant to anxiety and depression. A significant interaction demonstrated that positivity protected against high levels of negativity of noninterpersonal events in predicting general distress. A main effect of interpersonal negativity predicting higher anhedonia-apprehension was observed. Results for fears were nonsignificant. Findings suggest that the positivity of life events may buffer against negativity in predicting symptoms shared between anxiety and depression.

Keywords

depression, anxiety, life events, positivity, negativity

Received 9/28/22; Revision accepted 10/2/22

Stressful events and their associated negativity predict the onset of depressive symptomology and disorders (Daley et al., 2000; Kessler, 1997) as well as anxiety disorders (Uliaszek et al., 2010). Little attention, however, has been paid to the positive aspects of major life events, including objectively positive contextual features associated with negative events (e.g., benefits of ending a toxic romantic relationship), or primarily positive significant life events (e.g., graduating college with good grades). The current study evaluates whether positivity buffers the effects of the negativity of life events on psychopathology.

A holistic approach to examining life events appreciates that stressful or significant events are not solely negative. Significant events may have positive or negative elements, or both, depending on context. Therefore, in considering the association between the valence

of events and psychopathology, events must be assessed using measures that objectively account for contextual features surrounding events rather than relying on individuals' self-perceptions of positivity and negativity. Contextual measurements capture the inherent complexity of life events, allow for a more accurate assessment of risk for and protection from psychopathology (Hammen, 1991) and, importantly, consider positive aspects of significant life events.

Positive life events are associated with increased well-being (McCullough et al., 2000; Nezlek, 2020; Panaite et al., 2021) and positive affect (Clark & Watson, 1988). Positive affect, in turn, enhances flexible thinking,

Corresponding Author:

Michelle G. Craske, University of California, Los Angeles
Email: mcraske@mednet.ucla.edu

problem-solving, effective coping, and well-being and builds social resources (Fredrickson, 2004). Therefore, the positivity of significant life events might reduce the risk for depression and anxiety. Indeed, positive life events have been associated with lower depression and anxiety symptom severity longitudinally (Hovenkamp-Hermelink et al., 2019) and the spontaneous remission of depression (Needles & Abramson, 1990; Spinhoven et al., 2011).

The positivity of life events may buffer the impact of negative life events on depression and anxiety through various pathways, including the dampening of negative affect or appraisals induced by negative events (Fredrickson, 1998; Garland et al., 2009; Moberly & Watkins, 2008). For example, positive-emotion inductions predicted subsequent reductions in negative affect (Fredrickson et al., 2008; Sin & Lyubomirsky, 2009). In turn, negative events themselves may be viewed as less severe and therefore less impactful on depression or anxiety (Zautra & Reich, 1983). High levels of positive events reduced depressive symptoms in college students with high levels of negative events (Dixon & Reid, 2000), consistent with a buffering model. Another study replicated this effect for depressive but not anxiety symptoms (Kandler & Ostendorf, 2016). Likewise, Haefel and Vargas (2011) found that positive life events buffered against stress among individuals at risk for depression. Relatedly, positive mood buffered the effects of chronic stress on mood and anxiety-disorder development, although positive mood was assessed independent of life events (Sewart et al., 2019).

Although these studies provide empirical support for buffering effects, they have been limited to self-reported positivity and negativity of life events. Self-report measures risk being obscured by respondents' symptomology (Hammen, 2018), and contextually sensitive life-stress measures are widely regarded as the gold standard in the field (Harkness & Monroe, 2016). Moreover, rather than simultaneously assessing the negativity and positivity of each event, studies have assigned each event to either a positive or negative valence. In addition, studies to date have assessed depression and anxiety independently rather than through the lens of hierarchical dimensional models, which evaluate patterns of covariation among symptoms across different levels of generality and specificity (Krueger et al., 2018) and offer more precision in assessing buffering effects.

The current study seeks to address gaps in the literature by examining the relationship between the valence of contextually assessed interpersonal and noninterpersonal episodic (i.e., discrete beginning/end) life events and dimensional symptom factors of depression and anxiety using three factors—fears, anhedonia-apprehension (AA), and general distress (GD)—of the trilevel model of anxiety and depression (Naragon-Gainey et al., 2016;

Prenoveau et al., 2010). We extend previous work by objectively and contextually assessing the positivity and negativity of significant life events in young adults. Young adulthood is a developmental stage marked by uncertainty and instability (e.g., experiencing a series of romantic relationships, balancing school and work duties) and involves taking on more responsibilities and making decisions independently (Arnett et al., 2014). In addition, mental-health disorders are highly prevalent during this period compared with other age groups (Arnett et al., 2014). Thus, young adults are a crucial sample for studying life events in relation to depression and anxiety because the experiences of and responses to life events during this period may impact mental-health trajectories. We opted to examine interpersonal and noninterpersonal events in part on the basis of prior work suggesting that events with interpersonal features might uniquely predict depression, as opposed to other forms of psychopathology (e.g., Brown & Harris, 1978). We also examined events by interpersonal and noninterpersonal domains because late adolescence and early adulthood marks a developmental period in which interpersonal relationships, particularly with peers, become increasingly important. Peer relationships at this age can be exceptionally supportive (e.g., promoting prosocial behaviors or academic achievements) or quite deleterious (e.g., facilitating substance use) for development (Steinberg & Morris, 2001). Examining the differential effects of the positivity and negativity of life events in each domain might further clarify the risk for and protection from psychopathology in this age group. We also extend prior work by examining the association between events and dimensional symptom factors. These symptom factors provide a unique advantage in parsing whether effects are attributable to shared, as opposed to unique, features of depression and anxiety.

On the basis of prior work (Vrshek-Schallhorn et al., 2015), we hypothesized that the negativity of interpersonal life events would be associated with elevations in symptom factors (i.e., fears, AA, and GD). Second, on the basis of evidence linking positivity to reduced anxiety and depressive symptom severity (Hovenkamp-Hermelink et al., 2019), we hypothesized that the positivity of life events across interpersonal and noninterpersonal domains would be associated with reductions in symptom factors. Finally, given possible buffering pathways for positive life events, we hypothesized that the positivity of interpersonal life events would moderate the impact of negativity, thereby reducing symptom severity for AA. Analyses of the buffering effects for GD and fears were exploratory because of the conflicting evidence for anxiety presentations (e.g., Kandler & Ostendorf, 2016; Sewart et al., 2019). Overall, we expected more robust findings for AA and GD

compared with fears because of the relevance of depressive presentations to these factors.

