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Abstract

Taking the bad with the good is a necessity of life, and people who readily integrate thoughts of their loved one's flaws with thoughts of their more positive attributes maintain more stable, satisfying relationships. Borderline personality disorder, however, is often characterized by interpersonal perceptions that fluctuate between extremes of good and bad. We used a timed judgment task to examine information processing about significant others in individuals high in borderline personality features relative to healthy individuals and those high in avoidant personality features. In Study 1, when judging traits of a liked significant other, same-valence facilitation by negative primes (judging negative traits faster than positive traits after a negative prime) was significantly stronger in the borderline features group than the other two groups, and was inversely associated with self-reports of integrated thoughts about significant others. In contrast, same-valence facilitation by positive primes (judging positive traits faster than negative traits after a positive prime) was significantly stronger in the avoidant features group than the other two groups, and inversely associated with self-esteem. No between-group differences in same-valence facilitation were statistically significant when participants judged traits of disliked significant others, liked foods, and disliked foods. In Study 2, same-valence facilitation by negative primes when judging traits of a liked significant other was significantly associated with less integrated positive/negative thoughts about that person in a 12-day diary. These results identify an implicit information-processing pattern relevant to interpersonal difficulties in borderline personality disorder.

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Running head: INTEGRATION OF THOUGHTS ABOUT SIGNIFICANT OTHERS

Borderline personality features and integration of positive and negative thoughts

about significant others

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Abstract

Taking the bad with the good is a necessity of life, and people who readily integrate thoughts of their loved one's flaws with thoughts of their more positive attributes maintain more stable, satisfying relationships. Borderline personality disorder, however, is often characterized by interpersonal perceptions that fluctuate between extremes of good and bad. We used a timed judgment task to examine information processing about significant others in individuals high in borderline personality features relative to healthy individuals and those high in avoidant personality features. In Study 1, when judging traits of a liked significant other, same-valence facilitation by negative primes (judging negative traits faster than positive traits after a negative prime) was significantly stronger in the borderline features group than the other two groups, and was inversely associated with self-reports of integrated thoughts about significant others. By contrast, same-valence facilitation by positive primes, (judging positive traits faster than negative traits after a positive prime), was significantly stronger in the avoidant features group than the other two groups, and inversely associated with self-esteem. No between-group differences in same-valence facilitation were statistically significant when participants judged traits of disliked significant others, liked foods, and disliked foods. In Study 2, same-valence facilitation by negative primes when judging traits of a liked significant other was significantly associated with less integrated positive/negative thoughts about that person in a 12-day diary. These results identify an implicit information processing pattern relevant to interpersonal difficulties in borderline personality disorder.

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Keywords: significant other representations, cognitive processing, borderline, avoidant,

Borderline personality features and integration of positive and negative thoughts

about significant others

No one is perfect, even the people we love most. While some individuals can readily

balance or mitigate thoughts of a loved one's flaws with thoughts of their more positive

attributes, others find that thinking about a loved one's flaws triggers a cascade of negative

judgments about him/her, or find it difficult to acknowledge these flaws at all. Unsurprisingly,

integrated processing of significant others' positive and negative qualities has been linked with

more stable, satisfying relationships (e.g., Murray & Holmes, 1993, 1994, 1999; Showers &

Kelvyn, 1999; Showers, & Zeigler-Hill, 2004).

Difficulty integrating positive and negative thoughts about significant others is a core

characteristic of borderline personality disorder (BPD), a condition marked by high levels of

distress and instability in relationships, for which criterion 2, "alternating between extremes of

idealization and devaluation" (APA, 2013), is one of the most commonly met diagnostic criteria

(Gunderson, 2007; McGlashan et al., 2005). Research shows BPD symptoms are associated with

self-reports of tending to fluctuate between viewing others as all-good and all-bad (Gould,

Prentice & Ainslie, 1996). Moreover, a laboratory task in which participants rated the personality

characteristics of a significant other twice (three hours apart) provided behavioral evidence that

abstract mental representations of significant others are less stable over time in BPD than in

healthy individuals (Beeney, Hallquist, Ellison, & Levy, 2015). Finally, experience-sampling

diary research provides further evidence for polarized (also sometimes called dichotomous or

split) views of significant others among individuals with BPD. Over a three-week period,

positive and negative ratings of significant others showed a stronger inverse relationship in

participants with BPD relative to healthy participants, indicating that those with BPD were less

likely to have positive and negative thoughts about their significant other simultaneously (Coifman, Berenson, Rafaeli & Downey, 2012).

A timed judgment task has examined processing of information about significant others in normative samples (Graham & Clark, 2006; Campbell, Simpson, Boldry & Rubin, 2010), yet no previous research has applied this implicit approach to studying thoughts about significant others in BPD. We aim to do so, in young adults high in borderline personality features relative to a healthy comparison group and a group high in avoidant personality features. In Study 1, we identify the pattern of processing valenced traits of liked/loved significant others that is associated with borderline personality features, and examine its association with questionnaire measures from the literature on this phenomenon. In Study 2, we examine the association of this laboratory-based implicit measure of significant-other processing with a daily diary index of thoughts about the significant other being simultaneously valuable and flawed.

Experimental social-cognitive research on integrated interpersonal processing

Graham & Clark (2006) introduced an experimental approach to studying individual differences in integrated processing of significant others' traits using a task that compares the speed with which participants can judge a series of positive and negative traits as characteristic of a significant other, manipulating the order of trait presentation to either alternate or cluster the traits by valence. Because the ease with which activation spreads from one construct to another depends on the frequency with which an individual typically uses the two constructs together, people who often think about their significant other as all good or all bad would be slower when judging a positive and a negative trait consecutively (in the alternating valence condition of this task) than when judging two positives or two negatives in a row (in the clustered condition). People who often think about their significant others as having simultaneously positive and

negative qualities, by contrast, would not show as much of a speed differential across conditions. Graham and Clark's (2006) results showed that participants with low self-esteem were significantly slower in the alternating condition than in the clustered condition, while participants with high self-esteem were not. On the other hand, when participants judged traits of an inanimate target ("computers in general") in the same task, no differences were found for alternating/clustered order or self-esteem level. This suggests that the vulnerability that low self-esteem entails for integrated processing may be specific to interpersonal targets rather than being a more pervasive difference in cognitive style.

Although their research mainly focused on liked/loved significant others, Graham & Clark (2006) did not directly examine whether or not the effect they observed was limited to significant others that evoke positive, as opposed to negative or uncomfortably ambivalent, feelings. In a later study using the same experimental design, Campbell and colleagues (2010) found rating a close relationship as low in quality was associated with slower judgments of the significant other's traits in both the alternating and clustered conditions, with no difference in speed between conditions. The tendency to be slower when evaluating significant-other traits that were alternating (rather than clustered) by valence was found only among people who rated their relationship with the target significant other as high in quality on average, but experienced considerable variability in daily perceived relationship quality over a three-week period. Since individuals with personality pathology may have more negative or mixed feelings about people they are close to, it is important that research using this timed judgment task take evaluations of targets into account. Hence, we assessed processing of liked and disliked significant others and foods, with the evaluation of each target clearly specified and verified using untimed ratings.

