An Experimental Manipulation of Validating and Invalidating Responses:

Impact on Social Problem-Solving

Thesis

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Abstract

Validation has been theorized to reduce negative emotional arousal and facilitate cognitive flexibility. Only one study so far has examined the role of validating and invalidating responses on cognitive flexibility (Stigen, 2011) and no study has yet to look at the role that these responses might have on social problem-solving. Invalidating responses also have been theorized to affect individuals with Borderline Personality Disorder (BPD) to a greater degree than others due to their already heightened emotional reactivity and likely increased sensitivity to invalidation. The aim of the present study was to examine the impact of validation and invalidation on positive affect, negative affect, and social problem-solving. A secondary aim was to examine whether Borderline Personality Disorder (BPD) features moderated the relationship between validation/invalidation and problem-solving. Participants in the study engaged in an angry story recall task and were then either validated or invalidated. Participants then completed a social problem-solving task, a manipulation check measure, mood ratings, and affect ratings. Validation and invalidation groups did not significantly differ on social problem-solving performance. Further, BPD features did not significantly moderate the relationship between condition and social problem-solving. There was a significant interaction of time by condition on positive affect such that participants in the
invalidation condition experienced greater decreases in positive affect from pre to post manipulation when compared to participants in the validation condition. This study has implications on the role of validating and invalidating responses on positive affect.
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Chapter 1: Introduction

Validating and invalidating responses occur within the context of every day interpersonal interactions. These responses are theorized to have an impact on arousal, cognitive ability, problem-solving, and relationships (Fruzzetti et al., 2005). Given that validating and invalidating responses are, by definition, interpersonal processes, there are certain outcomes within the interpersonal domain that may be particularly affected. More specifically, validating and invalidating responses have the potential to influence the manner in which a person approaches social problems. Social problem-solving is a term that refers to the process of solving problems that might impact an individual’s ability to adaptively function in interpersonal contexts (Chang, D’Zurilla & Sanna, 2004). Social problem-solving in this context is then defined as a process by which an individual enacts goal directed behaviors in order to understand and effectively solve problems that are encountered on a daily basis. Invalidating responses are hypothesized to have a wide ranging impact on a number of interpersonal exchanges and may therefore impact an individual’s performance in situations that require problem-solving within an interpersonal setting. Invalidating responses may be particularly detrimental for individuals with borderline personality disorder (BPD) features given presumed exposure
to invalidating childhood environments and/or biologically-predisposed emotional vulnerabilities.

If individuals with BPD features are more likely to perceive or react to invalidation, they are also more likely to suffer the potential consequences of invalidation, such as impaired social problem-solving. Very few studies have investigated the impact of validating and invalidating responses on objective outcomes, such as social problem-solving. In fact, no published study to date has included the impact of validating and invalidating responses on social problem-solving, despite the theoretical importance of these relations. This study will then address an important gap in the literature by investigating the role of validating and invalidating responses on social problem-solving with a focus on the potentially moderating role of BPD features.

**Validating and Invalidating Responses**

Validating responses encompass ways in which we engage with, accurately respond to, and convey acceptance of some part of an individual’s behavior, thoughts, or feelings (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006). Validating responses as therapeutic technique are incorporated into some acceptance-based therapies and are used for multiple purposes. For example, in Dialectical Behavior Therapy (DBT; Linehan, 1993) validation is used as one of the core acceptance strategies and functions to balance the change-based strategies of behavior therapy, and to reinforce therapeutic progress. Similarly, in Acceptance and Commitment Therapy (ACT; Hayes, 2005) validation is used as a way to empower the patient by conveying a general sense of acceptance and trust in his or her own experiences.
There are several ways to validate the internal experiences and behaviors of another person, including asking questions related to his or her specific experience or working to normalize part of someone’s behavior. Generally speaking, validating responses convey to the individual that his or her experiences make sense, and that it is safe to express such experiences. Invalidating responses, on the other hand, indicate that there is something about an individual’s experience that is being misunderstood, wrong, or simply ignored. An invalidating response would convey to an individual that his/her experiences, emotions, or actions are not reasonable. Just like validation, there are several ways of invalidating someone’s experiences.

**Impact of Validation and Invalidation on Relationships**

Validation is theorized to enhance the development of relationships by creating a secure environment which allows an individual the ability to organize his or her experiences, predict future events, and use effective social behaviors that maintain interpersonal relationships (Fruzzetti, 2005). Because the communication of validation suggests that the individual is understood and accepted, validation may strengthen and engender commitment to relationships. For example, Linehan et al. (2001) conducted a randomized controlled trial comparing the efficacy of DBT and Comprehensive Validation Therapy (CVT) + 12 step program. The CVT + 12 step program involved 12 months of therapy consisting solely of the major acceptance based strategies that are used in DBT (i.e., mindfulness, validation, distress tolerance skills) along with participating in a 12 step program. Therapists delivering the CVT + 12 step arm of the trial focused on validating the client and reinforcing the client’s self-validation, even when faced with an invalidating environment. In the CVT sessions, no behavioral change strategies were
used, and the client was responsible for setting her own treatment goals and treatment agenda. An unexpected finding was that the therapeutic relationship was rated more highly in the CVT condition than in the DBT condition. There were significantly more dropouts in the DBT condition (32%) than in CVT + 12 step condition (0%); in fact, all CVT + 12 step clients were still participating in treatment at one year compared to 68% of the DBT clients. One possible explanation for this high retention rate is that the CVT + 12 step condition was experienced as being more supportive than DBT. It is possible that the validating environment of CVT increased the willingness of clients to participate over the course of the year.

**Impact of Validation and Invalidation on Positive and Negative Affect**

Validation is also theorized to promote the reduction of negative emotional arousal, which can facilitate cognitive functioning. The theory is that having goals blocked or minimized can increase negative arousal (Gellatly & Meyer, 1992), which can then interfere with overall cognition. Validation can create a self-confirmatory environment in which an individual feels safe expressing his or her internal experiences, without having the experiences invalidated or criticized. This can aid in the overall understanding and acceptance of internal experiences. Validating responses are, therefore, thought to decrease negative emotions felt when goals are being blocked, or when one’s self-construct is undermined. Invalidating responses, on the other hand, are theorized to intensify emotional reactivity related to goal blockage, and, in the process, encumber cognitive processes (Fruzzetti et al., 2005).

Because invalidating interactions may disrupt an individual’s sense of self, they are likely to result in increased negative affect. Some researchers have specifically
examined the effect of validating and invalidating responses on negative and positive affect. For example, in a study conducted by Shenk and Fruzzetti (2011), participants were randomly assigned to receive either validating or invalidating responses while completing a series of difficult arithmetic problems. Despite having undergone the same stressful and emotionally arousing task as the invalidation group, the validation group did not report significant changes in negative affect, and evidenced decreasing heart rate and skin conductance levels over time. Participants in the invalidation condition, on the other hand, experienced more negative affect across time. They also experienced increased heart rate and skin conductance levels over time. These differences persisted after task completion, with the participants in the validation condition continuing to show lowered emotional arousal, and those in the invalidation condition demonstrating increased emotional arousal over time. These findings suggest that validating responses can minimize the emotional impact of a stressor. They also underscore the impact of invalidating responses on negative affectivity and arousal while in the midst of a stressful task.

In a study by Stigen (2011), participants were either validated or invalidated after recalling an angry story. Those participants who were invalidated after recalling a time when they were angry self-reported decreases in positive affect. This finding suggests that invalidation may not only be involved with increases in negative affectivity as suggested by Shenk and Fruzzetti (2011), but that invalidation could also potentially reduce an individual’s experience of positive emotionality as well. Fredrickson’s (2001) broaden and build theory suggests that positive emotions can broaden an individual’s behavioral repertoire and result in increased interaction with novel and diverse stimuli.
When experiencing positive emotions, individuals are therefore more likely to seek out social relationships and activities that can lead the development of particular resources.

If invalidation results in decreases in positive emotions, it is likely that invalidation will be associated with decreases in exploratory behavior, social interactions, and cognitive flexibility in various activities. Similarly, increases in negative emotion associated with invalidation are likely to result in avoidance of situations, reduced willingness to continue interpersonal interactions, and reduced attempts at emotion regulation, which may funnel resources away from other cognitive and affective activities.

When considering the impact of validating and invalidating communications on emotional responses, it is important to take into account potential moderators of the relationship. In this vein, Woodberry et al. (2008) suggested that those individuals with BPD features may have distinct emotional reactions to validating and invalidating responses. The authors investigated self-reported responses to validating or invalidating remarks while solving anagrams amongst women with BPD features and healthy controls. All participants were randomly assigned to either a validation or invalidation condition and given both solvable and unsolvable anagrams. After two neutral comments (eg., “just checking in to make sure everything is working okay”), participants were given feedback (in the form of validation or invalidation) regarding their progress in the anagram tasks by an experimenter (eg., “most people find these anagrams very frustrating” or “there’s no need to get really frustrated they are just anagrams”). After the manipulation, participants heard two additional neutral comments. Participants rated the valence of their emotions on a scale of 1 (negative emotion) to 9 (positive emotion) using
the Self-Assessment Manikin (SAM; Lang et al., 1993) scale. Using this same scale participants rated their arousal from 1 (calm) to 9 (excited). Participants were also asked to rate their comfort with emotions on a scale of 1 (strong want to get rid of the emotion) to 5 (the emotion is completely acceptable). These three emotional experiences (valence, arousal, and comfort with emotions) were rated every 1.5 minute intervals throughout the study.

Relative to the control group, the BPD features group reported being less happy and experiencing more discomfort with emotions at baseline. There was a group by condition by comment effect for valence of emotions such that the BPD features group responded most positively to the two neutral comments after the validation condition, while the control group responded more positively to the two neutral comments after the invalidation condition. It is unclear why the control group in the invalidation condition responded more positively to this condition. These findings suggest that individuals without heightened emotional sensitivity might be less vulnerable to invalidation (relative to validation) when compared to individuals with BPD features. Overall the studies reviewed in this section suggest that validating and invalidating responses have the potential to influence positive and negative affect, valence of emotion, as well as physiological arousal.