Transparency and Openness

Preregistration

The current study was not preregistered.

Data, materials, code, and online resources

Deidentified data and code for all analyses can be found on the OSF at <https://osf.io/h23ud>.

Reporting

This study involved an analysis of existing unpublished data from a larger study of positive and negative valence systems in young adults. The sample-size determination was made on the basis of power analyses conducted regarding main outcomes for the broader study. Participants were recruited on the basis of trait neuroticism and reward sensitivity (see below). Exclusion criteria included traumatic brain injury with evidence of neurological deficits, neurological disorders, severe or unstable medical conditions, any condition that interferes with the acquisition or interpretation of functional MRI data, pregnancy, inability to speak or read English, lifetime psychotic disorder, lifetime bipolar disorder, and clinically significant substance or alcohol abuse or dependence in the past 6 months. The current study uses a subset of variables that were selected a priori in alignment with our aims. Therefore, we do not report all measures used in the broader study but rather all measures pertinent to the constructs examined in the current study. We retained all available data for the current study. There were no manipulations in the current study.

Ethical approval

Study procedures were approved by the institutional review boards at the University of California, Los Angeles (UCLA) and Northwestern University and were carried out in accordance with the provisions of the Declaration of Helsinki.

Method

Participants

Young adults ($N = 373$) were recruited as part of the longitudinal, two-site Brain, Motivation, and Personality Development (BrainMAPD) study. The study used a Research Domain Criteria (Insel et al., 2010) approach,

examined positive and negative valence systems, and was led by UCLA and Northwestern University. The transitional period from late adolescence to young adulthood was selected given that there is typically a peak onset of depressive and anxiety disorders during this age range, and the broader BrainMAPD study had a particular interest in understanding factors associated with the emergence of psychopathology in a nonclinical sample. The sample was recruited at UCLA and Northwestern through activity fairs, flyers, and posts on Facebook pages for incoming classes. Recruitment was based on self-reported scores of trait neuroticism (Eysenck Personality Questionnaire-Neuroticism, or EPQ-N; Eysenck & Eysenck, 1975) and reward sensitivity (Behavioral Activation Scale, or BAS; Carver & White, 1994). Participants were oversampled from the two diagonals of the bivariate space defined by the EPQ-N and BAS scales; those who fell in the high, middle, and low regions on each scale were represented in the sample to ensure the inclusion of individuals at risk for the onset of depression and anxiety. Therefore, the sample comprised individuals with scores that were in the high, low, or middle range on each measure, or high on one and low on the other.

At enrollment, participants were between 18 and 19 years old. However, the average age at the time of the diagnostic interview was 19.43 ($SD = 5.01$). The sample was primarily female (67.0%) and racially diverse (33.1% White, 28.5% Asian, 18.5% Hispanic, 9.9% Black, 7.5% multiracial, 2.2% American Indian/Native Alaskan, 0.3% not reported). Gross family incomes varied in the sample, although the majority reported higher incomes. Specifically, 18.2% of the sample reported gross household incomes below \$19,999, 19.2% reported incomes between \$20,000 and \$99,000, 18.0% reported incomes between \$100,000 and \$199,999, and 29.7% reported incomes over \$200,000. Participants provided written consent to participate in the study.

Measures

Trilevel model measures. Participants completed self-report measures assessing anxiety and depressive symptoms (Prenoveau et al., 2010). Three subscales of the Fear Survey Schedule-II (Geer, 1965) assessed specific fears. The Albany Panic and Phobia Questionnaire examined fears of sensation-producing activities and agoraphobic situations (Rapee et al., 1994). The Self-Consciousness subscale of the Social Phobia Scale assessed social fears (Mattick & Clarke, 1998). The Inventory to Diagnose Depression probed anhedonia, dysphoria, hopelessness, and self-deprecation (Zimmerman et al., 1986). The Mood and Anxiety Symptom Questionnaire (Watson et al., 1995) assessed symptoms of anxiety, including generalized anxiety and panic, and symptoms of depression.

The trilevel model was derived using items on these self-report measures (for model specification, see Prenoveau et al., 2010). Factor scores were developed using confirmatory factor analysis in Mplus (Version 5.0; Muthén & Muthén, 2009). Each factor was constrained to be orthogonal to all other factors. The three broadest factors of the model, GD ($M = .08$; $SD = .92$), AA ($M = -.06$; $SD = .92$), and fears ($M = -.02$; $SD = .80$), were used in the current study. GD is the broadest factor of the trilevel model. GD is a general, transdiagnostic factor characterized by both depressive and anxious presentations captured by the two intermediate factors of the model, fears and AA, given that all items in the trilevel model load onto GD directly; depression and worry are the strongest markers for this factor (Naragon-Gainey et al., 2016). AA is characterized primarily by positive affect (negative loadings) but also by depression and worry. The fears factor is characterized by social, specific, and interoceptive/agoraphobic fears; obsessive-compulsive symptoms; anxious arousal; and somatic tensions.

Life-events interview. A modified version of the UCLA Life Stress Interview (LSI; Hammen, 1991; Hammen et al., 1987) probed chronic and episodic life events. The current study used episodic events because positivity ratings were not collected for chronic events.

Highly trained doctoral-level and postbaccalaureate interviewers inquired about significant events (date, nature, and surrounding context) that occurred in the year prior to the interview. The measure was designed to inquire about events only within the last year or less because of reductions in the accuracy of recall of life events beyond that time. Training entailed multiday sessions that included reviewing the goal and administration of interview prompts, practicing administering the interview, and reliability practice in which interviewers completed ratings of clinical vignettes and were required to meet a standard of reliable ratings for both negativity and positivity ratings before being certified to conduct interviews. Given that positivity ratings were novel, interviewers received additional training on reviewing events with positive features common to college populations (e.g., starting a new relationship, recognition for accomplishments, getting into an academic program or receiving a job) and probing for the positive impact of these events on participants' lives.

Interview prompts were general, such that events reported could be positive or negative. For example, in assessing events related to social life, the interviewer asked, "Have there been any particular events that have occurred in your relationships with any of your friends over the past 12 months?" Probes were added to capture potentially positive events, including accomplishments, improvements, or new relationships, and interviewers queried about the circumstances to clarify the context.