Our research was grounded in Graham and Clark's (2006) experimental approach, but

improved upon it in several ways. First, our research was conducted using a within-person rather than between-group manipulation of trait order to obtain complete data for every participant. Second, rather than simply comparing conditions in which traits were alternating or clustered by valence, we treated the data as a continuous semantic priming task in which each judged trait served as a prime for the subsequent one (Robinson, 2007), so we could more precisely characterize the same-valence facilitation effects that underlie differences in speed of judging traits that are alternating (versus clustered) by valence. For example, some individuals who are slower at alternating sequences may exhibit same-valence facilitation by negative primes (the tendency to judge negative traits faster than positive traits after a negative prime) whereas others may exhibit same-valence facilitation by positive primes (the tendency to judge positive traits faster than negative traits after a positive prime). Conceptually, these patterns may reflect different interpersonal vulnerabilities, and pilot work suggested they may meaningfully distinguish processing of information in BPD from APD. We predicted that same-valence facilitation by *negative* primes, reflecting the readiness with which negative thoughts about a significant other escalate by triggering other negative thoughts and inhibiting positive thoughts, would be related to the extreme fluctuations in perceiving significant others as good or bad characteristic of BPD. However, slower processing of negative information about a significant other when positive feelings about them are currently in mind (i.e., same-valence facilitation by *positive* primes) may be characteristic of interpersonally inhibited individuals who characteristically perceive others as superior to themselves, such as those with APD.

Difficulty integrating information about significant others in APD

Although APD is not typically associated with dramatically fluctuating views of significant others, aspects of the diagnosis are consistent with less integrated processing of

others' positive and negative traits. For example, criterion 2 entails being "unwilling to get involved with people unless certain of being liked" (APA, 2013) and for those highly sensitive to signs of rejection, *certainty* of being liked would require that a potential significant other be seen as practically perfect in providing clear, consistent acceptance. In addition, having a negative self-image, which is characteristic of APD as well as BPD (Bowles, Armitage, Drabble, & Meyer, 2013; Lynum, Wilberg, & Karterud, 2008), has also been linked with less integrated processing of significant other traits in timed judgment tasks (Graham & Clark, 2006).

Comparisons between BPD and APD can be useful for research on the distinct characteristics of these two disorders, given that they are similar in central ways including chronicity, psychosocial impairment (Torgersen et al., 2001; Wilberg et al., 2009), and elevated sensitivity to potential rejection threats within relationships (Berenson et. al., 2016). Vulnerability to feeling threatened in relationships with significant others has been proposed to underlie difficulties integrating positive and negative information about them (Kernberg, 1975; Mikulincer & Shaver, 2007), and accordingly, Graham & Clark (2006) showed that self-reports of fluctuating positive/negative views of relationship partners were associated with self-reports of feeling threatened by awareness of the partner's flaws. One way to explain this is that when detecting and quickly reacting to threat is a high priority, cognitive resources are too low to engage in more complex, integrated processing. Under circumstances of perceived threat, people readily polarize information into separate categories for 'good' and 'bad' (Zautra, 2003).

Although APD is not associated with the impulsive and angry responses to interpersonal distress characteristic of BPD (Berenson et al., 2016), it is nevertheless associated with elevated levels of negative emotion in interpersonal contexts (Gadassi, Snir, Berenson, Rafaeli, & Downey, 2014), intense attachment anxiety, and difficulty maintaining self-other boundaries

(Beeney, Stepp, et al., 2015). A recent study found that aside from rates of temper outbursts, individuals with APD did not significantly differ from those with BPD on several experience-sampling measures of interpersonal dysfunction. For example, both reported less positive and more negative feelings about significant others than did healthy individuals (Berenson et al., in press). Moreover, compared to BPD, those with APD have shown lower capacity to perceive, tolerate, reflect on, and express emotional experiences, especially those linked to expressions of interest and contempt (Johansen, Normann-Eide, Normann-Eide, & Wilberg, 2013).

Research on social phobia (a disorder closely related to APD; Ralevski et al., 2005) provides further insight into the cognitions contributing to interpersonal difficulties in APD. Evolutionary models of social anxiety (e.g., Trower & Gilbert, 1989; Trower, Gilbert, & Sherling, 1990) suggest that socially anxious individuals over-utilize the social rank system at the expense of the affiliation system (Weisman, Aderka, Marom, Hermesh, & Gilboa-Schechtman, 2011). Highly attuned to the competitive dynamic of the social world (Hope, Sigler, Penn & Meier, 1998), they persistently see themselves as not "measuring up" to others (Antony, Rowa, Liss, Swallow, & Swinson, 2005) and prioritize avoiding conflict by exhibiting submissive behavior (Heerey & Kring, 2007). Because individuals with APD are afraid of challenging the existing social order, they may avoid negative thoughts about people they perceive as superior to themselves, and therefore think about them in less integrated ways.

The present research

In Study 1, participants high in features of borderline personality (BP) or avoidant personality (AP) and a healthy comparison (HC) group completed a timed judgment task for a liked (or loved) significant other and three comparison conditions: a disliked (or ambivalently-viewed) significant other, a liked food, and a disliked food. We tested the hypothesis that BP and

AP would be associated with difficulties integrating information about liked significant others, and not about disliked significant others or inanimate targets. We further tested whether the same-valence facilitation that underlies less integrated processing may be specific to negative primes in BP and positive primes in AP. Finally, we examined associations of the timed judgment task with two self-report measures that were the focus of Graham and Clark's (2006; 2007) research: self-esteem and the tendency to experience integrated (rather than fluctuating extremes of) positive/negative thoughts about relationship partners.

Study 1

Method

     Participants. All participants were undergraduates at a college in the US. Some individuals completed the study in partial fulfillment of a research requirement for a psychology course. Other individuals who met eligibility requirements (described below) when they participated in other research studies were invited to participate in this study for monetary compensation. Participants ($n =$ 238, 70.6% female) had a mean age of 18.8 years (range 18-22), and 86.6% self-identified as White.

     Eligibility to participate was based on participants' features of BP and AP, their history of mental health treatment, and their scores on validity scales. Features of BP and AP were assessed using portions of the Schedule for Adaptive and Nonadaptive Personality – 2 (SNAP-2; Clark, 2003). The SNAP-2 consists of statements about personality to be answered "True" or "False," with several items for each of the diagnostic criteria for BPD and APD (Clark, 2003). The BP and AP subscales each had an alpha coefficient of .89. Treatment history was assessed using a questionnaire item that asked participants if they had ever received any treatment for mental health problems (psychiatric medication, therapy/counseling, or both). Validity scales assessed response inconsistency and endorsement of rare virtues. To be included in our study,

participants' scores on these scales (computed according to the standard SNAP-2 instructions) were required to be lower than a t-score of 65.

Inclusion in the BP group required endorsing four or more of the BPD criteria and less than four APD criteria. Inclusion in the AP group required endorsing three or more of the APD criteria and less than three BPD criteria. To be eligible for the HC group, individuals needed to endorse no more than two criteria for either BPD or APD, and to report no history of mental health treatment. The BP group included 46 individuals (69.6% female); the AP group included 42 (83.3% female), and the HC group included 150 (67.3% female). In the BP and AP groups, 34 (38.6%) reported having received mental health treatment, and 8 (9.1%) refused to say.

Procedure. After providing informed consent, participants completed the timed judgment task for four targets in a random order. Afterwards, they evaluated each target in a series of untimed ratings, and answered questionnaires. Study sessions were conducted individually, using DirectRT and MediaLab software. All procedures were approved by the applicable Institutional Review Board.