**Impact of Validation and Invalidation on Cognitive Flexibility**

Despite the theoretical proposition that validation aids in the decrease of negative emotional arousal and facilitates cognitive performance and flexibility, the impact of validation on cognitive flexibility has received little attention. Stigen (2011) investigated the effects of both validation and invalidation on cognitive flexibility. Participants were
randomly assigned to having their emotions validated or invalidated while they recounted an anger-provoking event. Next, participants completed a series of behavioral tasks to assess cognitive flexibility and learning, including a modified version of the Wisconsin Card Sort Test (WCST). There were no significant differences found in WCST performance (total number of responses, total errors made, and failure to maintain set) across condition, suggesting comparable cognitive flexibility for participants in both the validation and invalidation conditions. This null result suggests that invalidation and validation may not impact cognitive flexibility directly. Following this, Cheavens et al. (2013) investigated the moderating influence of BPD features on the effects of validation and invalidation on cognitive flexibility in this sample. The authors found a significant interaction of condition by BPD symptoms, such that at high levels of BPD features, participants made significantly more errors on the modified version of the WCST after invalidation than at lower levels of BPD symptoms. It is possible that invalidation impacts performance for those with more BPD features due to sensitization to invalidation resulting from previous experiences as well as emotional vulnerability.

To date these are the only tests of the impact of invalidation and validation on cognitive flexibility and learning. There is still more information that needs to be gathered pertaining to the impact of invalidation on cognitive processes. For example, in the Stigen (2011) study, the WCST was used to assess cognitive flexibility but invalidation may affect other areas of cognitive functioning and problem-solving, such as those in the interpersonal functioning domain, that are not addressed by the WCST. It may also be that invalidating responses only affect cognitive performance among a subset
of individuals who are most vulnerable (e.g., BPD features) as suggested by the findings from Cheavens et al. (2013).

**BPD features and Invalidation**

Invalidation may be a risk factor associated with the development of various forms of psychopathology. Some evidence suggests that invalidating environments (e.g., parental criticism, parental control, and invalidation of emotions) are associated with adolescent depressive symptoms (Yap et al., 2008), childhood emotional problems (Eisenberg et al., 1996), adult psychological distress (Krause, Mendelson, & Lynch, 2003), eating disordered behavior (Ford, Waller, & Mountford, 2010) and overall psychopathology (Donnelly, 2013; Martin, Bureau, Cloutier & Lafontaine, 2011). Invalidation, according to theory, is likely related to symptoms of psychopathology because in an invalidating environment an individual learns that his or her private experiences may be punished by others. Invalidating environments teach individuals not to trust their own internal experiences. For example, one possible consequence of invalidating responses to private experiences is the learning of self-invalidating behaviors such as discounting internal experiences, failing to adequately label and convey emotions to others, or engaging in maladaptive emotion regulation behaviors (e.g., self-harm, binge eating, drug abuse) to change internal experiences.

According to Linehan (1993), BPD is a disorder that develops through the transaction between an emotionally vulnerable individual and an invalidating environment. In her theory, emotional vulnerability is characterized as heightened baseline emotional arousal, sensitivity, and reactivity. Additionally, Linehan suggests that individuals with BPD have a slower return to baseline compared to others. According to
the transactional model of BPD proposed by Fruzzetti, Shenk, and Hoffman (2005), validating and invalidating responses are part of an individual’s environment which in turn shapes the way the individual responds to his or her surroundings. This transactional relationship develops throughout a lifespan, shaping an individual’s understanding of the environment.

In line with behavioral theories, a history with invalidating environments likely makes an individual with BPD more sensitive towards invalidating responses in the present environment. For example, research findings suggest that there is a link between self-reported experiences of invalidation and BPD features. In a study by Sturrock et al. (2009), individuals who reported greater childhood invalidation endorsed more BPD features and engaged in more maladaptive forms of coping.

**Impact of Validation and Invalidation on Social Problem-Solving**

Theory suggests that social problem-solving is impaired in the context of invalidation (Fruzzetti, 2005). Problem-solving in social situations is arguably a skill that is used in every day interactions, and the capacity to respond to every day social problems in a flexible manner could prove to be a crucial aspect of interpersonal functioning. Given the highly interpersonal nature of validating and invalidating responses, it is possible that cognitive ability in the form of social problem-solving is particularly dampened by interpersonal exchanges that convey to the individual that his or her experiences are not reasonable. However, measures of cognitive flexibility such as the WCST might not be tapping into the interpersonal nature of validating and invalidating responses and how they could potentially impact interpersonal problem-solving.
To date, there has only been one study that has specifically considered the impact of validating and invalidating responses on social problem-solving. Zielinski (2011) conducted a laboratory-based emotion induction in which participants spoke to an experimenter about an event that had occurred within the past year that involved a conflict in which they felt upset or emotional. Participants were randomly assigned to either a validation or invalidation condition. They then completed the Social Problem-Solving Test (SPST; Nock, 2006), a behavioral measure of problem-solving which involves listening to audio-recordings of conflict situations and generating possible solutions to the problem, identifying the solution they would be most likely to perform, and rating their ability to perform it. Participants in the invalidation condition did not perform any differently on the SPST than those in the validation condition. There were also no group differences in overall solutions generated. The findings from this study do not provide evidence for disruptions in social problem-solving after being invalidated. Zielinski (2011) mentions that one limitation in this study was the decision to examine invalidation only, instead of the interaction between invalidation and emotional vulnerabilities proposed in the biosocial model of BPD (Linehan, 1993). There is a possibility that invalidating responses only impact emotion dysregulation and subsequent outcomes among individuals with a history of invalidating responses or a pre-existing emotional vulnerability. Given that this has been the only study to date which has examined the impact of invalidation on social problem-solving, there is a need for further studies aimed at understanding this relationship, and how invalidation could potentially impact an individual’s ability to problem solve in interpersonal situations.
BPD features and Social Problem-Solving

Social-problem solving following invalidation amongst individuals with BPD features has yet to be adequately examined. Fruzzetti (2005) theorized that invalidating childhood environments engender passive problem-solving. Fruzzetti makes the point that over time, invalidation of internal experiences and problem-solving attempts could lead to individuals relying on others to solve problems for them. When in concert with emotion dysregulation, poor problem-solving skills can lead to increased difficulties in maintaining interpersonal relationships.

Bray, Barrowclough, and Lobban (2007) hypothesized that a previous history of invalidation might impede the development of social problem-solving skills, which then could leave an individual with emotional vulnerabilities without proper understanding or knowledge of appropriate and effective ways in which to handle romantic or interpersonal conflict. Kherer and Linehan (1997) examined the relationship between social problem-solving skills and non-suicidal self-injury (NSSI) in 33 patients who met criteria for BPD. The authors utilized a modified version of the Mean Ends Problem Solving task (MEPS; Platt & Spivack, 1975). The original MEPS manual consists of ten different social problem-solving scenarios. Participants are given the start and the end of these ten different stories and are then asked to make up a story that connects the beginning to the end. In the original MEPS task, participants’ stories were coded based on number of relevant means (effective steps mentioned in order to reach a resolution), irrelevant means (ineffective steps taken toward reaching a resolution), and no means, responses that fail to provide the steps that are needed in order to reach a solution. In the modified version of the MEPS, participants’ responses are coded as active or passive
responses, self-soothing behaviors (e.g., behaviors used in order to regulate emotional arousal), and inappropriate means (e.g., lying, substance abuse, aggression). Additionally, four novel stories/scenarios were created in order to look at social problem-solving in emotional contexts. Participants were assessed every four months for a year. Inappropriate problem-solving was a significant predictor of subsequent NSSI while active, passive, and self-soothing responses did not predict subsequent NSSI. These findings suggest that inappropriate social problem-solving has important implications when it comes to life threatening behaviors (i.e., NSSI) for those with BPD.

Linehan (1993) suggests that individuals with BPD either lack the skills to apply adequate problem-solving or possess these problem-solving skills but fail to implement them during critical times due to heightened emotional arousal. Bray, Barroclough, and Lobban (2007) conducted a study that supports Linehan’s theory about specific deficits in social problem-solving amongst individuals with BPD. The authors compared the social problem-solving abilities of individuals with BPD, other participants with clinical diagnoses (CC), and a non-clinical control group (NCC). The authors found that the BPD group generated fewer relevant means and provided less effective and less specific solutions than the NCC group. However, most of these deficits were not limited to the BPD group as they were also observed in the CC group, suggesting that difficulties in social problem-solving may generalize to other forms of psychopathology. The tendency to generate fewer specific answers to the scenarios provided on the MEPS was specific to BPD. Individuals in the BPD group also tended to report significantly greater levels of negative problem orientation, a more careless approach towards social problem-solving, as well overall poorer social problem-solving skills (as measured by the Social Problem
Solving Inventory Revised [SPSI-R]; D’Zurilla, Nezu, & Maydeu-Olivares, 2002). These findings suggest that certain deficits in social problem-solving and problem-solving styles are specific to BPD, while others are more indicative of overall psychopathology. Additionally, inappropriate social problem-solving can play a role when it comes to impulsive behaviors such as self-harming often seen amongst individuals with BPD. However, the question of how invalidation is related to social problem-solving at various levels of BPD still remains.

