

An Analysis of BIS/BAS Connections to Reactions After Romantic Betrayal

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ABSTRACT - Personality-based inhibition (BIS) and approach (BAS) motivations of 175 college students were studied using survey methods to determine their links to victim reports of positive and negative post-betrayal reactions. In partial support of our hypotheses, results of two MANOVAs indicated that high BIS was associated with reports of more negative psychological and physical consequences after betrayal than low levels of BIS. Specifically, those high in inhibition reported that they had experienced more symptoms of trauma, depression, acute stress, physical symptoms of stress, and embarrassment within one month of being betrayed, and they reported more feelings of unfinished business and less forgiveness at the time of participation than those low in inhibition. BAS, however, was unrelated to negative betrayal reactions, and no interaction between BIS and BAS was observed. Reports of positive post-betrayal reactions were not linked to BAS.

Betrayal has been defined in the literature as “a violation of norms or expectations within a relationship” (Jones & Burdette, 1994). Regardless of the particular type of betrayal experienced, there is much research suggesting that betrayal is associated with stress and other negative interpersonal and psychological circumstances (e.g., Hansson, Jones, & Fletcher, 1990). Indeed, Kowalski and her colleagues (2003) observed that victims of aversive interpersonal situations rated betrayals as among the most aversive they had experienced.

Researchers have observed myriad negative post-betrayal reactions, including depression (Gordon, Friedman, Miller, & Gaertner, 2005; Hansson, Jones, & Fletcher, 1990), embarrassment/humiliation (Petronio, Olson, & Dollar, 1989; Shettel-Neuber, Bryson, & Young, 1978), anxiety and distress (Fehr & Baldwin, 1996), recurring thoughts of the event (Bausmer, 2005), and even physical symptoms (e.g., digestive problems, lack of sleep, etc.; Freyd, Klest, & Allard, 2005), as well as relatively positive post-betrayal reactions, such as forgiveness and other types of psychological resolution (Drinnon, 2000). That same research, however, also has suggested that although betrayal is a common experience, not all individuals perceive and/or react to romantic betrayal in the same ways. Some view it as a highly negative experience; whereas others are hardly phased by the event, thus individuals vary in the extent to which the post-betrayal reactions described above are experienced. Previous studies have suggested that differences in reactions to traumatizing or painful events, such as betrayal, may be linked to personality

dimensions, such as adult attachment styles (Stark & Couch, 2007), personality factors such as neuroticism, agreeableness, and resilience (Bonnano, 2005; Leary & Springer, 2001; Maddi, 1999), and even style of loving (Bausmer, 2005). It is this research which leads us to consider further the role of other personality factors in romantic betrayal experiences. Because of their links to psychopathological and other reactions, as well as some positive emotional experiences and behaviors, we chose to consider the role of personality-based motivational systems of inhibition and approach.

Inhibition and Approach Motivations

Gray (1987) proposed a two-system model of personality-based emotion and motivation. The Behavioral Inhibition System (BIS) is a motivational mechanism associated with feelings of anxiety that causes one to be sensitive to or avoid stimuli associated with aversive consequences. The BIS guides individuals to become generally inhibited when the potential for punishment is present; therefore, in confronting an aversive situation those who are high in inhibition become highly reactive because the BIS is activated. The Behavioral Approach System (BAS; also known as the Behavioral Activation System) is a competing mechanism that drives one toward rewarding stimuli. The BAS operates in tandem with the BIS, and is associated with feelings of hope when the possibility of reward exists. Thus, the BAS is thought to push one toward new experiences in search of pleasure because activation of the BAS leads to positive emotions and behavior initiation.