Timed judgment priming tasks. Participants sat in front of a computer with their index fingers on response box buttons (labeled "yes" and "no"). They first completed a practice task in which they indicated as quickly as possible whether a series of 6 words were true of the town in which the college was located. TRUE OF [TOWN NAME]? was shown at the top of the screen, with each trait appearing individually in the center of the screen (e.g.,"historic"). The trial ended when the participant pressed yes or no, and the next trial began after a 350 ms interval.

Participants then used the same procedure to complete the four experimental yes-no judgment tasks. Embedded in each of these tasks were four randomly ordered blocks of test trials: two in which 6 traits alternated by valence (PNPNPN and NPNPNP) and two in which 6 traits were clustered by valence (PPPPPP and NNNNNN). The trials included in our analyses

were the 20 in which a positive or negative trait had been preceded by one of either the same or opposite valence, that is, the last five trials in each of these alternating and clustered blocks. Both the response (yes/no) and its latency were recorded for each trial.

To disguise the nature of the task and to prevent the crucial blocks of trials from standing out, each of these blocks was preceded and followed by a filler block of 5 words with a valenced (positive or negative) filler word in the middle (FFVFF), for a total of 49 continuous trials per task. Prior to each task, the participant was instructed (as described below) to identify the target.

Significant other tasks. For the liked significant other task, participants were instructed: "We would like you to think of someone who has been very important in your life, with whom you have a very good relationship. This should be someone that you know well, that you like or love very much." For the disliked significant other task, participants were instructed: "We would like you to think of someone who has been very important in your life, with whom you don't have a very good relationship. This should be a person that you know well, that you don't like very much or have mixed feelings about." For each task, participants identified the person they selected by first name, initials, nickname, or relationship label, and this identifier appeared at the top of the screen for each trial (e.g., TRUE OF MOM?).

The 10 positive traits were accepting, caring, trustworthy, loyal, good-natured, warm, considerate, kind, understanding, and supportive. The 10 negative traits were greedy, obnoxious, cruel, self-centered, dishonest, mean, thoughtless, rejecting, phony, and insulting. Fillers were philosophical, sophisticated, sentimental, unconventional, shy, bold, idealistic, curious, stylish, mathematical, studious, persuasive, meditative, cautious, persistent, daring, meticulous, neat, artistic, and athletic. The valenced words used in filler blocks were empathic, giving, helpful, compassionate, responsive, disinterested, insensitive, ridiculing, disrespectful, and impatient.

Food tasks. For the liked food task, participants were instructed: "We would like you to think of one of your favorite foods. This should be a food that you really like and enjoy eating." For the disliked food task, participants were instructed: "We would like you to think of one of your least favorite foods. This should be a food that you intensely dislike and avoid eating." For each of these tasks, participants were asked to identify the food they selected, and it appeared at the top of the screen for each trial (e.g., TRUE OF CHEESE?).

The 10 positive traits were delicious, appealing, tasty, satisfying, appetizing, tempting, pleasing, desirable, good, and great. The 10 negative traits were disgusting, nauseating, terrible, repulsive, vile, gross, revolting, awful, bad, and horrible. Fillers were crunchy, sweet, crispy, flaky, warm, hot, cool, smooth, spicy, creamy, salty, cold, chewy, juicy, melted, tangy, sour, zesty, buttery, and toasted. The valenced words used in the middle of filler blocks were flavorful, delightful, aromatic, mouth-watering, fresh, nasty, stinking, inedible, smelly, and rotten.

Untimed evaluation of each target. Participants then rated how characteristic each of the 20 relevant traits was for each target (e.g., "To what extent do you find MOM accepting?" "To what extent do you find CHEESE delicious?") and responded using a 6-point Likert scale (1= not at all to 6=extremely much). The means of these items (with the negative items reverse-scored) indexed the overall evaluation of each target, and confirmed that selected targets had the specified valence. For liked significant others, the mean (*SD*) was 5.51 (.58), $\alpha = .92$, and for disliked significant others, the mean (*SD*) was 2.90 (1.03), $\alpha = .95$. For liked foods, the mean (*SD*) was 5.71 (.52), $\alpha = .89$, and for disliked foods, the mean (*SD*) was 1.62 (.66), $\alpha = .89$.

Next, participants provided further information about their relationship with each identified significant other, including the duration of the relationship (in years), whether or not the significant other was a family member, and feelings of closeness to him/her (rated 1-7).

Questionnaires. At the end of the study session, participants completed questionnaires. The Rosenberg (1965) Self-Esteem Scale included 10 items (α = .90) rated 1 (strongly disagree) to 4 (strongly agree), e.g., "On the whole, I am satisfied with myself." The Integration of Thoughts about Partners Scale (I-TAPS; Graham & Clark, 2006, α = .77) included 9 items rated 1 (strongly disagree) to 6 (strongly agree), e.g., "Even when a close other does something to hurt me, it is easy to remind myself of his or her positive attributes." Finally, those who had not already met eligibility requirements in a previous session answered selected items from the SNAP-2 and a question about their history of mental health treatment, as previously described.

Data preparation and analytic strategy. For each participant, the median latency was computed for each of the following categories of judgments about each target: the 5 positive words that followed a priming word of the opposite (negative) valence, the 5 negative words that followed a priming word the opposite (positive) valence, the 5 positive words that followed a priming word of the same (positive) valence, the 5 negative words that followed a priming word the same (negative) valence; the median latency for all 20 of these words together. Next, we computed indices of same-valence facilitation by positive and negative primes as the median latency for opposite-valence pairs minus the median latency for same-valence pairs.

Results

Self-esteem. As anticipated, compared to the HC group, *M (SD)* = 3.31 (.39), the groups high in BP and AP features reported significantly lower self-esteem scores, BP *M (SD)* = 2.56 (.54), $t(235) = -9.99$, $p < .001$; AP *M (SD)* = 2.56 (.51), $t(235) = -9.64$, $p < .001$. The BP and AP groups did not significantly differ from one another, $t(235) = -.01$, $p = .99$.

Integration of thoughts about partners (ITAPS). Relative to the HC group, *M (SD)* = 4.46 (.67), the BP and AP groups had significantly lower ITAPS scores, BP *M (SD)* = 3.50 (.74),

t (235) = -8.08, *p* < .001; AP *M (SD)* = 4.05 (.80), *t* (235) = -3.28, *p* = .001. The BP group also

had significantly lower ITAPS scores than the AP group, *t* (235) = - 3.69, *p* < .001.

Between-group differences in selected targets. Untimed evaluations of liked significant

others did not significantly differ between groups. Yet, relationships with liked significant others

had existed for fewer years in the AP group (*M* = 12.0) than in the HC group (*M* = 15.7), *t* (235)

= -3.34, *p* = .001, or the BP group (*M* =14.6) *t* (235) = -1.98, *p* = .049. The liked significant other

was also less likely to be family in the AP group (54.8%) than the HC group (76.7%) *t* (235) = -

2.80, *p* = .006. Falling in between, the percentage of relatives selected as liked significant others

by the BP group (67.4%), did not significantly differ from either the AP group *t* (235) = 1.32, *p* =

.19, or the HC group *t* (235) = -1.23, *p* = .22. Feelings of closeness with the liked significant

other did not differ significantly by group, *M (SD)* = 6.49 (.81).