While individuals with BPD report less adaptive means when it comes to social problem-solving (Zeigle-Hill & Abraham, 2006) and tend to generally have a more negative orientation towards problem-solving (McMurran, Dugga, Christopher, & Huband, 2007), Dixon-Gordon et al. (2011) suggested that there is a more complex relationship between heightened emotional arousal and poor social problem-solving skills in individuals with BPD. Dixon-Gordon et al. (2011) examined the importance of context, negative emotions, and social problem-solving abilities of individuals with BPD. Based on their scores on the Personality Inventory Assessment-Borderline Symptoms Scale (PAI-BOR; Morey, 1991), participants were divided into groups of low (below 23), medium (23 - 38), or high (over 38) BPD features. Participants completed three randomly selected scenarios from the MEPS (Platt & Spivack, 1975) before an experimental manipulation. They then engaged in a five-minute negative mood induction, and after were asked to complete three additional MEPS scenarios to assess social problem-solving.

There was a significant group by time interaction such that participants in the high BPD features group showed a decrease in relevant strategies from pre-to post-mood induction.
when compared to the low BPD features group. There was also a significant group by
time interaction such that participants in the mid and high BPD features groups had
higher proportions of inappropriate means from pre to post induction, when compared to
the low BPD features group. The findings in this study broadly suggest that negative
emotions could play an important part when it comes to social problem-solving amongst
individuals with BPD.

Present Study

Validation is theorized to strengthen relationships (Linehan, 2001) and minimize
the emotional impact of stressors; thus, invalidation is thought to lessen arousal and
facilitate cognitive flexibility (Fruzzetti, 2005). Conversely, invalidation has been
associated with increases in negative affect (Shenk & Fruzzetti, 2011) and decreases in
positive affect (Stigen, 2011). Invalidating responses also are thought to prompt passive
and inappropriate problem-solving (Fruzzetti, 2005). A previous history of invalidating
environments and a propensity towards experiencing heightened emotions (both of which
are associated with BPD features) could make an individual more sensitive to
invalidating responses in the moment due to sensitization to these interpersonal
responses. Invalidating responses may then have a particularly robust effect on social
problem-solving amongst individuals with high BPD features. It could very well be that
the interaction of BPD features and invalidating responses precipitate inappropriate
problem-solving in interpersonal situations.

Hypotheses

We anticipated that validating responses after a negative mood induction would
reduce the negative affect experienced and increase positive affect after the event while
invalidating experiences would reduce positive affect and increase negative affect. We also expected that individuals in the invalidation condition would perform worse in a social problem-solving task and that this relationship would be moderated by BPD features. We hypothesized that:

**Hypothesis 1**

Participants in the invalidation condition would report increases in negative affectivity and decreases in positive affectivity over time compared to participants in the validation condition.

**Hypothesis 2**

Participants in the invalidation condition would perform worse on a social problem-solving task than participants in the validation condition.

**Hypothesis 3**

Borderline personality disorder features would moderate the effect of condition (i.e., validation or invalidation) on performance on the social problem-solving task, such that at higher levels of BPD features, the relation between condition and social problem-solving performance will be stronger than at lower levels of BPD features.
Chapter 2: Method

Participants

All participants were recruited through The Ohio State University’s Research Experience Program. Participants were 18 years old or older and fluent in English. There were no other inclusion or exclusion criteria. Consent was obtained from all participants and all participants received partial course credit upon completion of the study.

Sample Description

In total, 121 participants completed the study. Data from two of the participants were removed due to technical difficulties (i.e, the online survey that was being used crashed for these two participants and we were unable to recover the data). Another participant asked to leave the experiment after the invalidation manipulation. She was debriefed at this point and did not complete the remainder of the study and the data collected prior to her withdrawal were dropped from all analyses. The final sample consisted of 118 participants. The mean age for the sample was 19.51 (SD = 1.84, range 18 - 31). In terms of gender, 56 % of our sample was female and 44% male. Our sample was predominately Caucasian (68.1%), with 5.9% of the sample identifying as African American, 15.1% as Asian/or Pacific Islander, 4.2% identifying as Hispanic/Latino, 5.9% as multiracial and .8% as “other.
Measures

**Demographic questionnaire.** A brief demographic questionnaire (Appendix A) was administered to obtain basic information about the participants. Participants were asked to provide information such as age, gender, and ethnic group.

**Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).** The PANAS was used to measure general affectivity. The measure contains two 10-item scales (i.e., positive affectivity and negative affectivity) and participants respond using 5-point Likert response sets. Positive affectivity is defined as the extent to which a person feels active and pleasurably engaged, whereas negative affect is the extent to which a person feels subjective distress and unpleasantness. Both scales (positive and negative affect) have been shown to be highly internally consistent. For this sample, the Cronbach alpha for was .93 for positive affect and .80 for negative affect.

**Personality Assessment Inventory - Borderline Symptoms Scale (PAI-BOR; Morey, 1991).** The PAI-BOR is a 24-item self-report inventory designed to assess borderline traits in adults. The PAI-BOR consists of four different response categories (0 = “false”, 1 = “slightly true”, 2 = “mainly true” and 3 = “very true”) following a Likert scale format. The PAI-BOR is comprised of four different subscales, each assessing one feature of BPD pathology: affective instability, identity problems, negative relationships, and self-harm. The scale had high internal consistency in this sample (alpha = 0.89).

**Self-Reported Validation and Invalidation Scale (SRVIS).** The Self-Reported Validation and Invalidation Scale (SRVIS), a 10-item, four-point Likert-scaled measure, was used to assess participants’ self-reported level of invalidation. The scale consists of 5 items that assess the perception of invalidating responses, and 5 items that assess the
perception of validating responses. For the purpose of this study, we are conceptualizing validation and invalidation as opposite sides of a continuum rather than two separate constructs that could occur simultaneously. While theory suggests that validation and invalidation are separate from each other and could occur simultaneously, we have found that in experimental contexts the two constructs are highly inversely correlated with each other such that presence of invalidation suggests an absence of validation. Due to this, the validation items were reversed coded such that the total score reflected an invalidation score; higher scores are reflective of greater perceived invalidation, lower scores are indicative of a lack of perceived invalidation. The internal consistency of the total score in this sample was excellent (alpha = .94).

**Mood ratings.** Participants were asked to rate their mood at various times throughout the procedure on a scale from -5 (i.e., "extremely negative") to 5 (i.e., "extremely positive"). The mood rating questionnaire can be found in Appendix A.

**Social Problem-Solving Task**

**Means-Ends Problem-Solving Task (MEPS; Platt & Spivack, 1975).** The MEPS assesses the ability to conceptualize the sequence of steps, or relevant means, that are necessary in order to achieve a particular problem-solving outcome and the ability to identify specific obstacles that might interfere with goal attainment. The MEPS consists of ten story prompts that each begin with a stated need and end with the need being resolved. The participant is asked to provide “the middle” of the story for at least one paragraph, explaining how the individual in the story prompt was able to attain satisfactory resolution of the goals stated. For this study, a shortened version of the MEPS was used following the procedure highlighted in Marx, Williams, and Claridge
(1992); only the four interpersonal scenarios of the MEPS were used, instead of the original ten. These scenarios introduce themes of interpersonal conflict and abandonment from a partner (scenario 2), making new friends in an unfamiliar setting (scenario 4), friends avoiding you (scenario 8), and problems getting along with your boss (scenario 10). The MEPS has been shown to have good internal consistency within a psychiatric sample (Platt & Spivack, 1975).

**Study Procedures**

**Mean-Ends Social Problem-Solving Administration and Coding**

Participants were given a total of three minutes to complete each of the four MEPS scenarios. They were asked to write down their ideal plans for solving these problems, and to write them in such a way that another person could follow the plans. The responses were coded following the procedures highlighted in the original version of the MEPS (Platt & Spivack, 1975). In the original version of the MEPS, the stories were coded based on number of relevant means (i.e., goal directed responses). We also coded for detail (i.e., how much detail as a whole was included in the participant’s responses), effort (i.e., how much effort it would take for the average college student to implement the series of steps used in the response), effectiveness (i.e., how much the strategy maximized goal attainment while minimizing negative consequences), and inappropriateness (i.e., how socially inappropriate the response was as a whole). Each of the responses for these scales ranged from a scale of 1 to 6.

A team of raters were trained to code the MEPS responses according to the procedures highlighted in the original version of the MEPS (Platt & Spivack, 1975). They were also trained to code for some of the constructs that we were interested in such as
effort, detail, effectiveness and inappropriateness. There were a total of 472 MEPS responses (four responses for 118 participants in the study). Two coders were randomized to rate the first 236 responses, while the other two coders were randomized to rate the last 236 responses. To reduce bias, the order of each set of 236 responses was randomized for each coder (twice) so that coders would not rate participants’ responses in order (to prevent coders from rating, for example, Participant 3, Response 1, 2, 3, and 4 in order). ICC’s ranged from .76 to .91 across each of the constructs measured. A mean score of the raters was calculated for each item and then a mean score was calculated across all four MEPS scenarios for each participant. Additionally, participants rated their responses on a scale of 1 to 7 for effort and effectiveness. For self-reported effort and effectiveness, we are missing data from the first 18 participants due to delays in approval for the IRB protocol for these particular questions. Once approval was received, these questions were added to the experimental protocol. In sum, each participant had one score for each of the outcome measures (i.e., relevant means, detail, effort, effectiveness, inappropriateness, self-reported effort, and self-reported effectiveness).

**Experimenters**

Two experimenters (me and an undergraduate research assistant) ran all participants through the study protocol. Both experimenters were female and close in age to reduce experimenter variability. Both experimenters trained together for approximately three weeks to ensure consistent delivery of the intervention and both had access to the faculty advisor during training and throughout the study for supervision and/or questions about protocol.
Validation/Invalidation Script

For this study we created a script based on a coding scale, the Validating and Invalidating Behavior Coding Scale (VIBCS) developed by Fruzzetti (1997). The VIBCS assesses validating and invalidating responses in dyadic interactions. Fruzzetti’s coding system is designed to identify validation and invalidation at the six levels proposed by Linehan (1993). We used examples from each of the levels in order to create the validation and invalidation script. Please see Appendix A for the script that the experimenters followed. The experimenters were instructed to use the scripts in a conversational way without regard to particular levels of validation or invalidation. Due to this, the levels of validation and invalidation were not controlled for when experimenters delivered the manipulation.