Several studies have linked the inhibition and approach motivations to negative affect and behavioral tendencies. For example, the BIS is linked in the literature with general negative affect, such as anxiety (Arnett & Newman, 2000), depression (Fowles, 1988), and anger-in responses (Smits & Kuppens, 2005), whereas the BAS generally tends to be linked with less negative affect (Gable, 2006), but disordered behavior patterns (e.g., ADHD, schizophrenia, etc.) in which problems with approach motivation is characteristic. In addition, Gable, Reis, and Elliot (2000) have demonstrated that those high in BIS tend to experience more negative affect in their daily lives as opposed to those high in BAS.

By comparison, little research exists concerning how the BIS and BAS operate in interpersonal relationships. However, a few studies lead us to believe they may play a role in such experiences. For example, previous research has suggested that the BIS is associated with relationship insecurity (Gable, 2006), a focus on negative relational information (Strachman & Gable, 2006), egoistic behaviors (Feeney & Collins, 2003), and low levels of intimacy (Laurenceau, Troy, & Carver, 2005), commitment (Strachman & Gable, 2006), and relational satisfaction (Feeney & Collins, 2003; Gable, 2006). On the other hand, the approach motivation (BAS) has been associated with altruistic behaviors (Feeney & Collins, 2003) and less negative affect about relationships (Gable, 2006), as well as high levels of satisfaction (Gable, 2006), commitment (Strachman & Gable, 2006), and intimacy (Laurenceau, Troy, & Carver, 2005).

Taken together, these studies (as well as other research) suggest that Gray's motivational systems likely play a role in both affective experiences and relational processes. Because previous research has suggested that personality may affect trauma reactions, and because romantic betrayal is a relational issue that often engenders

affective responses, we hypothesized that the BIS/BAS would be associated with post-betrayal reactions in predictable, but different ways. In particular, whereas betrayal is typically viewed as an aversive experience, we hypothesized that high BIS (i.e., BIS activation) would be associated with greater negative post-betrayal reactions than low BIS. However, no differences in BAS levels were expected for such reactions because betrayal is not typically a rewarding stimulus, and no interactions between BIS and BAS were expected. In addition, whereas forgiveness/psychological resolution is often conceptualized as an act of psychologically, and perhaps behaviorally, drawing toward (i.e., approaching) one who has committed an offense, we also expected that forgiveness/psychological resolution would be associated with high BAS. On the other hand, because forgiveness/psychological resolution is thought to be a peaceful, non-threatening state, it was not expected to be related to the BIS. No interactions between BIS and BAS for these positive post-betrayal reactions were expected.

Method

Adult victims of romantic betrayal were recruited from a psychology subject pool. The resulting sample was comprised of 175 college students (96 females and 79 males). The mean age for the sample was 20.7 years, and participant ages ranged from 18-48. The sample was comprised mostly of Caucasians (91.8%), and most participants were raised in rural areas or small towns (65.7%). On average, participants reported betrayals that occurred 2.41 years prior to participation, but reports ranged from betrayals that occurred 1 month prior to 20 years prior to participation ($sd = 32.2$ months). The majority of participants (58%) reported that they had been victims of infidelity, whereas the remaining participants were victims of abandonment, betrayals of information, failures to respect feelings, and illegal offenses.

As part of a larger study, participants reported to the laboratory for a 90-minute individual research session at which the project was described and informed consent was obtained. Participation involved completing a survey which consisted of demographic questions, a measure of personality-based inhibition/approach tendencies, a set of open-ended questions concerning the participant's worst experience as a victim of romantic betrayal, and measures of their positive and negative post-betrayal reactions. These measures are described in more detail below.

Materials

The BIS/BAS Scales (Carver & White, 1994) is a 24-item measure of participants' inhibition (BIS; 12 items) and approach (BAS; 12 items) tendencies. Higher scores on each of these Likert-type scales indicate a greater level of activation for the system being measured. Sample items measuring inhibition tendencies (BIS) include, "I feel worried when I think I have done poorly at something important," and "If I think something unpleasant is going to happen, I usually get pretty worked up." Sample items measuring approach tendencies (BAS) include, "I crave excitement and new sensations" and "When I'm doing well at something I love to keep at it."