Interviewers subsequently presented a narrative account of each life event to a team of two or more independent raters who were blind to participants' diagnoses and made consensus ratings on events that significantly impacted participants' lives. Ratings were provided by the consensus team, rather than the participant, to obtain objective impact rather than participants' subjective interpretations of events potentially biased by their emotional reactions. Raters provided the following ratings for significant events: severity (positivity, negativity), domain, and code.

The consensus team rated events for both negativity and positivity. Therefore, each life event received two severity (impact) ratings: one of positivity and one of negativity. Negativity ratings were consistent with the original conception of LSI severity ratings, which measured the severity or harm of the impact of significant life events. Negativity was rated on a scale from 1 (*not or only minimally negative*) to 5 (*extremely negative, most catastrophic conditions imaginable*) in half-point increments. Positivity ratings were developed to mirror the ratings of negativity and therefore were also rated on a 1 (*minimally positive or not at all positive*) to 5 (*extremely positive*) scale in half-point increments. Ratings of 4 or 5 are exceptionally rare by design. Positivity ratings were intended to capture the objective beneficial features of major life events but were not designed to measure participants' subjective emotional responses to events. For example, graduating high school with good grades would typically be scored as more positive than simply meeting graduation standards (i.e., passing grades) because higher achievement may afford better postgraduation opportunities, including financial benefits. However, graduation from high school may also typically be seen as mildly negative depending on how challenging the transition from school might be given an individual's circumstances. In the same example, a participant endorsing relief at graduating with marginally passing grades would not impact ratings of positivity, given that the ratings were meant to extract participants' emotional experiences from the objective impact of events founded in context and facts. Importantly, positivity is a broad construct and could also be considered to represent the discontinuation of a harmful life circumstance. For example, an abusive romantic relationship ending, although potentially emotionally evocative for a participant, would be rated as more positive than a nonabusive relationship ending because of the objective positive impact on a person's life (e.g., increased safety). Of note, positivity and negativity ratings may not be entirely independent because the context surrounding events was considered for both positivity and negativity ratings.

Events were considered within 10 domains: close friendships, social life, romantic relationships, family

Table 1. Most Frequently Reported Life Events

| Event | Frequency | Percentage |
|---|-----------|------------|
| Generic other | 43 | 14.01 |
| Serious argument or problem with a friend | 40 | 13.03 |
| End dating relationship | 33 | 10.75 |
| Start new friendship | 27 | 8.79 |
| Begin new dating relationship | 23 | 7.49 |
| Move out of home for first time | 20 | 6.51 |
| Separation from significant person (e.g., family member, close friend) | 18 | 5.86 |
| Graduation | 9 | 2.9 |
| End friendship | 9 | 2.9 |
| Begin full-time or half-time education | 9 | 2.9 |

Note: "General other" is typically a category that includes noninterpersonal events, although it can include interpersonal events that do not fit into predefined event categories. Some examples of generic other events in this sample are participants receiving a probation letter from school, becoming more involved on campus to develop their resume, beginning to exercise more frequently, and selecting to join an honor society after a rigorous application process.

relationships, neighborhood/dorm environment, school/academic experiences, work, finances, health, and miscellaneous. The first four domains were considered interpersonal, whereas the latter six were considered noninterpersonal, consistent with prior work (e.g., Uliaszek et al., 2010). We examined these domains given evidence that interpersonal and noninterpersonal events differentially predict depression and anxiety (Hammen, 2005; Uliaszek et al., 2010).

Event codes described event content more specifically (e.g., changing schools, traffic accident, becoming engaged) on the basis of a modified event list from Paykel and Mangan (1980). See Table 1 for the most common events in this sample.

Four life event variables were considered in analyses: interpersonal positivity ($M = 1.39$; $SD = 0.48$), interpersonal negativity ($M = 1.73$; $SD = 0.51$), noninterpersonal positivity ($M = 1.83$; $SD = 0.59$), and noninterpersonal negativity ($M = 1.63$; $SD = 0.46$).

Reliability ratings were performed on a subset of interviews ($N = 33$) across sites; interviewers at each site listened to recordings from the alternate site and presented them to their team for consensus ratings. Reliability raters were blind to the other site's consensus ratings. Analyses demonstrated good to excellent reliability (Koo & Li, 2016): ICC (2,2) for interpersonal positivity, noninterpersonal positivity, interpersonal negativity, and noninterpersonal negativity was 0.89, 0.95, 0.89, and 0.86, respectively.

Analyses

Analyses were conducted in Stata 16 (StataCorp, 2019). We used linear regressions to predict the three broadest

(GD, AA, fears) trilevel-model factor-score estimates from the positivity and negativity of life events. We estimated two models for each trilevel-model factor: The first model probed an interaction between positivity and negativity associated with interpersonal events, and the second model tested this relationship among noninterpersonal events.¹ Significant interactions were followed with tests of simple effects. Nonsignificant interactions were followed by tests of the main effects of positivity and negativity simultaneously within interpersonal or noninterpersonal domains. We also conducted two exploratory post hoc analyses for significant effects, in which we controlled for the effect of the two trilevel-model factors not included in the original model (i.e., for a model that originally predicted GD, the post hoc analysis controlled for AA and fears). Significant results were those with p values $< .05$.

Participants varied in the number of life events; some participants had one life event, whereas others had more than 10. To account for the clustering of life events within participants and to avoid collapsing data within participants, models used cluster-robust standard errors, which account for the nonindependence of observations within individuals (McNeish et al., 2017). Therefore, analyses took clustering into account without necessitating the computation of sum scores within each life-event domain.