Experiment Procedures

Each participant was randomly assigned (using a computer-generated program) to an experimental condition (i.e., validation or invalidation) before they arrived for the study. Upon arrival, participants were taken to a private clinic room where they received consent forms. Participants were told that we were studying the effects of emotional arousal on problem-solving. There was no mention of validation or invalidation. They were informed that they would be filling out initial questionnaires, participating in an emotion induction task, performing a social problem-solving task, and then completing a series of post-task questionnaires. After signing the consent forms, participants completed a series of questionnaires assessing mood and personality constructs on the computer. Participants first filled out a mood-rating questionnaire (time 1), then completed the remainder of the questionnaires, and filled out a second mood rating (time 2).
After completing the questionnaires and mood ratings, participants were asked to think about a time in their lives when they felt intense anger. Specific instructions were given to visualize the event as vividly as possible (see Appendix A) and to focus on how they felt when each event took place. They were then asked to type the details of their experience for three minutes. Once again, they were asked to be as explicit as possible. After writing about the experience, they completed another mood rating questionnaire (time 3). Participants were then asked by the experimenter to verbally explain for four minutes the situation they wrote about in a detailed manner; this once again included their thoughts, actions, and feelings at the time that the event took place. During the four minutes, participants’ stories were either validated or invalidated (dependent on random assignment) using the validation/invalidation script. In the validation condition, participants’ stories were met with remarks such as “that seems like the perfect example of an angry story.” In the invalidation condition, the participants’ stories were followed with remarks such as “Is this the best example that you have?”

Following the manipulation, participants were asked to once again rate their moods (time 4), and then complete the MEPS (Platt & Spivack, 1975). After completing the MEPS, they filled out another mood rating (time 5). Participants then responded to the PANAS (Watson et al., 1988) a second time in order to measure post-task affect. After the PANAS, they completed the SRVIS. Finally, participants filled out a brief measure with a manipulation check about the aim of the study and items about feelings towards the experimenter (Appendix A). This was done so that we could have a better understanding of whether the validation and invalidation manipulations were experienced.
as genuine interactions and if the participants surmised the purpose of the study. After the post-task questionnaires were completed, all participants were debriefed.
Chapter 3: Results

Data Cleaning

Questionnaire data distributions were examined for outliers along with skewness and kurtosis in order to ensure that all assumptions of normality were met. We utilized a cutoff of +/- 3.3 standard deviations from the mean (using standardized values) to identify significant outliers as suggested by Tabachnick and Fidell (2001). There were three outliers on the PANAS Negative Affect scale. We graphed the regression line for condition predicting changes in both Positive and Negative affect and found that the values for these outliers did not fit the regression line suggesting that these three participants responded in a way that did not correspond to their predicted values; these participants were excluded from all PANAS analyses. No other outliers were identified.

The PANAS Negative Affect scale was not normally distributed. There was high positive skew at both times 1 and 2 ($z = 7.3$ and $z = 8.5$, respectively, $p < .01$). To normalize these variables, we applied a square root transformation. After the transformation, the PANAS Negative Affect distributions fell within acceptable levels of normality. All analyses including the PANAS Negative Affect scale were conducted using the transformed scale. We found that the SRVIS total scale had a high zero count. In order to handle the high zero count, analyses including SRVIS scores were conducted
with both the Negative Binomial Poisson Distribution model (Coxe, West, & Aiken, 2009) and OLS regression. As the results were the same with both models, we present the OLS analyses here for ease of interpretation and to be consistent with analyses conducted with other outcomes variables.

**Descriptive Statistics**

We first calculated the means and standard deviations for the PAI-BOR, SRVIS, and Positive and Negative Affect scales at pre- and post-manipulation for the validation and invalidation conditions, as well as for the overall sample (see Table 1). We ran correlations between these variables to explore the relations among them (see Table 2). We then conducted an independent-samples t-test with condition (i.e., validation or invalidation) as the grouping variable to examine between-group differences. There were no between-group differences on baseline measures (i.e., BPD symptoms, positive affect, or negative affect), suggesting that our randomization procedure was successful (Table 1). There was, however, an error in the randomization process such that nine more participants were randomized to the validation condition (N = 64) than to the invalidation condition (N = 55). The final numbers for condition were (N = 64) for validation and (N = 54) for invalidation because the participant that asked to leave the experiment was randomized to the invalidation condition.

As MEPS scores were designated as the primary outcome variables, we examined the range and variance of MEPS responses before conducting analyses to test the hypotheses. The average number of relevant means generated ranged from 0 to 4.63. The scale of coder-rated detail, effort, effectiveness, and appropriateness ranged from 0 to 6. Average coder ratings of responses ranged from 0 to 5.13 for detail, 0 to 5 for effort, 0 to 5
5 for effectiveness, and 0 to 3.3 for inappropriateness. This suggests that coders used most of the available scale when rating detail, effort, and effectiveness but used only approximately half of the available scale in coding inappropriate responses. Participant reported effectiveness ranged from 1.25 to 7 and participant-reported effort ranged from 1 to 6.75, suggesting that when rating their own effectiveness and effort, participants used the whole range of the available scale.

**Experimenter Effect**

An independent-samples *t*-test was conducted to test for an experimenter effect. There was a significant between-group difference (*t*(116) = 2.25, *p* = .03) such that SRVIS scores were significantly higher for interactions with the undergraduate experimenter (Experimenter 1; *M* = 11.11, *SD* = 11.34) compared to the graduate student experimenter (Experimenter 2; *M* = 7.03, *SD* = 8.32). Due to this significant difference, analyses of SRVIS scores included experimenter as a covariate. The experimenter effect was also significant for experimenter likeability such that experimenter 2 was rated as more likeable (*M* = 7.89, *SD* = 2.28) than experimenter 1 (*M* = 6.48, *SD* = 2.78; *t*(112) = -2.96, *p* = .01). The experimenter effect was non-significant for all other variables (i.e., PANAS Positive and Negative Affect Scale time 2, as well as mood ratings at time 4 and 5, and all problem-solving variables; Table 3).

**Manipulation Check**

We used an independent-samples *t*-test to check the efficacy of the manipulation. Condition (validation/invalidation) was entered as the grouping variable and SRVIS scores as the test variable. The manipulation was successful (*t*(116) = -13.92, *p* = .01) in that participants in the invalidation condition reported greater levels of invalidation (*M* =
17.40, \( SD = 8.42 \) when compared to those participants in the validation condition \( M = 1.65, \ SD = 8.42 \).

Given that we found an unexpected experimenter effect, we wanted to determine if experimenter with whom the participant interacted impacted the efficacy of the manipulation. We ran an analysis with experimenter, condition, and interaction term predicting SRVIS score.

The overall model was significant \( R^2 = .67, F(3, 114) = 78.76, p = .01 \). The main effect of condition was significant \( t(114) = 11.98, p = .01 \). The main effect of experimenter was not significant \( t(114) = -.18, p = .85 \). There was a significant interaction between condition and experimenter \( t(114) = -2.90, p = .01 \); Figure 1). Overall, participants in the invalidation condition reported greater levels of invalidation when invalidated by experimenter 1 as opposed to experimenter 2; there were no experimenter differences in the validation condition.

**Hypothesis 1:**

*Participants in the invalidation condition will report an increase in negative affect from pre to post manipulation and a decrease in positive affect from pre to post manipulation when compared to participants in the validation condition.*

The positive and negative affect data were analyzed using a 2x2 repeated measures generalized linear model with condition (i.e., validation or invalidation) entered as the between subjects factor. Pre and post-task affect scores were entered as the within-subjects factor. A generalized linear model was used in order to analyze these data due to the uneven sample sizes. In the positive affect analysis, there was a main effect of time \( [F(1,112) = 15.23, p = .01, \eta^2 = .12] \), a main effect of condition \( [F(1,112) = 5.37, p = .02, \eta^2 = .05] \),
η^2 = .05], and a significant interaction of time by condition \(F(1,112) = 5.14, p = .03, \eta^2 = .04\). See Figure 2 for illustration of the interaction effect. Participants in the invalidation condition experienced greater decreases in positive affect from pre-manipulation to post-manipulation compared to those in the validation condition. Thus, the first part of Hypothesis 1a was supported.

In the negative affect model, the main effect of time \(F(1,112) = .33, p = .56, \eta^2 = .01\], the main effect of condition \(F(1,112) = 1.81, p = .18, \eta^2 = .02\], and the interaction of time and condition \(F(1,112) = .07, p = .79, \eta^2 = .01\] were all non-significant. These findings suggest that negative affect did not change over time in response to either validation or invalidation. The second part of Hypothesis 1a was not supported.