The Betrayal Narrative (Jones & Burdette, 1994) begins with an open-ended item that asks participants to describe in detail their worst experience as a victim of betrayal, followed by a series of questions concerning the described event in order to gain

information that may not have been provided initially, such as the participant's relationship to the perpetrator, the length of time since the event occurred, etc. Using this instrument, participants are free to describe any type of event perpetrated by the romantic partner.

Two measures were used in the study to assess post-betrayal trauma reactions. The two instruments both were included because they measure different types of reactions. The Trauma Symptoms Checklist (TSC-40; Briere & Runtz, 1989) is a 40-item Likert-type measure of commonly cited trauma symptoms, including dissociation, anxiety, depression, sleep problems and sexual problems. The revised Impact of Events Scale (Weiss & Marmar, 1997) is a 22-item Likert-type measure of trauma symptoms, including intrusive thoughts (8 items), avoidance of reminders (8 items), and hyperarousal (6 items) following a particularly distressing event. In both cases, the instruments were administered with revised instructions to reflect symptoms experienced within one month after the betrayal experience. Higher scores on each of the measures indicate that one experienced the trauma symptom being measured to a greater extent.

The Mental and Physical Health Symptom Checklist (MPHSC; Couch & Olson, 2003) is a 45-item checklist that was designed to assess recalled symptoms of depression and acute stress, as well as any physical symptoms experienced within one month after betrayal. The symptoms include those listed in the DSM-IV for depression and acute stress, as well as commonly identified physical and mental reactions to stress. Scores for each subscale represent the number of symptoms that are endorsed by the participant, so that higher scores indicate recollections of greater symptoms after betrayal. The measure includes 17 symptoms of depression (e.g., insomnia, loss of energy, depressed mood most of the day each day, feelings of hopelessness and worthlessness, etc.), 17 symptoms of acute stress (e.g., feelings of frenzy, recurrent memories of the betrayal or event, focusing on symbols that remind you of the betrayal, avoidance of things associated with the event, excess stress, etc.), and 11 physical symptoms which are commonly noted reactions to stress (e.g., nausea, diarrhea, muscle tension, headaches, trembling or shaking, etc.).

The Betrayal Embarrassment Scale (Couch & Kelly, 1999) is comprised of 15 items that are used to measure the amount of embarrassment one recalls feeling over being betrayed within the one-month period after the experience, as well as 7 filler items. High scores on the Likert-type instrument indicate a high level of embarrassment about the betrayal. Sample items include, "I felt humiliated in front of other people who I thought might know about the betrayal" and "I felt worried that other people thought I was a fool."

The Acts of Forgiveness Scale (Drinnon, 2000) was designed to measure the degree to which a respondent has forgiven another person for a specific offense, which in this case is the betrayal described during the Betrayal Narrative. The instrument is a 45-item Likert-type scale on which higher scores indicate greater forgiveness. Sample items include, "I still have an emotional reaction when I think about it" (reverse-coded), "When I think about what the person did to me I no longer feel hurt," and "I don't know if I will ever get over it" (reverse-coded). Participants were asked to complete the measure with reference to how they felt at the time of participation.