Results

General distress

See Table 2 for regression results. Interactive and main effects in the interpersonal domain were nonsignificant

Table 2. Regression Results

| Outcome | Predictors | Estimate | SE | <i>p</i> | 95% CI |
|----------------------------|--|----------|-------|----------|------------------|
| General distress | Interpersonal positivity | -0.063 | 0.093 | .503 | [-0.247, 0.121] |
| | Interpersonal negativity | -0.044 | 0.091 | .633 | [-0.223, 0.136] |
| | Interpersonal positivity/ negativity interaction | -0.015 | 0.253 | .953 | [-0.512, 0.483] |
| | Noninterpersonal positivity | 0.634 | 0.219 | .004 | [0.203, 1.066] |
| | Noninterpersonal negativity | 0.730 | 0.230 | .002 | [0.278, 1.183] |
| | Noninterpersonal positivity/ negativity interaction | -0.386 | 0.121 | .002 | [-0.624, -0.148] |
| Anhedonia- apprehension | Interpersonal positivity | 0.110 | 0.096 | .253 | [-0.079, 0.300] |
| | Interpersonal negativity | 0.180 | 0.085 | .035 | [0.013, 0.347] |
| | Interpersonal positivity/ negativity interaction | -0.123 | 0.236 | .593 | [-0.592, 0.340] |
| | Noninterpersonal positivity | 0.056 | 0.056 | .316 | [-0.054, 0.167] |
| | Noninterpersonal negativity | 0.094 | 0.067 | .160 | [-0.037, 0.225] |
| | Noninterpersonal positivity/ negativity interaction | -0.121 | 0.115 | .294 | [-0.348, 0.106] |
| Fears | Interpersonal positivity | -0.113 | 0.088 | .199 | [-0.287, 0.060] |
| | Interpersonal negativity | -0.115 | 0.077 | .135 | [-0.267, 0.036] |
| | Interpersonal positivity/ negativity interaction | 0.095 | 0.213 | .658 | [-0.325, 0.514] |
| | Noninterpersonal positivity | 0.028 | 0.058 | .621 | [-0.085, 0.143] |
| | Noninterpersonal negativity | 0.042 | 0.065 | .518 | [-0.086, 0.169] |
| | Noninterpersonal positivity/ negativity interaction | -0.069 | 0.106 | .515 | [-0.278, 0.140] |

Note: Results are from regression models. In models with a significant interaction term, main effects are reported from the model including the interaction term. When results demonstrated a nonsignificant interaction term, a second model with main effects only was conducted, and main effects from the second model are reported. CI = confidence interval.

($p \geq .50$). However, there were significant main effects of noninterpersonal positivity ($p = .004$) and negativity ($p = .002$) and a significant interaction, $\beta = -0.39$, 95% confidence interval (CI) = [-0.62, -0.15], $p = .002$. Tests of simple effects demonstrated that at low levels of noninterpersonal negativity (i.e., negativity ratings of 1.5), a one-unit change in positivity did not significantly predict GD ($p = .06$). However, at moderate to high levels of negativity (i.e., ratings ≥ 2.5), increases in positivity were significantly associated with lower GD ($p \leq .01$; Fig. 1). Results remained significant ($p \leq .01$) in an exploratory post hoc analysis controlling for fears and AA.

Anhedonia-apprehension

Interactive and main effects of interpersonal positivity were nonsignificant ($p \geq .25$). There was a main effect of interpersonal negativity ($p = .04$). A one-unit increase in negativity was associated with a .18-unit increase,

over and above the effect of positivity. This effect remained significant ($p < .05$) in a supplementary analysis controlling for GD and fears. Effects in the noninterpersonal domain for AA were nonsignificant ($p \geq .16$).

Fears

All effects within interpersonal ($p \geq .14$) and noninterpersonal ($p \geq .52$) domains were nonsignificant for fears.

Discussion

This study is the first to examine the positivity and negativity of episodic life events in predicting symptoms of depression and anxiety. We found an interactive effect in the noninterpersonal life-event domain for GD, the broadest trilevel factor related to both anxiety and depression, with positivity buffering against high levels of negativity. Interactive and main effects in the interpersonal domain for GD were nonsignificant. We also

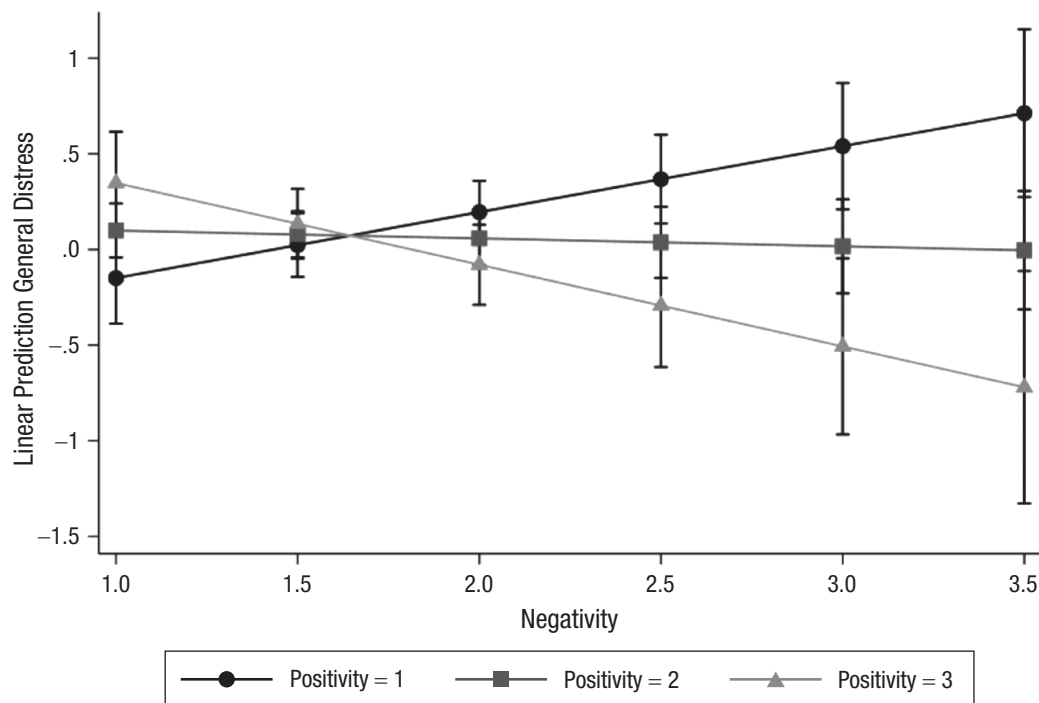


Fig. 1. Interaction between noninterpersonal positivity and negativity predicting general distress. The graph demonstrates the interactive effects of positivity and negativity in predicting general distress by representing the effects of high (= 3), medium (= 2), and low (= 1) positivity at different levels of negativity. Results demonstrate that at high levels of negativity, greater positivity associated with noninterpersonal episodic life events is associated with lower general distress. Error bars = 95% confidence intervals of linear predictions.

found a main effect of interpersonal negativity predicting increases in AA, which is characterized primarily by low positive affect, depression, and worry and is more closely tied to depression than to anxiety. Effects for interpersonal positivity and noninterpersonal positivity and negativity predicting AA were nonsignificant, as were all interactive and main effects for fears. Our results demonstrate that the positivity of life events moderate the association between the negativity of events and depression and anxiety. Findings also highlight the importance of holistic life-event measurements that incorporate positivity ratings. A previous focus in the field almost exclusively upon the negativity of significant life events limited our capacity to elucidate the complex relationships between events and psychopathology.