**Hypothesis 1b:**

*Participants in the invalidation condition will report greater decreases in mood over time when compared to those participants in the validation condition.*

A repeated measures general linear model was used to analyze mood ratings across five different time points throughout the experiment. For Time 4, two participants did not respond to the mood rating question. For Time 5, one participant did not respond to the mood rating question. Mood ratings were entered as the within subjects factor and condition as the between subjects factor. There was a significant main effect of time \(F(4,112) = 22.57, p = .01, \eta^2 = .44\]. As expected we did not find a significant main effect of condition as three of the mood ratings occurred prior to the manipulation \(F(1,115) = 3.08, p = .08, \eta^2 = .03\]. There was a significant interaction of Time by Condition \(F(4,112) = 7.63, p = .01, \eta^2 = .23\]. We conducted a follow-up independent-samples t-tests to better understand the interaction effect. In these tests, condition was
entered as the grouping variable and mood at each time point as the testing variable. Once again, as expected, there were no significant between-condition differences in mood at any of the pre-manipulation time points: Time 1 ($t(117) = 1.21, p = .23$), Time 2 ($t(117) = .56, p = .57$), or Time 3 ($t(117) = -.28, p = .78$). There were significant between-condition differences in mood at both time points following the manipulation: Time 4 ($t(115) = 3.16, p = .01$) and Time 5 ($t(116) = 3.66, p = .01$). Participants in the validation condition reported a more positive mood immediately following the manipulation ($M = 1.90, SD = 1.92$) than those in the invalidation condition ($M = 0.62, SD = 2.46$). Similarly, participants in the validation condition reported a more positive mood following the completion of the MEPS ($M = 2.48, SD = 1.68$) than participants in the invalidation condition ($M = 1.12, SD = 2.32$). Figure 3 illustrates the average mood ratings in each condition at each time point. These findings indicate that, following a validation or invalidation manipulation, participants in the validation condition self-reported more positive mood compared to those in the invalidation condition.

**Hypothesis 2:**

*Participants in the invalidation condition will perform worse on a social problem-solving task than participants in the validation condition.*

In order to examine Hypothesis 2, an independent-samples $t$-test was conducted for each MEPS outcome variable. There were no significant differences ($t(116) = .65, p = .51$) in the number of relevant means generated between those in the validation condition ($M = 2.51, SD = .89$) and the invalidation condition ($M = 2.41, SD = .78$). This same pattern emerged for all the problem-solving variables coded (i.e., detail, effort, effectiveness, and inappropriateness). There was a significant between condition
difference ($t(100) = 1.94, p = .05$) for self-reported effort such that participants in the validation condition, on average, reported that their strategies would require more effort ($M = 4.98, SD = .93$) than those in the invalidation condition ($M = 4.61, SD = .93$). There was also a significant between condition difference for self-reported effectiveness ($t(100) = 1.98, p = .05$) such that participants in the validation condition, on average, reported their strategies as more effective ($M = 5.57, SD = .73$) than those participants in the invalidation condition ($M = 5.26, SD = .85$). Hypothesis 2 was not supported; participants in the invalidation condition did not perform any worse on the problem-solving task than those in the validation condition. There was a significant between condition differences for self-reported effort and self-reported effectiveness suggesting that condition did impact participant’s self-report of their social problem-solving strategies. Full results are in Table 4.

**Hypothesis 3a**

*Borderline personality features will moderate the effect of condition (i.e., validation or invalidation) on performance in the social problem-solving task, such that for participants with higher levels of BPD features, the relation between condition and social problem-solving performance will be stronger than for participants with lower levels of BPD features.*

In order to test this hypothesis we first ran correlational analyses to understand the first-order relations between social problem-solving and BPD features. None of the social problem-solving variables were correlated with BPD features. Correlations are reported in Table 5. Next, we conducted a series of regression analyses entering PAI-BOR scores, condition, and their interaction as independent variables and the different
problem-solving variables as the dependent variables. The model predicting relevant means was non-significant, $R^2 = .03$, $F(3, 114) = 1.08, p = .36$. We only present the model for relevant means here because it is the main problem-solving variable in which we were interested and most closely represents social-problem solving as conceptualized by Platt and Spivack (1975). The models for detail, effort, effectiveness, inappropriateness, self-reported effort, and self-reported effectiveness were all also non-significant ($ps > .05$). Full models are reported in Table 6. These findings indicate that the relation between condition (validation or invalidation) and social problem-solving does not differ as a function of BPD features. Thus, Hypothesis 3a was not supported.

**Hypothesis 3b**

*BPD features will moderate the effect of self-reported invalidation on performance in the social problem-solving task, such that for participants with higher levels of BPD features, the relation between self-reported invalidation and social problem-solving performance will be stronger than for participants with lower levels of BPD features.*

In order to test this hypothesis, we once again ran a series of regression analyses entering each problem-solving variable as an outcome variable with PAI-BOR scores, SRVIS scores, and their interaction entered as the independent variables. The model predicting relevant means was non-significant, $R^2 = .02$, $F(3, 114) = .68, p = .56$. The remaining models also were non-significant (i.e., detail, effort, effectiveness, inappropriateness, self-reported effort, and self-reported effectiveness; Table 7). Thus, Hypothesis 3b was not supported, indicating that the relation between self-reported invalidation and social problem-solving is not stronger at higher levels of BPD features.
Chapter 4: Discussion

Positive Affect/Negative Affect and Mood Findings

One of the most salient findings in this study is that neither invalidation nor validation predicted changes in negative affect. Instead, we found that invalidation significantly decreased positive affect. These findings are somewhat contradictory to most of the existing literature on validation/invalidation, which has found that invalidation tends to increase negative affect. For example, a study by Shenk and Frizzetti (2011) found that participants who were subjected to invalidating responses self-reported greater levels of negative affect, skin conductance and heart rate across time when compared to those participants that were in the validation condition. Shenk and Frizzetti’s (2011) findings suggest that experiences of validation and invalidation impact negative affectivity, particularly in environments likely to induce negative affect. In a previous study using the same manipulation as the present study, Stigen (2011) found that participants who were invalidated self-reported decreases in positive affect. This author also found that validating/invalidating responses were unrelated to changes in self-reported negative affect. These discrepant findings suggest that there might be different types of validating/invalidating contexts which can differentially influence positive or negative affect.
For example, in the study by Shenk and Fruzzetti (2011) participants were either validated or invalidated four times over the course of the affect induction task (Paced Authority Serial Addition Task; PASAT). Participants completed two minutes of the PASAT followed by either validation or invalidation. It is possible that multiple instances of invalidation (instead of just during one time point like in the present study) can lead to increases in self-reported negative affect. Our task consisted of one negative mood induction (angry story recall) and one elaborated instance of validation/invalidation.

Additionally, in the Shenk and Fruzzetti (2011) study, participants were invalidated/validated three times, after each performance on a series of mental arithmetic exercises. The validation and invalidation feedback was limited to performance on this particular task (e.g., “people struggle with this task all the time” vs “other people don’t seem to have as much trouble with these problems”). The experimenters in our study validated or invalidated an interpersonal experience of anger as the participants were recalling this experience. The context of the manipulation (performance in mental arithmetic vs. interpersonal experience of anger) potentially could explain the discrepant findings. Validation after sharing an angry story (engaging with the environment) could pave the way for the optimization of factors associated with positive affect such as alertness, enthusiasm, and confidence more so than receiving validating responses after completing an arithmetic task. Sharing an angry story could make the engagement with the experimenter feel more personally relevant in comparison to completing a frustrating arithmetic task (PASAT) and may therefore be more conducive to changing positive emotions after validation or invalidation.
A related finding is that when validated, participants experienced a significant increase in mood, even after a stressor (angry story recall). This is particularly relevant given that all participants experienced a decrease in mood after the angry story recall. However, only those participants that were validated experienced an increase in mood after the manipulation and reported a return to baseline mood by the end of the study. Additionally, those participants in the invalidation condition experienced a decrease in their positive affect after a stressor while the participants in validation condition maintained their positive affect. One of two explanations for these findings is possible: either invalidating an individual after a stressor can delay their return to baseline or validating responses “speed” up the recovery from the negative consequences of experiencing a stressor.

According to Frederickson’s (1998) broaden-and-build model, positive emotions can have a restorative effect such that they can “undo” the physiological effects of negative moods and thus bring individuals down to baseline levels of arousal (Fredickson, Mancuso, Branigan, & Tugade, 2000). Validating responses could map onto the broaden-and-build model in that they are able to undo the effects of a stressor by preventing further decreases in positive affect or overall mood. Future studies could seek to understand the prolonged effects of validating responses on positive affect after stressful everyday events.

In the present study, participants in the validation condition reported their strategies as more effective and requiring more effort when compared to those participants that were in the invalidation condition. These findings can speak to validating responses influence on perceived performance on a problem-solving task. While participants might
not perform any worse on tasks after invalidating responses, these responses might have the impact to influence an individual’s confidence in his/her performance (e.g., effectiveness of said series of strategies) as well as his/her engagement with a particular problem-solving goal (e.g., how much effort they are willing to implement in that goal). Consistent invalidating responses could influence engagement with a particular problem-solving goal and lead to goal implementation failures on a broader scheme.

**Problem-Solving Findings**

It was our original hypothesis that participants in the invalidation condition would have worse social-problem solving than participants in the validation condition. There were no between condition differences on problem-solving measures which suggests that being validated or invalidated does not impact an individual’s problem-solving performance. One potential explanation for this could be the use of the MEPS as a measure of social problem-solving. A review paper by House and Scott (1996) speaks to the different problematic aspects of the MEPS as a measure of social problem-solving. We took precautions to address some the issues that they raise in the paper (e.g., unrealistic scenarios, use of the word “story” in the prompt, and lack of qualitative ratings of problem-solving strategies). For example, we used the suggestions from Marx et al. (1992) and only included four interpersonally relevant scenarios while leaving out more unrealistic or irrelevant to the average college student social problem-solving vignettes covered in the original MEPS. In regards to the use of the word “story” in the prompt, we instead used “problem situations.” For lack of qualitative ratings, we used an effectiveness rating so that coders could assess the quality of the problem-solving strategy presented.
One limitation of the MEPS that we did not address is the constrained format of the measure (e.g., the MEPS gives the participant the ideal end result to the conflict being presented). This constrained format could potentially reduce variance in responding as it takes away the opportunity for the participant to identify what he/she thinks the problem is and what his/her solution to the problem would be. Additionally, participants in the current study were only given 3 minutes per scenario to complete their responses. Because the MEPS was administered electronically, when the three minutes were up, the scenario was removed from view and participants were not allowed to complete their work on that particular scenario. This could have limited the variability in participant’s responses as some participants may have stopped earlier than they would have otherwise and other participants were unable to complete their responses. Possibly the combination of the pre-determined problem-solving end goal and the reduced time frame contributed to a reduction in the variability that we might have seen otherwise from participants.