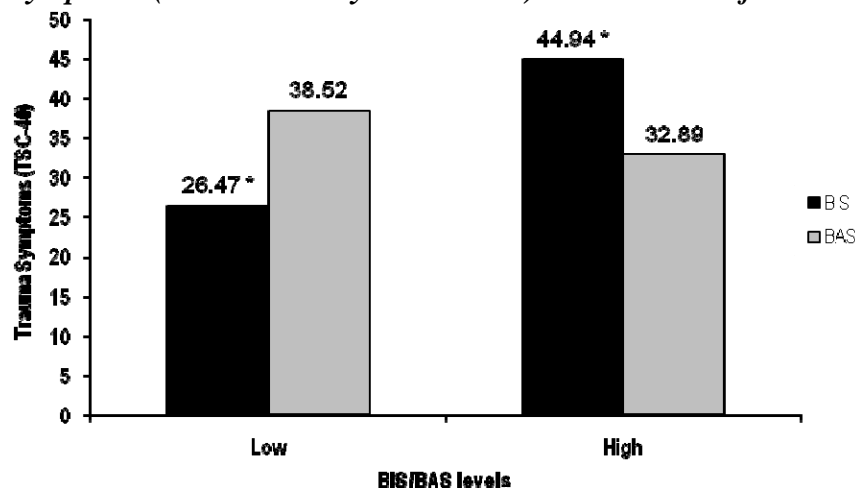
Finally, the Unfinished Business Resolution Scale (Singh, 1991) is a 12-item measure of the extent to which participants feel that they still have unresolved feelings or business to deal with concerning an event in their lives (i.e., the betrayal). Higher scores on the Likert-type scale indicate that the participants still have more psychological “unfinished business” to deal with regarding the betrayal (i.e., they have not yet achieved psychological resolution). Sample items include “I feel unable to let go of my unresolved feelings about the person who betrayed or hurt me,” “I am comfortable about my feelings in relation to the person who betrayed or hurt me” (reverse-coded), and “I have come to terms with not getting what I want or need from the person who betrayed or hurt me” (reverse-coded). Participants also were asked to complete this measure based on how they felt at the time of participation.

Results

Based on a median split technique, participant scores on both BIS and BAS were dichotomized into high vs. low groups. Using this technique, 14 participants were excluded from further analyses because they scored directly at the median on either the BIS or the BAS. The remaining analyses were conducted on 161 participants.

In the first set of analyses to test our hypotheses, a 2 X 2 MANOVA (high vs. low BIS X high vs. low BAS) was conducted using the negative post-betrayal reactions as dependent variables. Significant results were evaluated using Wilk’s criteria. As expected, this analysis revealed no main effects for BAS [*Multivariate F* (6, 152) = 0.55, *p* = .77], and no interactions between BIS and BAS [*Multivariate F* (6, 152) = 1.95, *p* = .08]. However, as predicted, main effects were observed for BIS such that those with high BIS reported more negative post-betrayal reactions than those with low BIS, *Multivariate F* (6, 152) = 5.84, *p* < .001. Univariate analyses then were conducted to explore the main effect further.

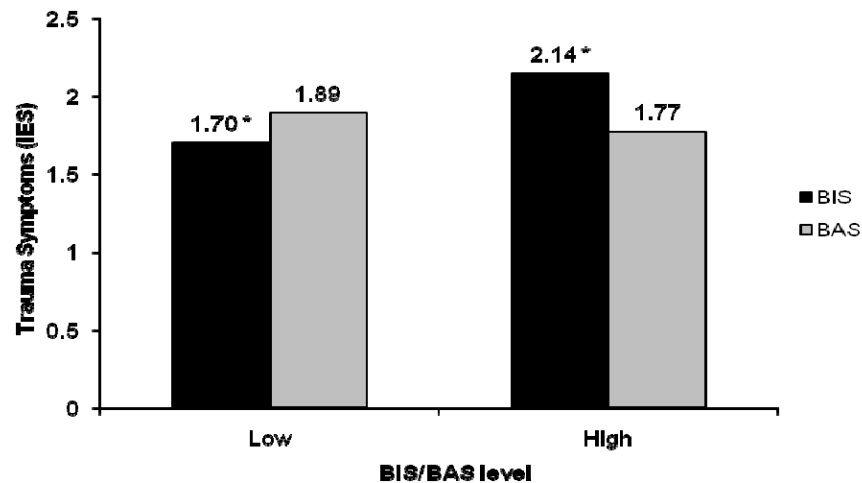
Figure 1
Trauma Symptoms (as measured by the TSC-40) as a Function of BIS/BAS Levels