Results demonstrated that the positivity of noninterpersonal life events moderated the impact of negativity in predicting GD. Broadly, this finding suggests that the experience of high levels of positivity of events is protective against the impact of the negativity of events, which has previously been found to confer risk for psychopathology and, in particular, depressive presentations (e.g., Hammen, 2005). One explanation for this finding is that positive events generate positive affect (Clark & Watson, 1988), which may offset negative affect generated by negative events (Moberly & Watkins,

2008). Another possibility is that positive events may reduce negative appraisals or perceived consequences of negative events (Garland et al., 2009; Zautra & Reich, 1983), a process potentially related to increased positive affect and broadened awareness after experiencing positive events (Fredrickson, 1998). We did not find significant interpersonal buffering effects. Interpersonal life events might be more likely to recur or entail a more chronic element, in part because of a tendency for individuals with or at risk for depression, even when asymptomatic, to select into stressful environments (Hammen, 2003). This may include selecting romantic partners or close friends with whom conflict is more likely. In turn, the positivity of interpersonal events may be overshadowed by a chronically stressful interpersonal environment. Future work is needed to explore this possibility and to replicate effects observed in the current study.

We also found that the negativity of interpersonal events predicted greater AA, consistent with prior work linking negative interpersonal, rather than noninterpersonal, events to depression (e.g., Hammen, 2005). The absence of a significant main effect of positivity or interactive effect of positive events on negative events might be attributable to various diatheses for depression. The depressive tendency to attribute negative

events to self and positive events to external factors (e.g., Alloy et al., 1988; Rubenstein et al., 2016) may reduce the potency of positive events to counteract negativity. Deficits in reward sensitivity among individuals with depression may also explain the results (e.g., Pizzagalli et al., 2009). Depression and anhedonia have been linked to decreased reports of positive emotions and anticipatory pleasure (Hallford et al., 2020) as well as aberrant physiological responses to emotional content (i.e., lack of association with heart rate in response to positive and negative emotional stimuli; Fitzgibbons & Simons, 1992). Emerging evidence also points to both blunted (e.g., nucleus accumbens) and increased (e.g., amygdala) neural or neurotransmitter activity related to anhedonic states (Wang et al., 2021). Deficits in reward sensitivity may undercut the impact of the positivity of life events. Last, the depressive tendency toward rumination (Vanderlind et al., 2022) may hinder attentional disengagement from negative stimuli (Whitmer & Gotlib, 2012). Therefore, individuals with depression may be more likely to ruminate about the negativity of events and have difficulty shifting their attention to something more benign or positive, again undermining the impact of event positivity.

We did not observe significant effects for the fears factor, which is characterized by social and interoceptive/agoraphobic fears and specific phobias. This finding is supported by prior evidence for buffering effects for depression but not anxiety (Kandler & Ostendorf, 2016). However, there is a dearth of evidence on the positivity of events and fears. Regardless, relative to anhedonic depression and GD, specific fears often emerge through specific learning events around to-be-feared stimuli rather than generic life events (e.g., Mineka & Zinbarg, 2006), which may explain null findings. Findings may also be explained by low statistical power.

Our findings have implications for the assessment of life events and interventions for depression and anxiety. Results demonstrate that the positivity of life events can be effectively and reliably measured using an adapted version of the LSI, a well-validated measure for assessing significant events. Treatment targets for depression and anxiety have been overly focused on reducing negative events instead of increasing positive events. Our data point to the potential value of treatments designed to increase engagement with and appreciation for the positive aspects of life events. For example, positive-affect treatment (Craske et al., 2016, 2019), which targets attending to, anticipating, and savoring rewarding experiences, may augment positive experiences related to life events. Likewise, training individuals to recall positive memories of life events more thoroughly and preferentially, as well as amplifying the positive aspects of memories of life events, hold promise as interventions

for promoting positive mood, given extant support for approaches that include more extensive recall or amplification of positive memories (Dunn, 2012). Future work should examine how cognitive and behavioral interventions for deficits in the appetitive system may bolster the effects of positivity and reduce the impact of the negativity of life events on internalizing disorders.

The current study has several strengths. It is the first study to our knowledge to simultaneously assess the positivity and negativity of episodic life events, enabling direct comparisons of the valence of events within the same measure and reducing the likelihood that methodological differences between events assessed account for results. In addition, life-event ratings were made by independent consensus raters, allowing for more objective assessments than would self-report measures. Furthermore, we used dimensional measures to assess psychopathology, capturing subclinical as well as clinical presentations. Finally, the sample was relatively large and racially diverse.

A limitation of our study is its cross-sectional design, which prevented causal conclusions about whether the positivity and negativity life events protect against or confer risk for symptom exacerbation prospectively. Cross-sectional methodology may also conflate the causal effects of stress with stress-generation effects to an unknown degree (Hammen, 1978). The age range was narrow; it is unclear how results may generalize to other age groups, especially because students may experience a higher number of positive events given the salience of academic striving and achievement focus among college students. Many participants also reported higher incomes, again limiting generalizability. Negativity and positivity ratings in the current sample also contained very few extremely negative or positive events; samples that experienced higher levels of extremely negative or positive scores might reveal somewhat different results. In addition, assigning events to interpersonal and noninterpersonal domains may preclude the ability to effectively capture the contextual features of events that span domains (e.g., an interpersonal conflict at the workplace). Last, although we accounted for the variable quantity of life events across participants, it is possible that individuals with more life events are meaningfully distinct from those who report fewer.

Although the current study represents a novel contribution to the life-event literature, it also highlights several important avenues for future work. Future studies should test both the prospective effects of the positivity and negativity of events on symptomology and the prospective effects of symptomology on the positivity and negativity of events to clarify the direction of moderation. It may also be important for future work to compare effects of objective ratings of positivity and negativity to subjective ratings to elucidate whether

individuals' experience of events differentially predicts outcomes. Such an analysis may also shed light on the validity of the positivity measure used in this study. Given that this study examined only episodic life events, in which the duration of events was not reported, future work should also examine the degree to which findings generalize to chronic life events.