Evaluations of disliked significant others showed a significant group difference, *F* (2,

235) = 3.50, *p* = .032, in that the BP group evaluated this person less favorably *M(SD)* = 2.57

(.98) than the HC group, *M(SD)* = 3.02 (1.05), *t* (235) = -2.61, *p* = .010, and the AP group's

evaluations fell between the two *M(SD)* = 2.84 (.97). There were no significant group differences

in relationships with disliked significant others in terms of duration, *M* = 8.39 years, percentage

that were family members, *M* = 29.0%, or feelings of closeness, *M (SD)* = 2.18 (1.51).

Evaluations of foods (both liked and disliked) did not significantly differ between groups.

Timed judgment tasks. Averaging across group, latencies for judging the traits of

disliked targets were significantly longer *M(SE)* = 919.99 (13.45), 95% CI [893.51 - 946.48] than

for liked targets *M(SE)* = 726.29 (7.52), 95% CI [711.48 - 741.11]**.** In addition, averaging across

targets, latencies were significantly longer in the AP group *M* = 898.92, *SE* = 21.81, 95% CI

[855.96 – 941.88] than in the BP group *M* = 802.60, *SE* = 20.84, 95% CI [761.55 – 843.65] and

the HC group $M = 808.23$, $SE = 11.54$, 95% CI [785.49 – 830.96]. As expected, the proportion

of positive responses to each target (i.e., saying yes to positive traits and no to negative traits)

was significantly higher for liked than for disliked targets, but there were no between-group

differences in these proportions.

For each target (liked significant other, disliked significant other, liked food, disliked

food), we examined indices of same-valence facilitation in ANCOVAs with group (BP, AP, HC)

as a between-subjects variable, and the median response latency across all 20 trials included as a

covariate to account for individual differences in overall processing speed. Same-valence

facilitation by negative primes was computed by subtracting the median latency for negative

traits primed by negative traits from the median latency for positive traits primed by negative

traits; same-valence facilitation by positive primes was computed by subtracting the median

latency for positive traits primed by positive traits from the median latency for negative traits

primed by positive traits. For both of these indices, a higher score indicates that the prime is

facilitating processing of same valence (relative to opposite valence) traits. Participants whose

total median latencies indicated unusually long response times (more than three standard

deviations above the mean) were considered invalid and excluded, resulting in sample sizes of

231-236 for each analysis. As predicted, between-group differences in same-valence facilitation

were found for judging traits of liked significant others, but not for judging traits of disliked

significant others, liked foods, or disliked foods, as shown in Table 1.

These analyses yielded results with the same conclusions when including as additional

covariates untimed target evaluations and the proportion of positive responses to the target.

Analyses for the two significant other tasks also yielded the same conclusions when including as

additional covariates duration of the relationship with the significant other, whether or not

significant other was a family member, and feelings of closeness to him/her. Finally, the

between-group differences in same-valence facilitation that we specifically observed for liked

significant others remained statistically significant when including as a covariate the comparable

index of same-valence facilitation with respect to liked foods, suggesting that these differences

are not better explained by general differences in information processing.

A significant between-group difference in same-valence facilitation by negative primes

emerged when judging the traits of liked significant others, as shown in Table 1. Specifically, the

BP group showed significantly more same-valence facilitation by negative primes than the AP

group, $t(230) = 2.68$, $p = .008$ or the HC group , $t(230) = 3.18$, $p = .002$, whereas the AP and HC

groups did not significantly differ from one another, $t(230) = -0.24$, $p = .81$. To better understand

the same-valence facilitation effect of negative primes in BP, we repeated our analyses

separately for the two latencies contributing to it, shown in Table 2. Latencies for judging

positive traits following negative primes were significantly longer in the BP group than the HC

group, $t(230) = 3.05$, $p = .003$, and marginally longer in the BP group than in the AP group,

$t(230) = 1.78$, $p = .08$. The HC and AP groups did not significantly differ, $t(230) = -.71$, $p = .48$.

For negative traits following negative primes, the BP group showed significantly shorter

latencies than the HC group, $t(230) = -2.22$, $p = .027$, and the AP group, $t(230) = -2.47$, $p = .014$.

The HC and AP groups again did not significantly differ, $t (230) = -.89$, $p = .38$.[1]

A significant between-group difference was also found for same-valence facilitation by

positive primes (see Table 1). The AP group demonstrated this phenomenon significantly more

than the BP group, $t(230) = 2.37$, $p = .019$ or the HC group, $t(230) = 2.20$, $p = .029$. No

significant difference was found between the BP and HC groups, $t(230) = .69$, $p = .494$. Follow-

up analyses considered the separate latencies contributing to this valence-facilitation difference

score (shown in Table 2). For negative traits following positive primes, the AP group showed significantly longer latencies than the BP group, $t(230) = 2.11$, $p =.036$, and marginally longer latencies than the HC group, $t(230) = 1.90$, $p = .059$. The BP and HC groups not significantly differ from one another, $t(230) = -.67$, $p = .501$. For positive traits following positive primes, no significant differences emerged between the three groups, $F(2, 230) = 1.59$, $p = .21$.

Association of timed judgment task with self-report measures. We examined relationships between our two indices of same-valence facilitation for traits of a liked significant other, and questionnaire measures of self-esteem and ITAPS, adjusting statistically for the overall response latency for the liked significant other. Same-valence facilitation by negative primes was inversely correlated with both self-esteem, $r = -.15$, $p =.022$, and the ITAPS, $r = -.18$, $p = .007$. Same-valence facilitation by positive primes was inversely correlated with self-esteem, $r = -.15$, $p = .023$, but not the ITAPS, $r = -.01$, $p = .946$. Because self-esteem and ITAPS scores were inter-correlated, $r = .31$, $p < .001$, we examined associations with each measure while controlling the other, (as well as overall response latency), and only two significant correlations emerged. Same-valence facilitation by negative primes was associated with lower ITAPS scores, $r = -.14$, $p =.038$, reflecting the tendency to experience dramatic fluctuations in views of significant others. Same-valence facilitation by positive primes, by contrast, was associated with lower self-esteem, $r = -.16$, $p =.018$. In sum, the implicit processing patterns that distinguished BP and AP, respectively, were differentially associated with relevant personality characteristics.

Discussion

As predicted, individuals high in BP and AP features showed distinct difficulties processing positive and negative traits of liked significant others in an integrated way. When thinking about a liked significant other, those high in BP features differed from the other two

groups in showing stronger same-valence facilitation by negative primes, reflecting the readiness with which negative thoughts about a significant other escalate by triggering other negative thoughts, and inhibiting positive thoughts. Indeed, this interpretation is also supported by the inverse correlation between same valence facilitation by negative primes and the ITAPS. Participants high in AP features, by contrast, differed from the other two groups on the index of same-valence facilitation by positive primes. Moreover, our follow-up analyses suggest that this effect did not arise from particularly fast responses to clustered positive traits, but rather, from slower responses to negative traits primed by positive ones. Our speculation is that when positive thoughts about the value of a liked significant other are currently active in working memory, people high in AP features may be motivated to avoid negative thoughts about him/her, due to their feelings of inferiority and fears of appearing to overstep their social rank. This interpretation is consistent with our finding that the same-valence facilitation effect of positive primes was inversely associated with self-esteem.