As can be seen in Figures 1 and 2, univariate analyses of post-betrayal trauma reactions indicated that those with high levels of inhibition reported greater trauma

symptoms following betrayal than those who were low in inhibition [$F(1, 157) = 27.73$, $p < .001$ for the trauma symptoms measured by the TSC-40; $F(1, 157) = 24.18$, $p < .001$ for the trauma symptoms measured by the IES]. Figures 1 and 2 also show that no differences were observed in post-betrayal trauma reports for those high vs. low in approach motivation [$F(1, 157) = 2.58$, $p = .11$ for the TSC-40; $F(1, 157) = 0.89$, $p = .35$ for the IES], and no interactions between inhibition and approach were observed for post-betrayal trauma reports [$F(1, 157) = 0.01$, $p = .94$; for the TSC-40; $F(1, 157) = 0.07$, $p = .79$ for the IES].

Figure 2
Trauma Symptoms (as measured by the IES) as a Function of BIS/BAS Levels



Univariate analyses of major depression also suggested that those high in inhibition reported more post-betrayal symptoms than those with low levels of inhibition (see Figure 3), $F(1, 157) = 13.13$, $p < .001$. No differences, however, were observed in the number of depression symptoms reported between those high vs. low in the approach motivation [$F(1, 157) = 0.74$, $p = .39$], and no interaction was observed between BIS and BAS for depression [$F(1, 157) = 1.54$, $p = .22$].

Univariate analyses also were conducted to assess further the link between BIS and reports of post-betrayal acute stress symptoms. As can be seen in Figure 4, results indicated that those high in inhibition reported more symptoms of acute stress than those low in inhibition, $F(1, 157) = 14.81$, $p < .001$. Figure 4 also shows, however, that no differences in high vs. low approach motivation [$F(1, 157) = 0.77$, $p = .38$], and no interactions between BIS and BAS [$F(1, 157) = 2.80$, $p = .10$], were observed for reports of post-betrayal acute stress symptoms.

In addition, results revealed that the number of physical (stress-related) symptoms reported by participants was related to their levels of inhibition (see Figure 5). Univariate analyses suggested that those high in BIS reported a larger number of post-betrayal physical symptoms on average than those low in BIS, $F(1, 157) = 14.19$, $p < .001$. And, as also can be seen in Figure 5, these differences were not observed for high vs. low approach motivations [$F(1, 157) = 0.37$, $p = .54$], and no interactions between BIS and

BAS were observed for reports of post-betrayal physical symptoms [$F(1, 157) = 2.22, p = .14$].