This study demonstrates that the positivity of life events may buffer against the impact of negativity in predicting transdiagnostic depression and anxiety. We also replicated prior work, demonstrating that the negativity of events is associated with AA, a factor closely tied to depression. These findings represent an important step in considering both positive and negative valence associated with life events, even among events that may be stressful.

Transparency

Action Editor: Jennifer Lau

Editor: Jennifer L. Tackett

Author Contributions

Julia Yarrington: Conceptualization; Data curation; Formal analysis; Methodology; Writing – original draft; Writing – review & editing.

Allison Metts: Conceptualization; Writing – original draft; Writing – review & editing.

Richard Zinbarg: Conceptualization; Formal analysis; Funding acquisition; Writing – original draft; Writing – review & editing.

Robin Nusslock: Conceptualization; Formal analysis; Funding acquisition; Writing – original draft; Writing – review & editing.

Kate Wolitzky-Taylor: Methodology; Supervision; Writing – review & editing.

Connie Hammen: Conceptualization; Methodology; Supervision; Writing – original draft; Writing – review & editing.

Nicholas Kelley: Conceptualization; Writing – original draft; Writing – review & editing.

Susan Bookheimer: Conceptualization; Funding acquisition; Writing – original draft; Writing – review & editing.

Michelle Craske: Conceptualization; Formal analysis; Funding acquisition; Methodology; Writing – original draft; Writing – review & editing.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Funding

This research was supported by National Institute of Mental Health (NIMH) Grant R01 MH100117-01 (to M. G. Craske, S. Bookheimer, R. Nusslock, and R. E. Zinbarg). The content is the responsibility of the authors and does not necessarily represent the official views of the NIMH. The writing of this manuscript was supported by an NIMH T32 predoctoral training grant and the Pritzker Graduate Scholar Award (to J. S. Yarrington).

Open Practices

This article has received the badge for Open Data. More information about the Open Practices badges can be found at <https://www.psychologicalscience.org/publications/badges>.



ORCID iDs

Julia S. Yarrington <https://orcid.org/0000-0001-8177-3379>

Allison V. Metts <https://orcid.org/0000-0003-1340-463X>

Richard E. Zinbarg <https://orcid.org/0000-0002-2670-6330>

Acknowledgments

We gratefully acknowledge the statistical consultation from Craig Enders and Andrea Niles.

Note

1. We conducted an exploratory analysis in which we examined the relationship between the positivity and negativity of life events broadly (i.e., not separated into interpersonal and noninterpersonal domains and symptom factors). Results mirrored the results obtained when life events were separated by domain. Specifically, no significant results emerged for fears ($p > .05$); there was a main effect of negativity on anhedonia-apprehension ($p = .04$), with higher levels of negativity predicting greater levels of anhedonia-apprehension; and positivity buffered against negativity in predicting general distress ($p = .01$). We opted to present domain-specific results given the importance of separating into interpersonal and noninterpersonal domains for this sample.

References

- Alloy, L. B., Abramson, L. Y., Metalsky, G. I., & Hartlage, S. (1988). The hopelessness theory of depression: Attributional aspects. *British Journal of Clinical Psychology, 27*(1), 5–21. <https://doi.org/10.1111/j.2044-8260.1988.tb00749.x>
- Arnett, J. J., Žukauskienė, R., & Sugimura, K. (2014). The new life stage of emerging adulthood at ages 18–29 years: Implications for mental health. *The Lancet Psychiatry, 1*(7), 569–576. [https://doi.org/10.1016/S2215-0366\(14\)00080-7](https://doi.org/10.1016/S2215-0366(14)00080-7)
- Brown, G. W., & Harris, T. (1978). *Social origins of depression: A study of psychiatric disorder in women*. Routledge.
- Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: The BIS/BAS scales. *Journal of Personality and Social Psychology, 67*(2), 319–333. <https://doi.org/10.1037/0022-3514.67.2.319>
- Clark, L. A., & Watson, D. (1988). Mood and the mundane: Relations between daily life events and self-reported mood. *Journal of Personality and Social Psychology, 54*(2), 296–308. <https://doi.org/10.1037/0022-3514.54.2.296>
- Craske, M. G., Meuret, A. E., Ritz, T., Treanor, M., Dour, H., & Rosenfield, D. (2019). Positive affect treatment for depression and anxiety: A randomized clinical trial for a core feature of anhedonia. *Journal of Consulting and Clinical Psychology, 87*(5), 457–471. <https://doi.org/10.1037/ccp0000396>