Another potential explanation for the null social-problem solving findings could be that the invalidation manipulation might not have had been strong enough to impact participant’s objective problem-solving outcomes. The highest score possible on the SRVIS scale is 40. We found that for this study the highest score was \((N = 32)\) suggesting that there was a restricted range for our measure of self-reported invalidation. Additionally, five participants in the invalidation condition reported a score of 5 or less on self-reported invalidation suggesting that there was a manipulation failure for these individuals. This speaks to the invalidation manipulation not being as powerful as we intended. This might be due to the nature of this particular manipulation. Because it is a dyadic interaction in which the experimenter is asking questions, facing the participant,
and giving feedback relevant to the participant’s story, it might be difficult to convey some of the most basic forms of invalidation such as not paying attention or ignoring relevant information.

Additionally, although participants in the invalidation condition experienced decreases in mood at time 3 (angry story recall) and time 4 (after the invalidation manipulation), mean mood ratings at any given time point never went below the neutral score. The restricted range on the mood ratings could potentially speak to the sample not being adequately emotionally impacted by either the mood induction or the manipulation. Given that our hypothesis was based on the assumption, although not explicitly tested, that increased emotional arousal resulting from invalidation would disrupt problem-solving, the attenuated emotion response to invalidation could have limited our ability to find differences in problem-solving.

Finally, there is also a possibility that invalidating responses do not impact social-problem solving amongst unselected college students. The participants might not have been that invested in the angry story that they were recalling such that invalidating responses (even at their full “dose”) would have impacted their social-problem solving abilities. Additionally, it is possible that social problem-solving skills are too strongly set to be influenced by a short manipulation such as the one used here. Thus, although we think it is likely that our manipulation was weaker than initially planned, it is also possible that even a strong invalidation manipulation from a stranger would not disrupt problem-solving for relatively well-educated and emotional stable young adults.

None of the models examining BPD features as moderators of the relations among validation/invalidation (either manipulated or perceived) and social problem-
solving were significant. This suggests that invalidating responses do not impact performance in social-problem solving for individuals with heightened BPD features any differently than for those with lower BPD features. Additionally, BPD features were not associated with social-problem solving. These findings are somewhat surprising given that previous studies indicate that BPD is related to social problem-solving deficits (Bray, Barroclaugh & Lobban, 2007; Kherer & Linehan, 1997; Ziegle-Hill & Abraham, 2006). Previous findings would also suggest that BPD features interact with negative emotional contexts to predict poorer social problem-solving (Dixon-Gordon et al., 2011). One potential explanation is that we might not have had a sufficient number of participants at the high end of the BPD features distribution to adequately test for moderation. In the present study, we only had 14 participants that met the cut-off score for high BPD features (a score of 38 or higher on the PAI-BOR). Of those 14 participants, only 6 were randomized to the invalidation condition. The small number of participants with high BPD features randomized to the invalidation condition might have made it difficult to detect relations between invalidating responses and social problem-solving amongst individuals with heightened BPD features.

In designing future studies which seek to answer the question of whether heightened BPD features moderate the relation between validating/invalidating responses and problem-solving, we would have to ensure that a larger number of participants with heightened BPD features are included in the study. This can be done by screening for participants with heightened BPD features and inviting a specific percentage to participate.
Implications

The present study expands our understanding of the protective role of validating responses or the deleterious role of invalidating responses on affect and mood after a negative mood induction. Validating responses prevented decreases in positive affect after a stressor, while invalidating responses delayed return to baseline mood. While positive affect has been linked to a speedier recovery from negative emotions (Fredrickson, Mancuso, Branigan, & Tugade, 2000) as well as overall well-being (King & Diener, 2002), the relationship between validating responses and positive affectivity is an area that has not been expansively studied. Additionally, in the present study, condition was related to self-reported performance in social problem-solving suggesting that validating responses might impact how much an individual perceives his or her problem-solving strategies will be effective, and how much effort they are willing to invest in these strategies. Validating responses could increase engagement with a particular problem-solving strategy and motivation to enact that strategy. Overall, this study expanded the literature by providing support for validating responses as serving a protective role against an interpersonal stressor (angry story recall). Additionally, the present study expanded our understanding of how validating responses can impact participant’s perceived confidence that their problem-solving strategies are effective, as well as their overall perceived willingness and motivation (e.g., self-reported effort) to engage with a particular problem-solving plan.

Limitations

One of the biggest limitations of this research is the restricted range in our self-reported invalidation measure. Due to this restricted range participants might not have
had experienced the full intended effect of the invalidation manipulation. Another limitation in this sample was the error in randomization such that more participants were randomized to the validation than the invalidation condition. Additionally, some participants in the invalidation condition reported little to no invalidation. Finally, one of our experimenters was more invalidating the other suggesting that not all the participants received the same “dose” of invalidation. Taken together, the validation and invalidation groups were not evenly matched in terms of numbers and several participants in the invalidation condition did not receive the intended or full dose of the invalidation manipulation for several reasons; thus, the number of participants who were invalidated as planned may have been too small to adequately test our hypotheses. Another possible limitation is that our manipulation relied on retrospective accounts of an angry story. It could be that some participant’s angry story recalls were less severe than others. Severity of the angry story might have moderated the relation between condition and performance but we did not include ratings of story severity and cannot, at this time, test this. Additionally, relying on a past incident might introduce unwanted variability in recall. In future studies, invalidating the experience of a current and controlled stressor might increase our ability to determine if social problem-solving is impacted by validation and invalidation.

Future Directions

A future direction for this line of research would be to understand the protective role of validating interpersonal exchanges and how they might impact affect and goal implementation in a longitudinal design. Understanding the long term effects of validating responses on affect and subsequent goal engagement in a naturalistic
environment could inform us about these relations as they unfold in everyday situations as opposed to an experimental environment. One of the limitations of the current study is that participants are asked to engage in social problem-solving that might not be personally relevant to them. It is possible that personally relevant social problem-solving would be more strongly impacted by invalidation. Additionally, it is possible that changes in positive affect could mediate the relation between validation and problem-solving in a more naturalistic context.

Another direction for this line of research could be to understand different factors which might moderate the relation between invalidating responses and cognitive ability (e.g., childhood invalidation, difficulties regulating emotion, and interpersonal sensitivity/aggression). These constructs have been previously associated with overall psychopathology and might predispose individuals towards being more sensitive to invalidating responses.

Conclusions

Our results support our initial hypothesis that invalidation leads to greater reductions in positive affect compared to validation following a stressor. Our hypothesis that invalidation would lead to greater increases in negative affect was not supported, however. Decreases in positive affect might have implications for approach behaviors and potential motivation to implement problem-solving strategies. While validating or invalidating responses might not impact problem-solving directly, they could potentially influence the motivation for strategy implementation in the real world. Further research is needed to understand the implications of prolonged validating and invalidating responses.
in real-world problem solving implementation, as well as the long term effects of validating responses on affect.
References


(Eds.), *Empathy reconsidered: New directions in psychotherapy* (pp. 353-392).


development of Borderline Personality Disorder. (Unpublished master’s thesis).

University of Arkansas, Fayetteville, US.

Appendix A: TABLES
Table 1.

Means and Standard Deviations for Borderline Features, Self-Reported Invalidation and Positive and Negative Affect Before and After an Invalidation/Validation Manipulation (MA).

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<th></th>
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</thead>
<tbody>
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<tr>
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<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td>23.58</td>
<td>12.18</td>
<td>22.85</td>
<td>10.40</td>
</tr>
<tr>
<td>SRVIS</td>
<td>1.65</td>
<td>3.05</td>
<td>17.40</td>
<td>8.42</td>
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<td>Negative Affect Pre-MA</td>
<td>3.35</td>
<td>3.85</td>
<td>4.26</td>
<td>5.33</td>
</tr>
<tr>
<td>Negative Affect Post-MA</td>
<td>3.14</td>
<td>4.01</td>
<td>4.52</td>
<td>4.82</td>
</tr>
<tr>
<td>Positive Affect Pre-MA</td>
<td>17.34</td>
<td>7.96</td>
<td>14.58</td>
<td>8.23</td>
</tr>
<tr>
<td>Positive Affect Post-MA</td>
<td>16.61</td>
<td>9.41</td>
<td>11.71</td>
<td>8.82</td>
</tr>
</tbody>
</table>

Note. SRVIS = Self-Reported Invalidation; Negative Affect Pre-MA and Positive Affect Pre-MA = Negative and Positive Affect pre-invalidation/validation manipulation; Negative Affect Post-MA and Positive Affect Post-MA = Negative and Positive Affect post-invalidation/validation manipulation.
Table 2.

Correlations of Borderline Features, Self-Reported Invalidation, and Positive and Negative Affect Before and After an Invalidation/Validation Manipulation (MA).

<table>
<thead>
<tr>
<th>Measure</th>
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<td>1. PAI-BOR</td>
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<tr>
<td>2. SRVIS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Negative Affect Pre-MA</td>
<td>.25*</td>
<td>.18*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Negative Affect Post-MA</td>
<td>.30**</td>
<td>.29*</td>
<td>.47**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Positive Affect Pre-MA</td>
<td>-.17</td>
<td>-.20**</td>
<td>-.06</td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td>6. Positive Affect Post-MA</td>
<td>-.19*</td>
<td>-.27**</td>
<td>-.02</td>
<td>.09</td>
<td>.79**</td>
</tr>
</tbody>
</table>

Note. Negative Affect Pre-MA and Positive Affect Pre-MA = Negative and Positive Affect pre-invalidation/validation manipulation; Negative Affect Post-MA and Positive Affect Post-MA = Negative and Positive Affect post-invalidation/validation manipulation; SRVIS = Self-Reported Invalidation.