Figure 3
Major Depression Symptoms as a Function of BIS/BAS Levels

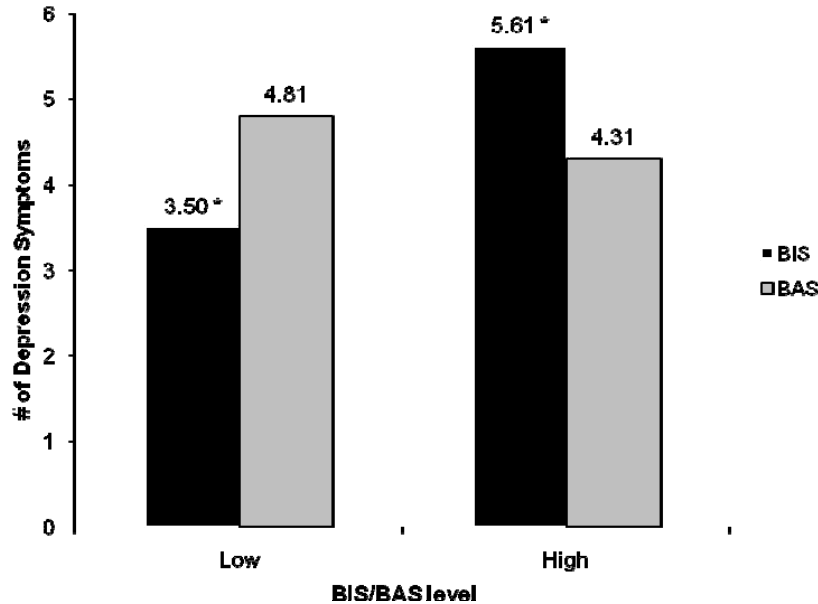
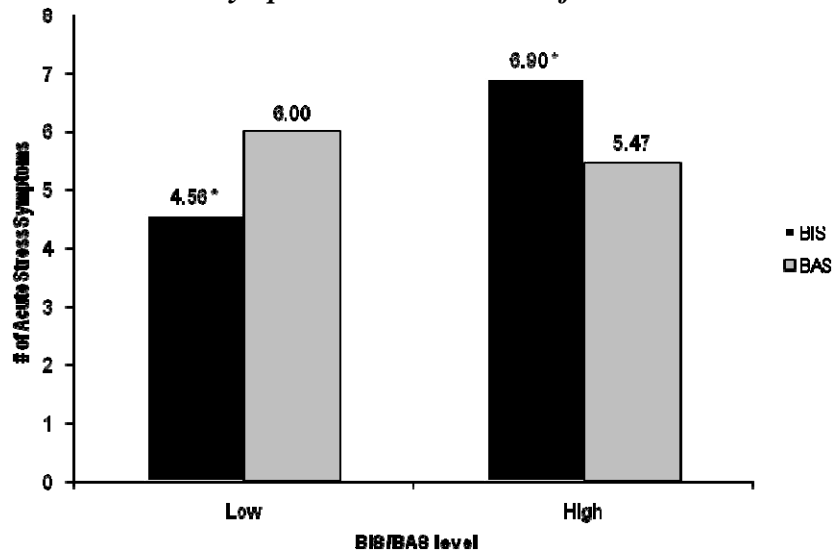


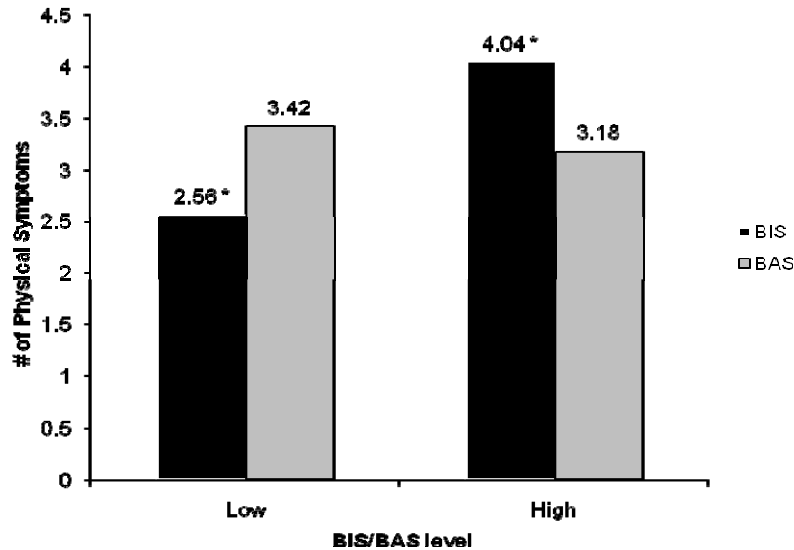
Figure 4
Acute Stress Symptoms as a Function of BIS/BAS Levels



Finally, univariate analyses of post-betrayal embarrassment also suggested that those high in inhibition reported more post-betrayal embarrassment than those with low levels of inhibition (see Figure 6), $F(1, 157) = 22.14, p < .001$. No differences, however, were observed in reports of post-betrayal embarrassment for those high vs. low in the approach