- Craske, M. G., Meuret, A. E., Ritz, T., Treanor, M., & Dour, H. J. (2016). Treatment for anhedonia: A neuroscience driven approach. *Depression and Anxiety, 33*(10), 927–938. <https://doi.org/10.1002/da.22490>
- Daley, S. E., Hammen, C., & Rao, U. (2000). Predictors of first onset and recurrence of major depression in young women during the 5 years following high school graduation. *Journal of Abnormal Psychology, 109*(3), 525–533. <https://doi.org/10.1037/0021-843X.109.3.525>
- Dixon, W. A., & Reid, J. K. (2000). Positive life events as a moderator of stress-related depressive symptoms. *Journal of Counseling & Development, 78*(3), 343–347. <https://doi.org/10.1002/j.1556-6676.2000.tb01916.x>
- Dunn, B. D. (2012). Helping depressed clients reconnect to positive emotion experience: Current insights and future directions. *Clinical Psychology & Psychotherapy, 19*(4), 326–340. <https://doi.org/10.1002/cpp.1799>
- Eysenck, H. J., & Eysenck, S. B. G. (1975). *Manual of the Eysenck Personality Questionnaire (junior and adult)*. Hodder & Stoughton.
- Fitzgibbons, L., & Simons, R. F. (1992). Affective response to color-slide stimuli in subjects with physical anhedonia: A three-systems analysis. *Psychophysiology, 29*(6), 613–620. <https://doi.org/10.1111/j.1469-8986.1992.tb02036.x>
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2*(3), 300–319. <https://doi.org/10.1037/1089-2680.2.3.300>
- Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions of the Royal Society B: Biological Sciences, 359*(1449), 1367–1377. <https://doi.org/10.1098/rstb.2004.1512>
- Fredrickson, B. L., Cohn, M. A., Coffey, K. A., Pek, J., & Finkel, S. M. (2008). Open hearts build lives: Positive emotions, induced through loving-kindness meditation, build consequential personal resources. *Journal of Personality and Social Psychology, 95*(5), 1045–1062. <https://doi.org/10.1037/a0013262>
- Garland, E., Gaylord, S., & Park, J. (2009). The role of mindfulness in positive reappraisal. *Explore, 5*(1), 37–44. <https://doi.org/10.1016/j.explore.2008.10.001>
- Geer, J. H. (1965). The development of a scale to measure fear. *Behaviour Research and Therapy, 3*(1), 45–53. [https://doi.org/10.1016/0005-7967\(65\)90040-9](https://doi.org/10.1016/0005-7967(65)90040-9)
- Haefel, G. J., & Vargas, I. (2011). Resilience to depressive symptoms: The buffering effects of enhancing cognitive style and positive life events. *Journal of Behavior Therapy and Experimental Psychiatry, 42*(1), 13–18. <https://doi.org/10.1016/j.jbtep.2010.09.003>
- Hallford, D. J., Barry, T. J., Austin, D. W., Raes, F., Takano, K., & Klein, B. (2020). Impairments in episodic future thinking for positive events and anticipatory pleasure in major depression. *Journal of Affective Disorders, 260*, 536–543. <https://doi.org/10.1016/j.jad.2019.09.039>
- Hammen, C. (1991). Generation of stress in the course of unipolar depression. *Journal of Abnormal Psychology, 100*, 555–561. <https://doi.org/10.1037/0021-843X.100.4.555>
- Hammen, C. (2003). Interpersonal stress and depression in women. *Journal of Affective Disorders, 74*(1), 49–57. [https://doi.org/10.1016/S0165-0327\(02\)00430-5](https://doi.org/10.1016/S0165-0327(02)00430-5)
- Hammen, C. (2005). Stress and depression. *Annual Review of Clinical Psychology, 1*, 293–319. <https://doi.org/10.1146/annurev.clinpsy.1.102803.143938>
- Hammen, C. (2018). Risk factors for depression: An autobiographical review. *Annual Review of Clinical Psychology, 14*, 1–28. <https://doi.org/10.1146/annurev-clinpsy-050817-084811>
- Hammen, C., Adrian, C., Gordon, D., Burge, D., Jaenicke, C., & Hiroto, D. (1987). Children of depressed mothers: Maternal strain and symptom predictors of dysfunction. *Journal of Abnormal Psychology, 96*, 190–198. <http://doi.org/10.1037/0021-843X.96.3.190>
- Hammen, C. L. (1978). Depression, distortion, and life stress in college students. *Cognitive Therapy and Research, 2*(2), 189–192.
- Harkness, K. L., & Monroe, S. M. (2016). The assessment and measurement of adult life stress: Basic premises, operational principles, and design requirements. *Journal of Abnormal Psychology, 125*(5), 727–745. <https://doi.org/10.1037/abn0000178>
- Hovenkamp-Hermelink, J. H., Jeronimus, B. F., Spinhoven, P., Penninx, B. W., Schoevers, R. A., & Riese, H. (2019). Differential associations of locus of control with anxiety, depression and life-events: A five-wave, nine-year study to test stability and change. *Journal of Affective Disorders, 253*, 26–34. <https://doi.org/10.1016/j.jad.2019.04.005>
- Insel, T., Cuthbert, B., Garvey, M., Heinssen, R., Pine, D. S., Quinn, K., Sanislow, C., & Wang, P. (2010). Research Domain Criteria (RDoC): Toward a new classification framework for research on mental disorders. *The American Journal of Psychiatry, 167*(7), 748–751. <https://doi.org/10.1176/appi.ajp.2010.09091379>
- Kandler, C., & Ostendorf, F. (2016). Additive and synergetic contributions of neuroticism and life events to depression and anxiety in women. *European Journal of Personality, 30*(4), 390–405. <https://doi.org/10.1002/2Fper.2065>
- Kessler, R. C. (1997). The effects of stressful life events on depression. *Annual Review of Psychology, 48*(1), 191–214. <https://doi.org/10.1146/annurev.psych.48.1.191>
- Koo, T. K., & Li, M. Y. (2016). A guideline of selecting and reporting intraclass correlation coefficients for reliability research. *Journal of Chiropractic Medicine, 15*(2), 155–163. <https://doi.org/10.1016/j.jcm.2016.02.012>
- Krueger, R. F., Kotov, R., Watson, D., Forbes, M. K., Eaton, N. R., Ruggero, C. J., Simms, L. J., Widiger, T. A., Achenbach, T. M., Bach, B., Bagby, R. M., Bornovalova, M. A., Carpenter, W. T., Chmielewski, M., Cicero, D. C., Clark, L. A., Conway, C., DeClercq, B., DeYoung, C. G., . . . Zimmermann, J. (2018). Progress in achieving quantitative classification of psychopathology. *World Psychiatry, 17*(3), 282–293. <https://doi.org/10.1002/wps.20566>
- Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*(4), 455–470. [https://doi.org/10.1016/S0005-7967\(97\)10031-6](https://doi.org/10.1016/S0005-7967(97)10031-6)
- McCullough, G., Huebner, E. S., & Laughlin, J. E. (2000). Life events, self-concept, and adolescents' positive subjective well-being. *Psychology in the Schools, 37*(3), 281–