* $p < .05$ ** $p < .01$
Table 3.

*Means and Standard Deviations for Mood Post-Manipulation, Mood Post-Social Problem-Solving Task, and Positive and Negative Affect By Experimenter.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Experimenter 1</th>
<th>Experimenter 2</th>
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</thead>
<tbody>
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<td>13.42</td>
<td>10.39</td>
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<td>Mood Post-MA</td>
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<td>2.17</td>
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<tr>
<td>Mood Post-Task</td>
<td>1.81</td>
<td>2.19</td>
</tr>
<tr>
<td>Relevant Means</td>
<td>2.40</td>
<td>0.86</td>
</tr>
<tr>
<td>Detail</td>
<td>2.45</td>
<td>1.29</td>
</tr>
<tr>
<td>Effort</td>
<td>2.48</td>
<td>1.02</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>3.24</td>
<td>1.07</td>
</tr>
<tr>
<td>Appropriateness</td>
<td>2.48</td>
<td>0.41</td>
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<td>Self-Reported Effect</td>
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<td>0.92</td>
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*Note.* Positive Affect Post-MA = Positive Affect post-validation/invalidation manipulation; Negative Affect Post-MA = Negative Affect post-validation/invalidation manipulation.
Table 4.

*Between-Condition (Validation and Invalidation Manipulation) Differences in Problem-Solving.*

<table>
<thead>
<tr>
<th>Problem-Solving Variable</th>
<th>Validation</th>
<th>Invalidation</th>
<th>t</th>
<th>p</th>
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<td>SD</td>
<td>M</td>
<td>SD</td>
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<td>.89</td>
<td>2.41</td>
<td>.78</td>
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<td>Detail</td>
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<td>1.30</td>
<td>2.30</td>
<td>1.21</td>
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<td>Effort</td>
<td>2.59</td>
<td>1.03</td>
<td>2.41</td>
<td>.85</td>
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<tr>
<td>Effectiveness</td>
<td>3.33</td>
<td>1.07</td>
<td>3.19</td>
<td>.94</td>
</tr>
<tr>
<td>Inappropriateness</td>
<td>2.46</td>
<td>.43</td>
<td>2.48</td>
<td>.35</td>
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<tr>
<td>Self-Reported Effort</td>
<td>4.98</td>
<td>.93</td>
<td>4.61</td>
<td>1.01</td>
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<tr>
<td>Self-Reported Effectiveness</td>
<td>5.57</td>
<td>.73</td>
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<td>.85</td>
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### Table 5.

*Correlations of Borderline Features Social Problem-Solving Variables*

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<td>2. Relevant Means</td>
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<td>3. Detail</td>
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<td>4. Effort</td>
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<td>.91**</td>
<td>.88**</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td>5. Effectiveness</td>
<td>-.08</td>
<td>.89**</td>
<td>.87**</td>
<td>.92**</td>
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<td></td>
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<tr>
<td>6. Appropriateness</td>
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<td>-.66**</td>
<td>-.77**</td>
<td>-.74**</td>
<td>-.81**</td>
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<td>7. Self-Reported Effort</td>
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<td>.22*</td>
<td>.22*</td>
<td>.25*</td>
<td>.27**</td>
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<td>8. Self-Reported</td>
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<td></td>
</tr>
<tr>
<td>Effectiveness</td>
<td>-.01</td>
<td>.28*</td>
<td>.26**</td>
<td>.32**</td>
<td>.35**</td>
<td>-.30**</td>
<td>.47**</td>
<td></td>
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*Note.* *p < .05* **p < .01*
Table 6.

Borderline Personality Disorder Features Moderating the Relations Between Validation/Invalidation Manipulation and Performance on Social Problem-Solving Measures.

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>p</th>
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<td><strong>Relevant Means</strong></td>
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<td>11.65</td>
<td>.01</td>
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<tr>
<td>Condition</td>
<td>.09</td>
<td>.36</td>
<td>.05</td>
<td>.25</td>
<td>.80</td>
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<tr>
<td>PAI-BOR</td>
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<td>.01</td>
<td>-.10</td>
<td>-.86</td>
<td>.39</td>
</tr>
<tr>
<td>Condition × PAI-BOR</td>
<td>-.01</td>
<td>.01</td>
<td>-.14</td>
<td>-.60</td>
<td>.58</td>
</tr>
<tr>
<td><strong>R² = .03, F(3, 114) = 1.08, p = .36</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Detail</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>2.83</td>
<td>.34</td>
<td>8.23</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>.12</td>
<td>.54</td>
<td>.05</td>
<td>.23</td>
<td>.82</td>
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<tr>
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<td>.01</td>
<td>-.09</td>
<td>-.77</td>
<td>.44</td>
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<tr>
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<td>.02</td>
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<td>-.87</td>
<td>.38</td>
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<tr>
<td><strong>R² = .04, F(3, 114) = 1.71, p = .17</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Effort</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
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<td>.26</td>
<td>10.74</td>
<td>.01</td>
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<tr>
<td>Condition</td>
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<td>.07</td>
<td>.07</td>
<td>.94</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td>-.01</td>
<td>.01</td>
<td>-.86</td>
<td>-.86</td>
<td>.39</td>
</tr>
<tr>
<td>Condition × PAI-BOR</td>
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<td>.02</td>
<td>-.13</td>
<td>-.58</td>
<td>.56</td>
</tr>
<tr>
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<td></td>
<td></td>
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</tr>
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<td><strong>Effectiveness</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>3.44</td>
<td>.28</td>
<td>12.41</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>Condition</td>
<td>.18</td>
<td>.44</td>
<td>.09</td>
<td>.42</td>
<td>.67</td>
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<td>PAI-BOR</td>
<td>-.01</td>
<td>.01</td>
<td>-.05</td>
<td>-.45</td>
<td>.65</td>
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<tr>
<td>Condition × PAI-BOR</td>
<td>-.01</td>
<td>.02</td>
<td>-.19</td>
<td>-.85</td>
<td>.40</td>
</tr>
<tr>
<td><strong>R² = .02, F(3, 114) = .73, p = .73</strong></td>
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</table>

Continued
Table 6 continued

<table>
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<th>Condition</th>
<th>PAI-BOR</th>
<th>Condition × PAI-BOR</th>
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<td>.04</td>
<td>.18</td>
<td>.05</td>
<td>.23</td>
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<td>.01</td>
<td>-.08</td>
<td>.67</td>
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<tr>
<td>Condition × PAI-BOR</td>
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<td>.01</td>
<td>-.03</td>
<td>-.15</td>
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</table>

$R^2 = .01, F(3, 114) = 1.9, p = .90$

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<th>Condition</th>
<th>PAI-BOR</th>
<th>Condition × PAI-BOR</th>
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<tbody>
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<td>5.13</td>
<td>.29</td>
<td>18.34</td>
<td>.01</td>
</tr>
<tr>
<td>Condition</td>
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<td>.45</td>
<td>-.31</td>
<td>-1.34</td>
</tr>
<tr>
<td>PAI-BOR</td>
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<td>.01</td>
<td>-.16</td>
<td>-1.29</td>
</tr>
<tr>
<td>Condition × PAI-BOR</td>
<td>.01</td>
<td>.02</td>
<td>.14</td>
<td>.58</td>
</tr>
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</table>

$R^2 = .02, F(3, 98) = 1.68, p = .17$

<table>
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<th>Condition</th>
<th>PAI-BOR</th>
<th>Condition × PAI-BOR</th>
</tr>
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<tbody>
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<td>Self-Reported Effectiveness</td>
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<td>.24</td>
<td>22.97</td>
<td>.01</td>
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<tr>
<td>Condition</td>
<td>.15</td>
<td>.37</td>
<td>.09</td>
<td>.41</td>
</tr>
<tr>
<td>PAI-BOR</td>
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<td>.01</td>
<td>.08</td>
<td>.64</td>
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<tr>
<td>Condition × PAI-BOR</td>
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<td>.02</td>
<td>-.32</td>
<td>-1.36</td>
</tr>
</tbody>
</table>

$R^2 = .05, F(3, 98) = 1.81, p = .15$
Table 7.

*Borderline Personality Disorder Features Moderating the Relations Between Self-Reported Invalidation and Performance on Social Problem-Solving Measures.*

<table>
<thead>
<tr>
<th>Predictor Variable</th>
<th>B</th>
<th>SE</th>
<th>β</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Relevant Means</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td>2.73</td>
<td>.23</td>
<td>12.04</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>SRVIS</td>
<td>-01</td>
<td>.02</td>
<td>-04</td>
<td>-1.22</td>
<td>.85</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td>-01</td>
<td>.01</td>
<td>-14</td>
<td>-.18</td>
<td>.22</td>
</tr>
<tr>
<td>SRVIS × PAI-BOR</td>
<td>01</td>
<td>01</td>
<td>03</td>
<td>.15</td>
<td>.88</td>
</tr>
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<td>(R^2 = .02, F(3, 114) = .68, p = .56)</td>
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<tr>
<td><strong>Detail</strong></td>
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</tr>
<tr>
<td>Intercept</td>
<td>2.91</td>
<td>.34</td>
<td>8.56</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>SRVIS</td>
<td>-01</td>
<td>.03</td>
<td>-09</td>
<td>-1.02</td>
<td>.84</td>
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<td>.01</td>
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<td>01</td>
<td>01</td>
<td>01</td>
<td>.85</td>
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<td><strong>Effort</strong></td>
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<td>10.84</td>
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<td>.49</td>
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<tr>
<td>PAI-BOR</td>
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<td>.01</td>
<td>-12</td>
<td>-.25</td>
<td>.45</td>
</tr>
<tr>
<td>SRVIS × PAI-BOR</td>
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<td>01</td>
<td>02</td>
<td>.09</td>
<td>.74</td>
</tr>
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<td></td>
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<tr>
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<td>.27</td>
<td>12.86</td>
<td>.01</td>
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<td>.31</td>
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<td>01</td>
<td>01</td>
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</table>