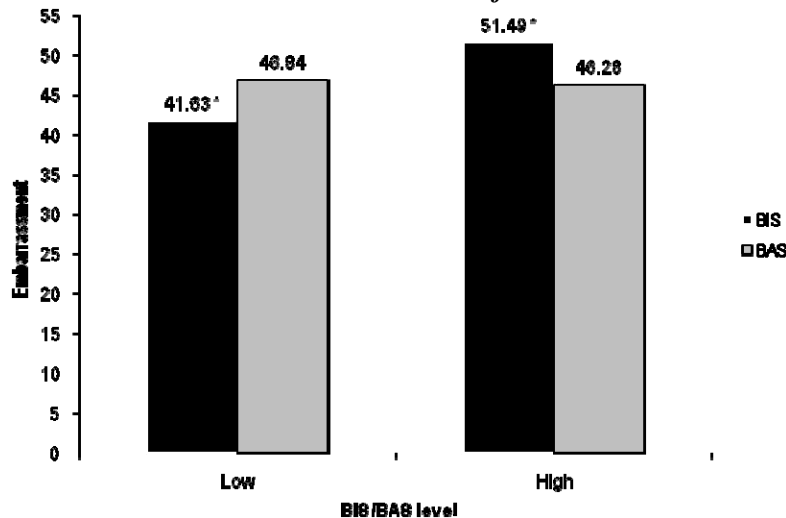
motivation [$F(1, 157) = 0.07, p = .79$], and no interaction was observed between BIS and BAS for embarrassment [$F(1, 157) = 3.52, p = .06$].

Figure 5
Stress-related Physical Symptoms as a Function of BIS/BAS



In a second set of analyses, a 2 X 2 MANOVA (high vs. low BIS X high vs. low BAS) was conducted using the measures of psychological resolution as dependent variables. Significant results for these analyses also were evaluated using Wilk's criteria.

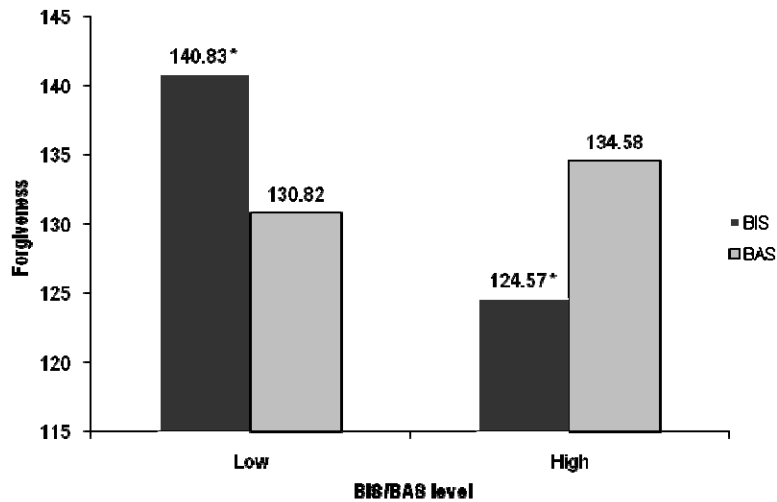
Figure 6
Embarrassment as a Function of BIS/BAS Levels



Contrary to what had been predicted, results indicated no significant main effects for BAS [*Multivariate F* (2, 159) = 0.85, $p = .43$], and no significant interactions between BIS and BAS were observed for psychological resolution [*Multivariate F* (2, 159) = 1.42, $p = .25$]. However, a significant main effect for BIS was observed, *Multivariate F* (2,