290. [https://doi.org/10.1002/\(SICI\)1520-6807\(200005\)37:3%3C281::AID-PITS8%3E3.0.CO;2-2](https://doi.org/10.1002/(SICI)1520-6807(200005)37:3%3C281::AID-PITS8%3E3.0.CO;2-2)
- McNeish, D., Stapleton, L. M., & Silverman, R. D. (2017). On the unnecessary ubiquity of hierarchical linear modeling. *Psychological Methods, 22*(1), 114–140. <https://doi.org/10.1037/met0000078>
- Mineka, S., & Zinbarg, R. (2006). A contemporary learning theory perspective on the etiology of anxiety disorders: It's not what you thought it was. *American Psychologist, 61*(1), 10–26. <https://doi.org/10.1037/0003-066X.61.1.10>
- Moberly, N. J., & Watkins, E. R. (2008). Ruminative self-focus, negative life events, and negative affect. *Behaviour Research and Therapy, 46*(9), 1034–1039. <https://doi.org/10.1016/j.brat.2008.06.004>
- Muthén, L. K., & Muthén, B. O. (2009). *Mplus user's guide* (5th ed.).
- Naragon-Gainey, K., Prenoveau, J. M., Brown, T. A., & Zinbarg, R. E. (2016). A comparison and integration of structural models of depression and anxiety in a clinical sample: Support for and validation of the tri-level model. *Journal of Abnormal Psychology, 125*(7), 853–867. <https://doi.org/10.1037/abn0000197>
- Needles, D. J., & Abramson, L. Y. (1990). Positive life events, attributional style, and hopefulness: Testing a model of recovery from depression. *Journal of Abnormal Psychology, 99*(2), 156–165. <https://doi.org/10.1037/0021-843X.99.2.156>
- Nezlek, J. B. (2020). When the good may be stronger than the bad: Perceived influence of daily events on well-being. *The Journal of Positive Psychology, 1*–11. <https://doi.org/10.1080/17439760.2020.1832248>
- Panaite, V., Devendorf, A. R., Kashdan, T. B., & Rottenberg, J. (2021). Daily life positive events predict well-being among depressed adults 10 years later. *Clinical Psychological Science, 9*(2), 222–235. <https://doi.org/10.1177/2167702620956967>
- Paykel, E. S., & Mangen, S. P. (1980). *Interview for recent life events* (Rev. ed.). Department of Psychiatry, St. George's Hospital Medical School.
- Pizzagalli, D. A., Holmes, A. J., Dillon, D. G., Goetz, E. L., Birk, J. L., Bogdan, R., Dougherty, D. D., Iosifescu, D. V., Rauch, S. L., & Fava, M. (2009). Reduced caudate and nucleus accumbens response to rewards in unmedicated individuals with major depressive disorder. *American Journal of Psychiatry, 166*(6), 702–710.
- Prenoveau, J. M., Zinbarg, R. E., Craske, M. G., Mineka, S., Griffith, J. W., & Epstein, A. M. (2010). Testing a hierarchical model of anxiety and depression in adolescents: A tri-level model. *Journal of Anxiety Disorders, 24*(3), 334–344. <https://doi.org/10.1016/j.janxdis.2010.01.006>
- Rapee, R. M., Craske, M. G., & Barlow, D. H. (1994). Assessment instrument for panic disorder that includes fear of sensation-producing activities: The Albany Panic and Phobia Questionnaire. *Anxiety, 1*(3), 114–122. <https://doi.org/10.1002/anxi.3070010303>
- Rubenstein, L. M., Freed, R. D., Shapero, B. G., Fauber, R. L., & Alloy, L. B. (2016). Cognitive attributions in depression: Bridging the gap between research and clinical practice. *Journal of Psychotherapy Integration, 26*(2), 103–115. <https://doi.org/10.1037/int0000030>
- Sewart, A. R., Niles, A. N., Burklund, L. J., Saxbe, D. E., Lieberman, M. D., & Craske, M. G. (2019). Examining positive and negative affect as outcomes and moderators of cognitive-behavioral therapy and acceptance and commitment therapy for social anxiety disorder. *Behavior Therapy, 50*(6), 1112–1124. <https://doi.org/10.1037/0022-006X.46.5.932>
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology, 65*(5), 467–487. <https://doi.org/10.1002/jclp.20593>
- Spinhoven, P., Elzinga, B. M., Hovens, J. G. F. M., Roelofs, K., Van Oppen, P., Zitman, F. G., & Penninx, B. W. J. H. (2011). Positive and negative life events and personality traits in predicting course of depression and anxiety. *Acta Psychiatrica Scandinavica, 124*(6), 462–473. <https://doi.org/10.1111/j.1600-0447.2011.01753.x>
- StataCorp. (2019). *Stata statistical software: Release 16*.
- Steinberg, L., & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology, 52*(1), 83–110. <https://doi.org/10.1146/annurev.psych.52.1.83>
- Uliaszek, A. A., Zinbarg, R. E., Mineka, S., Craske, M. G., Sutton, J. M., Griffith, J. W., Rose, R., Waters, A., & Hammen, C. (2010). The role of neuroticism and extraversion in the stress–anxiety and stress–depression relationships. *Anxiety, Stress, & Coping, 23*(4), 363–381. <https://doi.org/10.1080/10615800903377264>
- Vanderlind, W. M., Everaert, J., & Joormann, J. (2022). Positive emotion in daily life: Emotion regulation and depression. *Emotion, 22*(7), 1614–1624. <https://doi.org/10.1037/emo0000944>
- Vrshek-Schallhorn, S., Stroud, C. B., Mineka, S., Hammen, C., Zinbarg, R. E., Wolitzky-Taylor, K., & Craske, M. G. (2015). Chronic and episodic interpersonal stress as statistically unique predictors of depression in two samples of emerging adults. *Journal of Abnormal Psychology, 124*(4), 918–932. <https://psycnet.apa.org/doi/10.1037/abn0000088>
- Wang, S., Leri, F., & Rizvi, S. J. (2021). Anhedonia as a central factor in depression: Neural mechanisms revealed from preclinical to clinical evidence. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 110*, Article 110289. <https://doi.org/10.1016/j.pnpbp.2021.110289>
- Watson, D., Weber, K., Assenheimer, J. S., Clark, L. A., Strauss, M. E., & McCormick, R. A. (1995). Testing a tripartite model: I. Evaluating the convergent and discriminant validity of anxiety and depression symptom scales. *Journal of Abnormal Psychology, 104*(1), 3–14. <https://doi.org/10.1037/0021-843X.104.1.3>
- Whitmer, A. J., & Gotlib, I. H. (2012). Switching and backward inhibition in major depressive disorder: The role of rumination. *Journal of Abnormal Psychology, 121*(3), 570–578. <https://doi.org/10.1037/a0027474>
- Zautra, A. J., & Reich, J. W. (1983). Life events and perceptions of life quality: Developments in a two-factor approach. *Journal of Community Psychology, 11*(2), 121–132. [https://doi.org/10.1002/1520-6629\(198304\)11:2%3C121::AID-JCOP2290110206%3E3.0.CO;2-V](https://doi.org/10.1002/1520-6629(198304)11:2%3C121::AID-JCOP2290110206%3E3.0.CO;2-V)
- Zimmerman, M., Coryell, W., Corenthal, C., & Wilson, S. (1986). A self-report scale to diagnose major depressive disorder. *Archives of General Psychiatry, 43*(11), 1076–1081. <https://doi.org/10.1001/archpsyc.1986.01800110062008>