Continued
Table 7 continued

**Inappropriateness**

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<th>SRVIS</th>
<th>PAI-BOR</th>
<th>SRVIS × PAI-BOR</th>
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<td>.11</td>
<td>22.23</td>
<td>.01</td>
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<td>.01</td>
<td>.05</td>
<td>.73</td>
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<td>.01</td>
<td>.05</td>
<td>.25</td>
</tr>
<tr>
<td>SRVIS × PAI-BOR</td>
<td>.01</td>
<td>.01</td>
<td>-.06</td>
<td>-.26</td>
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$R^2 = .01$, $F(3, 114) = .19$, $p = .90$

**Self-Reported Effort**

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<th>PAI-BOR</th>
<th>Condition × PAI-BOR</th>
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<td>.28</td>
<td>17.52</td>
<td>.01</td>
</tr>
<tr>
<td>SRVIS</td>
<td>-.01</td>
<td>.02</td>
<td>-.03</td>
<td>-.50</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td>.01</td>
<td>.01</td>
<td>-.06</td>
<td>.11</td>
</tr>
<tr>
<td>Condition × PAI-BOR</td>
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<td>.02</td>
<td>-.13</td>
<td>-.55</td>
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</table>

$R^2 = .02$, $F(3, 98) = .74$, $p = .53$

**Self-Reported Effectiveness**

<table>
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<th>SRVIS</th>
<th>PAI-BOR</th>
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<td>PAI-BOR</td>
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<td>.01</td>
<td>-.34</td>
<td>-1.41</td>
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</table>

$R^2 = .05$, $F(3, 98) = 1.38$, $p = .25$
Appendix B: FIGURES
Figure 1

Interaction between an Invalidation/Validation Manipulation and Experimenter

![Graph showing the interaction between invalidation/validation manipulation and experimenter. The graph compares self-reported invalidation scale (SRVIS) across validation and invalidation conditions for Experimenters 1 and 2.](image-url)
Figure 2

Changes in Positive Affect From Pre to Post Manipulation

![PANAS Positive Affect Scale](image)
Figure 3

Changes in Mood From Start to Finish of Experiment

*Note.* Time 1 = Pre-Questionnaire; Time 2 = Post-Questionnaire; Time 3 = Post Angry Story Recall; Time 4 = Post Manipulation; Time 5 = Post Problem-Solving Task
Appendix C: STUDY FORMS
Demographic Questionnaire

Participant Number: _________
Age: _________
Gender: ________________

Racial/Ethnic background:
______ African or African-American
______ Asian or Pacific-Islander
______ Caucasian or of European ancestry
______ Latino or Hispanic
______ American Indian or other tribal affiliation
______ Bi- or Multi-Racial
______ Other (please specify): ________________________________

Nation in which you were born: __________________________________
Religious affiliation (if any): _____________________________________
Year in school _________________________________________________
Major: ________________________________________________________

Current relationship status (circle one):

a) single
b) in a relationship, not cohabitating
c) in a non-married relationship, cohabitating
d) married, cohabitating
e) divorced or widowed
If you are currently in a romantic relationship:

How many years have you been in current relationship? _______

If you are currently in a romantic relationship, what is the quality of that relationship?

a) not currently in a romantic relationship

b) Poor (fighting, unhappiness, stress about partner, etc)

c) Moderate (neither unhappy nor happy, or mixed feelings)

d) Strong (supportive, source of happiness)

What is your current relationship with family of origin (i.e., parents)?

a) No relationship (i.e. no contact)

b) Poor (fighting, unhappiness, stress about family)

c) Moderate (neither unhappy nor happy, or mixed feelings)

d) Strong (supportive, source of happiness)
Tell us about a time when you were very angry.

We would like for you to think for one minute, in as much detail as you can, about a time when you were very angry. Go over the event in your head, including as much information about the event as you can, paying particular attention to the emotions you were feeling at the time. After one minute of thinking time, the researcher will tell you to begin typing. You will then type about the event for three minutes, including as many details as you can. If you finish early, please re-read your story, focusing on what you were feeling at the time. It is okay if you don’t finish by the end of the three minutes.

Please type your response below:
Self-Reported Validation and Invalidation Scale (SRVIS)

Please rate the following ten statements using the scale below:

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Never</td>
</tr>
<tr>
<td>1</td>
<td>Rarely</td>
</tr>
<tr>
<td>2</td>
<td>Sometimes</td>
</tr>
<tr>
<td>3</td>
<td>Often</td>
</tr>
<tr>
<td>4</td>
<td>Almost Always/Always</td>
</tr>
</tbody>
</table>

1) The experimenter was paying attention to me.
2) The experimenter was interested in what I had to say.
3) The experimenter took my responses seriously.
4) The experimenter understood me.
5) The experimenter was responsive to my emotions.
6) The experimenter told me what I should think and feel.
7) The experimenter saw my responses as abnormal or inaccurate.
8) The experimenter increased my negative feelings.
9) The experimenter was condescending or contemptuous toward me.
10) The experimenter saw me as more fragile than I really am.
Manipulation Check Forms

Mood Ratings

On a scale from -5 to 5 (-5 being “extremely negative”, 0 being “neither positive nor negative”, and 5 being “extremely positive), how would you rate your current mood?

(circle one number)

Extremely negative          Neither Positive          Extremely Positive
Nor Negative

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
Manipulation Check Questionnaire

Not at all       Somewhat      Very much

0  ----  1  ----  2  ----  3  ----  4  ----  5  ----  6  ----  7  ----  8  ----  9  ----  10

1) On a scale from 0 to 10 (0 being “not at all”, 5 being “somewhat” and 10 being “very much”), how much do you like the experimenter? _______

2.) Did you experience any emotion in response to your interactions with the researcher?
   a) Yes
   b) No

3) If so, please indicate the emotion(s) experienced (using the 1 – 10 scale above):
   3.) anger _____
   4.) shame _____
   5.) joy _____
   6.) resentment ______

4) What do you think we were trying to measure or get at in this study?
Validation Script

You should immediately begin the validation script once the story recall task is over. Position yourself, remaining seated, so that you are near the participant, facing them (with them facing you). Begin with:

- Starter prompt: **Now I’m going to ask you about what you just completed. Can you tell me what you wrote about just now?**

Once they reply/begin to reply, say

“Sure. That seems like a pretty good reason to get upset.”

(If they don’t report any negative feelings, ask them if there was anything they didn’t like or anything that made them uncomfortable. Then proceed off of that.)

They may try to defend/explain their feelings, to which you reply:

“That’s a pretty common response. Tell me more about why you felt that way.”

Be sure to nod often and make encouraging, pleasant faces to show that you agree with and understand their emotional responses.

As they try to explain further, gently ease in and provide a quick summary of what they were just saying, stating that you “just want to make sure you are understanding them 100%.” Ask them if you got it right.

At this point, we’re hoping they’re feeling pretty validated. Follow up with several of the following responses. Pay attention to the time (validate for 4 minutes).

- Right, right.
- Ok. Sure. Yep …
- I’m not surprised you felt that way.
- I hear that a lot.
- It seems like you were pretty angry/betrayed/frustrated/sad/devastated/upset!
  (whatever they are reporting)
- I hear these types of responses all the time.
- Yeah, it seems like you handled the situation pretty well.
- This is a pretty good example of an angry story!
- No wonder you… (highlight truth of their actions somehow)
- I can see why that would make you/him angry.
- From what you’re saying, it seems like you acted in a reasonable/fair/mature way.
- Other people often usually feel/see like you did.
- Do you think other people would feel the same way? (agree with them that they would)
- Do you think you would probably feel the same way if it happened again now? (agree)
- Are there other explanations for that? Oh yeah, well that makes sense too.

End prompt: “Well thank you for sharing that with me. We’re almost the end of the study, so will you please fill out these two surveys?”
Invalidation Script

You should immediately begin the invalidation script once the task is over. Position yourself, remaining seated, so that you are near the participant, facing them (with them facing you). Begin with:

- Starter prompt: **Now I’m going to ask you about what you just completed. Can you tell me what you wrote about just now?**

Once they reply/begin to reply, say

“Really? That doesn’t really seem like something to get (that) upset about.”

(If they don’t report any negative feelings, ask them if there was anything they didn’t like or anything that made them uncomfortable. Then proceed off of that. )

They may try to defend/explain their feelings, to which you reply:

“That’s just a really unusual response. Tell me more about why you feel/felt/ that way/ think the lawyer felt that way.”

Be sure to make faces of surprise to show how strange their emotional responses are.
As they try to explain further, stare off into space/at the clock/write in notebook for a while, then reply with “Wait, what?” when they stop talking. Ask them to repeat what they just said.

At this point, we’re hoping they’re getting a bit flustered/irritated. Follow up with several of the following responses. Pay attention to the time (invalidate for 4 minutes).

- Really? (said negatively)
- That’s not that bad.
- Hmm… (in a way that would make them nervous)
- I’m surprised you feel that way/think he feels that way.
- Well, it seems to me that you’re not angry, you’re just “_____.”
- I haven’t heard those responses before.
- Yeah, you/he could have handled that better.
- Is this the best example that you have?
- No wonder they/ (highlight fallacy of their actions somehow)
- I don’t see why that would make you/him angry.
- But you’re not really sure…
- What you’re saying strikes me as really odd.
- Other people don’t usually feel/see it that way.
- It didn’t really have anything to do with you, did it?
- What do you think it is about you that might make you angry in this situation?
- Do you think other people would feel the same way?
- Are there other explanations for that? Oh yeah, well that makes more sense.
End prompt:  “Anyways, that’s almost the end of the study. The last step now is to fill out these two surveys.