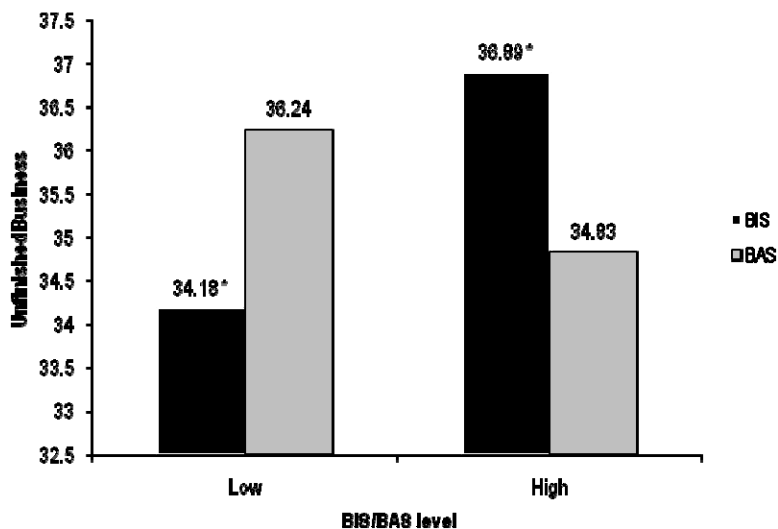
159) = 5.12, $p < .01$, such that those with high BIS reported less psychological resolution than those with low BIS. Univariate analyses then were conducted to explore the main effect further.

Figure 7
Forgiveness as a Function of BIS/BAS Levels



As can be seen in Figure 7, univariate analyses of post-betrayal forgiveness indicated that those with high levels of inhibition reported less forgiveness at the time of participation than those who were low in inhibition, $F(1,160) = 10.04$, $p < .01$. Figure 7 also shows (as discussed above) that no differences were observed in reports of forgiveness for those high vs. low in approach motivation [$F(1, 160) = 0.54$, $p = .47$], and no interactions between inhibition and approach were observed for forgiveness [$F(1, 160) = 1.10$, $p = .30$].

Figure 8
Feelings of Unfinished Business as a Function of BIS/BAS Levels



Univariate analyses also suggested that those high in inhibition reported more post-betrayal feelings of unfinished business than those with low levels of inhibition (see Figure 8), $F(1, 160) = 6.14, p < .05$. As mentioned above, however, no differences were observed for reports of unfinished business feelings between those high vs. low in the approach motivation [$F(1, 160) = 1.68, p = .20$], and no interaction was observed between BIS and BAS for unfinished business feelings [$F(1, 160) = 2.84, p = .09$].

Discussion

In support of our hypotheses, high levels of BIS were linked to reports of greater negative post-betrayal reactions than low levels of BIS; however, BAS was unrelated to reports of such reactions. On the other hand, our predictions about the links between BAS and positive post-betrayal reactions, such as forgiveness and low levels of unfinished business, were not supported. In fact, although we had predicted no specific relationship between inhibition tendencies and psychological resolution indexes, low levels of BIS were associated with reports of forgiveness and less unfinished business at the time of participation.

These data appear to be consistent with previous research linking inhibition and approach tendencies to relationship processes in predictable ways, and they appear to add more evidence that personality factors are linked to reactions following unpleasant or threatening events. However, it remains unclear from this research whether the results we observed are particular to the experience of romantic betrayal, or whether they apply to the experience of many relational phenomena. Future research on the topic is necessary to investigate this point. It also is unclear why our predictions concerning forgiveness/psychological resolution were not supported. Indeed, further investigation of the topic of forgiveness/psychological resolution may be warranted in light of our findings because they suggest forgiveness/psychological resolution may be more about lacking inhibitions than approaching the perpetrator of an offense per se.

We believe that our results have potential application to clinical/counseling cases involving clients who are victims of romantic betrayals. In particular, therapists may benefit from knowing clients' inhibition tendencies as they assess their risks for developing post-betrayal anxiety, depression, embarrassment, physical problems, and trauma reactions. Therapists also may gain benefits in their design of therapeutic interventions which encourage psychological resolution and forgiveness when they know their clients' inhibition levels. To fully take advantage of these benefits, however, we believe future studies investigating the links between BIS/BAS and post-betrayal reactions should utilize more diverse samples.

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