Consistent with the results of Graham and Clark (2006), the between-group differences that we observed appear to be specific to thinking about valued significant others, in that no similar group differences emerged when participants judged traits of disliked significant others, liked foods, or disliked foods. Though the pattern of group means for processing traits of liked foods intriguingly suggests that participants in the AP group may show less valence-facilitation overall, this unexpected finding fell short of statistical significance and should not be over-interpreted. In addition, we were able to rule out the possibility that a general information processing style applicable to judging the traits of inanimate targets could explain the pattern of group differences observed for judging the traits of liked significant others.

Our finding that latencies were slower for disliked targets, and that no significant

between-group differences emerged for disliked significant others, is consistent with the results of Campbell et al., (2010) in suggesting that the phenomena captured by the timed judgment task appear to be specific to liked significant others. However, the previously reported analyses were unchanged when untimed target evaluations were included as covariates, and in this sample, there were no significant between-group differences in evaluation of the liked significant other and liked foods. Hence, although target evaluation matters, it was neither a confounding factor nor an alternative explanation for the between-group differences we report in this study.

Study 2

Study 1 revealed group differences in processing information about liked significant others, and Study 2 focused on their ecological validity. Specifically, we examined the association of our same-valence-facilitation indices with an index of integrating positive/negative thoughts about the significant other in daily life, in a 12-day diary. A daily diary index of the integration of positive and negative thoughts about the significant other was operationalized in terms of the within-person association between daily ratings of the significant other as valuable and flawed. Based on previous research (Coifman et al., 2012) and the results of Study 1, we predicted that our diary index of integration would be significantly lower among individuals high in BP features than in healthy individuals, and that it would be inversely associated with same-valence facilitation by negative primes. Although no previous research gave us the basis for a specific prediction about our diary index in individuals high in AP features, we explored whether or not AP features and the positive-valence facilitation effect would also be associated with less integrated thoughts about the significant other in the diary. Finally, we tested the hypothesis that controlling for the overall positivity of thoughts about the significant other, integration of positive/negative thoughts about the significant other in the diary would be associated with

greater feelings of security in the relationship with that person, and with more integrated

relational thoughts as measured by self-report, but not with self-esteem.

Method

   Participants. Eligibility requirements based on the SNAP-2 and treatment history were the

same as in Study 1. Eligible college students were invited to participate for payment. A total of 82

participants completed Study 2, including 26 (65.4% female) in the BP group, 22 (95.5% female) in

the AP group, and 34 (91.2% female) in the HC group. (An additional 16 who started Study 2 were

excluded because they stopped participating before completing 7 diaries.) Participants' mean age was

19.2 (range 18-22) and 80.0 % identified as White. Twenty two participants (45.8%) from the BP

and AP groups reported having received mental health treatment, and two (4.2%) refused to

answer this question. Thirty two (39.0%) of the Study 2 participants had previously participated in

Study 1 between three and twelve months earlier (7 BP, 10 AP, 15 HC).

   Procedure. Participants first attended a lab session in which they completed the practice task

and the liked significant other task followed by the self-esteem and ITAPS questionnaires

(previously described for Study 1). Afterwards, they were provided with instructions to complete the

internet-based diary portion of the study twelve times, at least 18 hours apart. Participant

compensation depended on how many diary entries were completed on separate days. (All but two

of the 82 included participants had completed all 12 entries, and the others completed between 9-

11.) All study procedures were approved by the applicable Institutional Review Board.

   Daily diary assessments. In each diary entry, participants were asked about the same liked

significant other that they had completed the timed judgment task about during their lab session.

"You have identified a specific person in your life to answer questions about during this study.

This is a person that you are close to, that you like/love very much. Thinking about this

particular person RIGHT NOW, please rate the following statements:" Each statement was rated

from 1(not at all) to 5(extremely). Consistent with the procedures described in Cranford et al.

(2006), we computed two reliability coefficients for each scale: the between-subjects reliability

estimate for a single day, and the within-subjects reliability of change over the twelve entries.

Thoughts about the significant other being valuable were measured with 4 items: RIGHT

NOW I feel this person cares about me; RIGHT NOW I feel this person is worthwhile; RIGHT

NOW I value my relationship with this person; RIGHT NOW I feel this person is a valuable part

of my life. Reliability coefficients were .91 and .80.

Thoughts about the significant other being flawed were measured with 4 items: RIGHT

NOW I feel irritated with this person; RIGHT NOW I feel disappointed by this person; RIGHT

NOW I feel frustrated with this person; RIGHT NOW I feel angry with this person. Between and

within-subjects reliabilities were .89 and .81, respectively.

The overall positivity of thoughts about the significant other was computed by averaging

all items the valuable scale items and all items on the flawed scale (reverse coded).

Feeling secure in the relationship with the significant other was assessed with 4 items:

RIGHT NOW I feel secure in my relationship with this person; RIGHT NOW I feel uneasy

about my relationship with this person; RIGHT NOW I feel insecure in my relationship with this

person; RIGHT NOW I feel content with this person. Reliability coefficients were .87 and .51.

Diary index of integrated feelings about the significant other. Following the

procedure developed by Rafaeli et al., (2007; see also Coifman et al., 2012) we obtained for each

participant an index reflecting the within-person association between the valuable scale and the

flawed scale. The valuable scale was person-centered and entered as a predictor of the flawed

scale in a multi-level regression model (PROC MIXED in SAS), with an autoregressive error

structure. Our index of integration was the empirical best linear unbiased predictor of the random slope coefficient obtained for each participant. More positive coefficients reflect integration (the valuable and flawed scales simultaneously increase or decrease), while more negative values reflect polarization (as the valuable scale increases the flawed scale decreases, and vise-versa).

Data preparation for timed judgment task. Just as in Study 1, the median latency was computed for each type of judgment about the traits of the liked significant other: negative traits with negative primes, negative traits with positive primes, positive traits with positive primes, positive traits with negative primes; all 20 of these traits together. Finally, we computed the indices of same-valence facilitation as the median latency for opposite-valence pairs minus the median latency for same-valence pairs, with negative and positive primes, respectively. Five participants (3 BP and 2 AP) were excluded from reaction time analyses because their median response time across the 20 trials was more than three standard deviations above the mean for total median response time for judging traits of liked significant others in Study 1.

Results

Diary index of integration (vs. polarization). We examined the diary index of integrated thoughts about the significant other in an ANOVA, and found the expected effect of group, F (2, 79) = 4.77, p = .01. As predicted, integration scores were significantly lower in the BP group M (SE) = -.086 (.029), than the HC group M (SE) = .033 (.026), t (79) = -3.05, p = .003. Integration scores in the AP group M (SE) =.000 (.032) fell in between; they were nearly significantly higher than those in the BP group t (79) =1.98, p =.05, and did not differ from the HC group t (79) =-.81, p =.42. The difference between the BP and HC groups remained significant when controlling for the overall positivity of thoughts about the significant other.

Timed judgment task. As in Study 1, we examined the indices of same-valence

facilitation in ANCOVAs with group (BP, AP, HC) as a between-subjects variable, and the total

median latency included as a covariate. Though no significant group differences were found, we

present all group means (here and in Table 2) to permit comparisons to our Study 1 results. For

same-valence facilitation by negative primes, which had been significantly elevated in the BP

group in Study 1, the group means showed no significant differences: BP *M(SE)* = -100.52

(39.51); AP *M(SE)* = -169.90 (42.65); HC *M(SE)* = -94.12 (32.57), F (2, 73) = 1.09, p = .34, η_p^2

=.029. There were also no group differences for same-valence facilitation by positive primes,

which had been significantly elevated in the AP group in Study 1: BP *M(SE)* = 139.41 (33.49);

AP *M(SE)* = 141.71 (36.15); HC *M(SE)* = 163.72 (27.61), F (2, 73) = .20, p = .82, η_p^2 =.005.[2]

Associations with the diary index of integration. We examined partial correlations

between the diary measure of integrated thoughts about the significant other and the same-

valence facilitation measures, controlling for the total median response latency and total

positivity of thoughts about the significant other. The diary integration index was inversely

associated with same-valence facilitation by negative primes, r (73) = - .30, p = .008, and not

with same-valence facilitation by positive primes, r (73) = .16, p = .16. This result conceptually

replicates our Study 1 results suggesting that it is the same-valence facilitation by negative

primes that is specifically linked with the relationship instability characteristic of BP.

In addition, the diary index of integration was significantly correlated with the mean

levels of security experienced in the relationship with the significant other over the diary period r

(80) = .45, p < .001, as well as ITAPS scores, r (80) = .37, p = .001, and self-esteem, r (80) =

.26, p = .018. The diary index of integration remained correlated with ITAPS scores when

controlling for self-esteem, r (79) = .31, p = .004, but was no longer significantly correlated with

self-esteem when controlling for ITAPS scores, r (79) = .16, p = .151. When controlling for the

overall positivity of thoughts about the significant other, the diary index of integration was

significantly correlated with the mean levels of security experienced in the relationship with the

significant other over the diary period r (79) = .26, p = .019, as well as ITAPS scores, r (79) =

.30, p = .006. It was not significantly correlated with self-esteem r (79) = .16, p = .144.

Discussion. In Study 2 we replicated previous research (Coifman et al., 2012) showing

lower daily-life integration of positive/negative thoughts about significant others in the BP group

relative to healthy individuals. By contrast, the AP group did not significantly differ from the

healthy group in their integration of positive/negative thoughts.

Integration of positive/negative thoughts was associated with daily ratings of security in

relation to the significant other, even after controlling for the overall positivity/negativity of

thoughts about the significant other. Of course, since this finding is correlational, we cannot infer

a direction of causality; perhaps insecurity (and feeling under threat) motivates less integrated

processing (see Graham & Clark, 2006; Zautra, 2003), or the inability to integrate positive and

negative thoughts leads people to feel less secure, or a third variable explains both. Nevertheless,

this finding suggests that relationship security is not merely a matter of rating one's significant

other positively, but of being able to appreciate his/her good qualities while acknowledging

his/her flaws. The unique association of our diary index of integration with ITAPS scores (but

not self-esteem) provides support for the discriminant validity of our diary approach to assessing

the relationship instability characteristic of BP, as well as corroborating evidence that this

instability is distinct from the relationship difficulties associated with low self-esteem.

The timed judgment task warrants further attention, given that we were unable to

replicate the Study 1 group differences in this task in Study 2. As noted, a higher proportion of

unusually slow responses in Study 2 (relative to Study 1) led us to exclude several participants,

but the same factors leading to these unusual responses may have also contributed additional noise variance to the data we kept for analysis. These factors include a lower number of healthy participants, as well as the absence of the food and negative significant other conditions, which may have helped Study 1 participants acclimate to the task and respond as quickly as possible.

Although they did not replicate the group differences we found on the timed judgment task in Study 1, our Study 2 results corroborated Study 1 conceptually. Same-valence facilitation by negative primes, the cognitive processing pattern that distinguished the BP group in Study 1, was found in Study 2 to be associated with indexes of relationship dysfunction characteristic of BP. Specifically, same-valence facilitation by negative primes was associated with lower integration in the daily diaries – which was itself associated with the BP group, lower relationship security, and lower ITAPS scores but not with the AP group or differences in self-esteem. By contrast, same-valence facilitation by positive primes (the cognitive processing pattern that distinguished the AP group in Study 1) was not associated with any differences in integrated thoughts about significant others in the diaries.

Summary and Concluding Discussion

The relationship difficulties experienced by individuals with BPD are substantial (Drapeau & Perry, 2004; Gadassi et al., 2014; Schoenleber et al., 2016). Frequently triggering symptoms that are acutely dangerous or destabilizing (such as suicidal, self-injurious, impulsive, aggressive, and treatment-interfering behaviors; Brodsky, Groves, Oquendo, Mann, & Stanley, 2006; Coifman et al., 2012; Preuss et al., 2016), relationship difficulties also prevent individuals with BPD from benefitting from available social support. For example, in a recent study, a conflictual discussion with a significant other led individuals with BPD to have trouble maintaining stable representations of the significant other's trustworthiness, relative to healthy

individuals (Miano, Fertuck, Roepke, & Dziobek, 2016).The results of the present research shed

light on the suffering individuals with BPD experience in their personal relationships by

examining the cognitive processing patterns that make it difficult for them to maintain positive

views of a significant other while recognizing his/her negative characteristics. Using a timed

judgment task, we found individuals high in BP features showed stronger same-valence

facilitation by negative primes. Moreover, this effect was correlated with less integration of

positive/negative thoughts about significant others on a self-report questionnaire (Study 1) and in

daily life (Study 2). Finally, Study 2 showed that relationship security in daily life is predicted by

the ability to maintain positive thoughts about a significant other while thinking negative

thoughts about them, above and beyond the positivity/negativity of one's thoughts about the

significant other overall. Hence, same-valence facilitation by negative primes -- the tendency for

negative thoughts to trigger more negative thoughts and suppress positive ones -- appears to

capture an aspect of the process by which negative thoughts about significant others come to

destabilize relationships in BPD. Importantly, this tendency is not better explained by greater

accessibility, irrespective of context, of negative judgments about significant others.

While far less is known about integration of positive/negative thoughts about significant

others in APD, our findings (Study 1) raise an interesting possibility worthy of further

investigation. Specifically, we found that AP features were associated with stronger same-

valence facilitation by positive primes, and that this effect was correlated with low self-esteem.

Such a pattern may reflect the tendency of people high in AP features to submissively avoid

challenging the perceived superiority of people who they view positively, consistent with

evolutionary perspectives on social anxiety (see Trower & Gilbert, 1989; Trower et al., 1990).

Finally, like prior studies using similar tasks (Graham & Clark, 2006; Campbell et al.,

2010), the group differences we observed were specific to judging the traits of liked significant others, and did not occur when judging disliked significant others and inanimate targets. This suggests that difficulties integrating positive/negative information in individuals high in BP and AP features are driven by attachment motivations rather than by more general cognitive styles.

Limitations and future directions

Reliance upon undergraduate participants selected using portions of the SNAP-2 is a clear limitation of our work. Generalizability to clinical samples is limited by the fact that all participants were functioning well enough to be attending college, and that to most clearly distinguish between the BP and AP groups, participants who scored high in features of both disorders were excluded. We know very little to verify the 'health' of the HC group (besides their lack of BP features, AP features, and mental health treatment); we also have no information about what other disorders may have been present in any of the groups. Though significant others were rated just as positively in our BP and AP groups as in our HC group, this may not have been the case if we had compared diagnosed BPD/APD samples to an HC group thoroughly screened for the absence of mental disorders. Our samples were also relatively homogenous in age and race/ethnicity. In Study 2, small sample sizes limited ability to detect group differences.

Combining an experimental assessment of implicit cognitive processing with self-report questionnaires and within-person analyses of diary data, our work suggests that individuals high in BP and AP features demonstrate distinct difficulties integrating positive and negative thoughts of significant others, which are associated with distinct aspects of personality. Replication and further investigation of the observed patterns with more elaborate cognitive priming paradigms, in clinically diagnosed and representative community samples, promises to increase understanding of core processes contributing to relationship dysfunction and suffering.

Reference

American Psychiatric Association (2013). Diagnostic and Statistical Manual of Mental Disorders (5th Ed). Washington, DC: Author.

Antony, M.M., Rowa, K., Liss, A., Swallow, S.R., & Swinson, R.P. (2006). Social comparison processes in social phobia. *Behavior Therapy, 36*, 65-75.

Beeney, J. E., Hallquist, M. N., Ellison, W. D., & Levy, K. N. (2015). Self–other disturbance in borderline personality disorder: Neural, self-report, and performance-based evidence. *Personality Disorders: Theory, Research, and Treatment, 1*, 28-39.

Beeney, J. E., Stepp, S. D., Hallquist, M. N., Scott, L. N., Wright, A. C., Ellison, W. D., & ... Pilkonis, P. A. (2015). Attachment and social cognition in borderline personality disorder: Specificity in relation to antisocial and avoidant personality disorders. *Personality Disorders: Theory, Research, and Treatment*, *6*, 207-215.

Berenson, K.R., Dochat, C., Martin, C.G., Yang, X., Rafaeli, E., & Downey, G. (in press). Identification of mental states and interpersonal functioning in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment.*

Berenson, K.R., Gregory, W.E., Glaser, E., Romirowsky, A., Rafaeli, E. Yang, X., & Downey, G. (2016). Impulsivity, rejection sensitivity, and reactions to stressors in borderline personality disorder. *Cognitive Therapy and Research, 40,* 510-521.

Bowles, D. P., Armitage, C. J., Drabble, J., & Meyer, B. (2013). Self-esteem and other-esteem in college students with borderline and avoidant personality disorder features: An experimental vignette study. *Personality and Mental Health, 7*, 307-319.

Brodsky, B. S., Groves, S. A., Oquendo, M. A., Mann, J. J., & Stanley, B. (2006). Interpersonal precipitants and suicide attempts in borderline personality disorder. *Suicide and Life-*

Threatening Behavior, *36*, 313-322.

Campbell, L., Simpson, J. A., Boldry, J.G., & Rubin, H. (2010). Trust, variability in relationship evaluations, and relationship processes. *Journal of Personality and Social Psychology, 99,* 14-31.

Clark, L. A. (2003). *Schedule for Nonadaptive and Adaptive Personality—Second edition (SNAP-2).* (2nd ed). Minneapolis, MN: University of Minnesota Press.

Coifman, K. G., Berenson, K. R., Rafaeli, E., & Downey, G. (2012). From negative to positive and back again: Polarized affective and relational experience in borderline personality disorder. *Journal of Abnormal Psychology, 121*, 668-679.

Cranford, J. A., Shrout, P. E., Iida, M., Rafaeli, E., Yip, T., & Bolger, N. (2006). A procedure for evaluating sensitivity to within-person change: Can mood measures in diary studies detect change reliably? *Personality & Social Psychology Bulletin*, *32*, 917-929.

Drapeau, M., Perry, J. C. (2004). Interpersonal conflicts in borderline personality disorder: An exploratory study using the CCRT-LU. *Swiss Journal of Psychology, 63(1),* 53-57.

Gadassi R., Snir, A., Berenson, K.R., Downey, G., & Rafaeli, E. (2014). Out of the frying pan, into the fire: Mixed affective reactions to social proximity in borderline and avoidant personality disorders in daily life. *Journal of Abnormal Psychology*. *123*, 613-522.

Gould, J. R., Prentice, N. M., & Ainslie, R. C. (1996). The Splitting Index: construction of a scale measuring the defense mechanism of splitting. *Journal of Personality Assessment, 66*, 414-430.

Graham, S. M. & Clark, M. S. (2006). Self-esteem and organization of valenced information about others: The "Jekyll and Hyde"-ing of relationship partners. *Journal of Personality and Social Psychology, 90*, 652-665.

Graham, S. M. & Clark, M. S. (2007). Segregating positive and negative thoughts about partners: Implications for context-dependence and stability of partner views. *Current Research in Social Psychology, 12*, 124-133.

Gunderson, J. G. (2007). Disturbed relationships as a phenotype for borderline personality disorder. *American Journal of Psychiatry, 164,* 1637–1640.

Heerey, E.A. & Kring, A.M. (2007). Interpersonal consequences of social anxiety. *Journal of Abnormal Psychology, 116,* 125-134.

Hope, D.A., Sigler, K.D., Penn, D.L., Meier, V. (1998). Social anxiety, recall of interpersonal information, and social impact on others. *Journal of Cognitive Psychotherapy, 12,* 303-322.

Johansen, M. S., Normann-Eide, E., Normann-Eide, T., & Wilberg, T. (2013). Emotional dysfunction in avoidant compared to borderline personality disorder: A study of affect consciousness. *Scandinavian Journal of Psychology*, *54*, 515-521.

Kernberg, O.F. (1975). *Borderline conditions and pathological narcissism.* New York: Aronson.

Lynum, L. I., Wilberg,, T., & Karterud, S. (2008). Self-esteem in patients with borderline and avoidant personality disorders. *Scandinavian Journal of Psychology, 49*, 469-477.

McGlashan, T. H., Grilo, C. M., Sanislow, C. A., Ralevski, E., Morey, L. C., Gunderson, J. G.,…. & Pagano, M. (2005). Two-Year Prevalence and Stability of Individual DSM-IV Criteria for Schizotypal, Borderline, Avoidant, and Obsessive-Compulsive Personality Disorders: Toward a Hybrid Model of Axis II Disorders. *Amercian Journal of Psychiatry, 162*, 883-889.

Mikulincer, M., & Shaver, P.R. (2007). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry, 18*, 139-156.

Miano, A., Fertuck, E.A., Roepke, S., & Dziobek, I. (2016). Romantic relationship dysfunction

    in Borderline Personality Disorder – A naturalistic approach to trustworthiness perception.

    Personality Disorders: Theory, Research, and Treatment.

Murray, S.L., & Holmes, J.G., (1993). Seeing virtues in faults: Negativity and the transformation

    of interpersonal narratives in close relationships. *Journal of Personality and Social

    Psychology, 65*, 707-722.

Murray, S.L., & Holmes, J.G., (1994). Storytelling in close relationships: The construction of

    confidence. *Personality & Social Psychology Bulletin, 20*, 650-663.

Murray, S. L., & Holmes, J. G., (1999). The (mental) ties that bind: Cognitive structures that

    predict relationship resilience. *Journal of Personality and Social Psychology, 77,* 1228-

    1244.

Preuss, N., Brändle, L. S., Hager, O. M., Haynes, M., Fischbacher, U., & Hasler, G. (2016).

    Inconsistency and social decision making in patients with Borderline Personality

    Disorder. *Psychiatry Research*, *243,* 115-122.

Rafaeli, E., Rogers, G. M., & Revelle, W. (2007). Affective synchrony: Individual differences in

    mixed emotions. *Personality & Social Psychology Bulletin, 33,* 915–932.

Ralevski, E., Sanislow, C. A., Grilo, C. M., Skodol, A. E., Gunderson, J. G., Shea, M. T., & ...

    McGlashan, T. H. (2005). Avoidant personality disorder and social phobia: Distinct

    enough to be separate disorders? *Acta Psychiatrica Scandinavica*, *112*, 208-214.

Robinson, M.D. (2007). Lives lived in milliseconds: Using cognitive methods in personality

    research. In R.W. Robins, R.C. Fraley, & R.F. Krueger (Eds.), *Handbook of Research

    Methods in Personality Psychology* (pp.345-359). .New York: Guilford.

Rosenberg, M. (1965). *Society and the adolescent self-image.* Princeton, NJ: Princeton

University Press.

Schoenleber, M., Berghoff, C. R., Tull, M. T., DiLillo, D., Messman-Moore, T., & Gratz, K. L.

(2016). Emotional lability and affective synchrony in borderline personality disorder.

Personality Disorders: Theory, Research, and Treatment, *7*, 211-220.

Showers, C. J., & Zeigler-Hill, V. (2004). Organization of partner knowledge: Relationship

outcomes and longitudinal change. *Personality & Social Psychology Bulletin*, *30*, 1198-

1210.

Showers, C.J. & Kelvyn, S.B. (1999). Organization of knowledge about a relationship partner:

Implications for liking and loving. *Journal of Personality and Social Psychology, 76,* 958-

971.

Torgersen, S., Kringlen, E., & Cramer, V. (2001). The prevalence of personality disorders in a

community sample. *Archives of General Psychiatry, 58,* 590–596.

Trower, P., & Gilbert, P. (1989). New theoretical conceptions of social anxiety and social

phobia. *Clinical Psychology Review, 9*, 19-35.

Trower, P., Gilbert, P., & Sherling, G. (1990). Social anxiety, evolution, and self-presentation. In

Handbook of Social and Evaluation Anxiety (pp. 11-45). Springer.

Weisman, O., Aderka, I. M., Marom, S., Hermesh, H., & Gilboa-Schechtman, E. (2011). Social

rank and affiliation in social anxiety disorder. *Behaviour Research and Therapy*, 49, 399-

405.

Wilberg, T., Karterud, S., Pedersen, G., & Umes, Ø. (2009). The impact of avoidant personality

disorder on psychosocial impairment is substantial. *Nordic Journal of Psychiatry, 63*,

390–396.

Zautra, A. J. (2003). *Emotions, stress and health.* New York, NY: Oxford University Press.

Footnotes

1. We also analyzed response latencies for the four types of prime-trait pairs (negative-positive, negative-negative, positive-negative, and positive-positive) in a General Linear Model that included prime valence, trait valence, and the interaction between them as within-subject factors, group (BP vs. HC) as a between-subject factor, and the total median latency as a covariate. This supplemental analysis showed a significant trait valence x group interaction effect, $F(1, 189) =$ 9.61, $p = .002$, such that the BP group was faster $M (SE) = 771.54$ (11.27) than the HC group $M (SE) = 802.83$ (6.32), $t(189) = -2.42$, $p = .016$, when responding to negative traits, but slower $M (SE) = 726.84$ (9.20) than the HC group $M (SE) = 695.89$ (5.16), $t(189) = 2.935$, $p = .004$, when responding to positive traits. However, this effect was qualified by a significant prime valence x trait valence x group interaction, $F(1, 189) = 5.46$, $p = .020$, reflecting the fact that as previously described, the response latencies shown by the BP and HC groups did not significantly differ except in the context of negative primes. The heightened same-valence facilitation by negative primes that we observed in the BP group as hypothesized was therefore not better explained by a general tendency for individuals high in BP features to judge a significant other's negative traits particularly quickly (i.e., due to chronic accessibility, Robinson, 2007). Also note that when we conducted this same supplemental analysis for judgments of the disliked significant other, liked food, or disliked food, no significant effects emerged.

2. Just as in Study 1, we analyzed response latencies for the four types of prime-trait pairs in a General Linear Model with prime valence, trait valence, and the interaction between them as within-subject factors, group (BP vs. HC) as a between-subject factor, and the total median latency as a covariate. This analysis showed no significant effects.

Table 1: Mean same-valence facilitation difference scores (in ms.) and their standard errors, adjusting statistically for the median

latency of all judgments of the target. Means in the same row with different superscripts differ at $p <.05$.

		Same-valence facilitation by negative primes		
Target	BP	AP	HC	
Liked significant other	16.56 (29.71)[a]	-100.63 (31.91)[b]	-92.01 (16.78)[b]	$F (2, 230) = 5.58, p = .004, \eta_p^2 =.046$
Disliked significant other	127.75 (47.37)	100.72 (50.92)	83.27 (26.42)	$F (2, 232) = .34, p = .710, \eta_p^2 =.003$
Liked food	84.25 (21.19)	33.07 (22.45)[a]	92.80 (11.83)[b]	$F (2, 232) = 2.76, p = .065, \eta_p^2 =.023$
Disliked food	168.55 (39.35)	110.99 (43.32)	140.36 (22.06)	$F (2, 227) = .48, p = .620, \eta_p^2 =.004$
		Same-valence facilitation by positive primes		
Target	BP	AP	HC	
Liked significant other	107.40 (21.37)[b]	181.91 (22.95)[a]	124.20 (12.07)[b]	$F (2, 230) = 3.19, p = .043, \eta_p^2 =.027$
Disliked significant other	71.75 (42.58)	62.36 (45.77)	48.59 (23.75)	$F (2, 232) = .13, p = .882 \ \eta_p^2 =.001$
Liked food	57.64 (20.31)	20.70 (21.52)	65.19 (11.35)	$F (2, 232) = 1.66, p = .192, \eta_p^2 =.014$
Disliked food	124.65 (34.06)	133.12 (37.49)	77.14 (19.09)	$F (2, 227) = 1.34, p = .265, \eta_p^2 =.012$

Same-valence facilitation difference scores are computed as the median latency for opposite-valence prime-trait pairs minus the
median latency for same-valence prime-trait pairs.

Table 2: Mean latencies (in ms.) for judging a liked significant other's traits, and their standard errors, adjusting statistically for the latency of all judgments of the liked significant other. Means in the same row with different superscripts differ at $p < .05$.

Study 1

Prime-trait pairs	BP	AP	HC
Negative prime, positive trait	790.68 (15.93) [a]	748.92 (17.11)	735.03 (9.00) [b]
Negative prime, negative trait	774.12 (20.73) [a]	849.55 (22.27) [b]	827.04 (11.71) [b]
Positive prime, negative trait	797.02 (13.61) [a]	839.24 (14.61) [b]	807.54 (7.69)
Positive prime, positive trait	689.62 (13.32)	657.33 (14.30)	683.34 (7.52)

Study 2

Prime-trait pairs	BP	AP	HC
Negative prime, positive trait	689.04 (17.91)	675.20 (19.33)	721.92 (14.76)
Negative prime, negative trait	789.56 (31.16)	845.10 (33.64)	816.04 (25.69)
Positive prime, negative trait	796.84 (20.70)	803.95 (22.35)	816.20 (17.07)
Positive prime, positive trait	657.44 (18.44)	662.25 (19.90)	652.48 (15.20)