

Trauma and Negative Underlying Assumptions in Feelings of Shame: An Exploratory Study

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Shame is a common, although understudied, reaction to trauma. It is associated with numerous negative outcomes after trauma including emotional distress and health problems. Using a mixed experimental and correlational design, this study explored the association between trauma exposure, negative underlying assumptions (NUAs; attitudes such as “If I make a mistake, it means I am a bad person”), and feelings of shame. Our objectives were (1) to examine the association between trauma history and NUAs, (2) to examine the effects of trauma history and NUAs on shame in response to negative or positive feedback, and (3) to provide incremental evidence of validation for the Shame Posture Measure. After participants completed self-report questionnaires assessing NUAs, trauma history, and shame, they completed a short problem set and were randomly assigned to receive positive or negative feedback on their work. Changes in state shame were examined after feedback. We found that: (1) participants who scored high on NUAs were much more likely to have experienced a traumatic event than were people with low NUA scores; (2) people with high NUAs and with a history of at least one traumatic event were much more likely than any other group to experience shame in response to negative feedback; (3) the Shame Posture Measure demonstrated evidence of validity for measuring state shame. We discuss clinical implications of the finding that the unique combination of NUAs and having experienced at least one psychological trauma creates a strong vulnerability to shame.

Keywords: shame, self-conscious emotion, psychological trauma, underlying assumptions, dysfunctional attitudes

Herman (2008) recently highlighted that, although researchers are beginning to understand the fear response to traumatic events, relatively little is known about shame, “an equally powerful, contagious, and potentially toxic emotion” (p. 299). In contrast to guilt, shame has been implicated in emotional distress (Whiffen & MacIntosh, 2005), posttraumatic stress disorder (PTSD) symptoms (Feiring, Taska, & Chen, 2002; Leskala, Dieperink, & Thuras, 2002), physical health problems (Dickerson, Gruenewald, & Kemeny, 2004), and suicidality (Wilson, Drozdek, & Turkovic, 2006) after traumatic events. As shame has been shown to predict negative traumatic sequelae, it is crucial to identify factors related to shame experience in trauma survivors. This study aims to examine the association between negative cognitions and trauma history, and to investigate whether trauma history and/or negative cognitions may make people more likely to feel ashamed in response to feedback on an academic task.

Negative Underlying Assumptions

Cognitive theory (Beck, 1979, 1995) posits that the association between a situation and emotional distress is mediated by cogni-

tive interpretation of the situation. It is proposed that early life stress leads to the development of core beliefs of the self as unlovable or incompetent, which in turn predisposes the individual to experience thinking errors in the context of day-to-day stressors (Beck, 1979, 1995). For example, a young adult who was repeatedly called “lazy” and “stupid” by a primary caregiver may be more likely to endorse a core belief of incompetence and think “I will never get this right,” during an academic task. Core beliefs and situational automatic thoughts are proposed to be mediated by “intermediate beliefs” (Beck, 1995) that tend to take the form of “if, then” statements (e.g., “If I do not do everything perfectly, it means that I am stupid”). As long as the individual is able to meet the conditions necessary for self-acceptance, negative automatic thoughts may be kept at bay. Thus, the more rigid the conditions associated with intermediate beliefs, the more likely the development of extreme compensatory strategies (e.g., perfectionism) and psychopathology.

Intermediate beliefs are often referred to in the literature as both “dysfunctional attitudes” (Weissman & Beck, 1978) and “negative underlying assumptions” (NUAs; Beck, 1979). We prefer the latter as we believe that even very negative attitudes may be quite adaptive in the face of ongoing trauma. For example, a child’s rigid belief, “If I make a mistake, I am worthless,” may be functional in the case of ongoing abuse occurring whenever the child makes a mistake. That is, the internally driven avoidance of mistakes may prevent the child from being beaten thereby facilitating survival. NUAs are likely to be less adaptive when the relationship with the perpetrator has ended. Nonetheless, we find

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the term “underlying assumptions” to be less pathologizing and thus prefer it to “dysfunctional attitudes.”

Although cognitive theory and related research have primarily focused on underlying assumptions as a risk factor for depression, there is reason to believe that these negative beliefs may also play a role in posttraumatic distress. In Janoff-Bulman’s “Shattered Assumptions” (Janoff-Bulman’s 1992), she proposes that posttraumatic distress results when a traumatic event violates the individual’s basic assumptions of the world as benevolent, the world as meaningful, or the self as worthy (p. 6). Unlike both Aaron and Judith Beck, Janoff-Bulman pays less attention to intermediate conditional beliefs. Instead, when she refers to “shattered assumptions,” she means shattered schemas of the self and/or world; what cognitive theory refers to as “core beliefs.” A large body of work suggests that the traumatic violation of positive schemas does in fact lead to symptoms of posttraumatic distress (e.g., Rodríguez-Muñoz, Moreno Jiménez, Sanz Vergel, & Garrosa Hernández, 2010; Park, Mills, & Edmonson, 2010).

Janoff-Bulman (1992) contends that whereas people’s fundamental beliefs about self and the world are ordinarily very resistant to change, traumatic events have the potential to abruptly invalidate previously held beliefs. According to Janoff-Bulman, successful recovery from trauma must involve the gradual integration of beliefs and worldviews that incorporate both the reality of the traumatic event and the possibility of self-worth and safety. Until this integration occurs, schemas may be tenuous and prone to repeated shattering. After trauma, NUAs may develop for some survivors who have not been able to completely repair shattered beliefs. For this reason, we expect people with a history of at least one traumatic event to be more likely to endorse high levels of NUAs compared to people without a trauma history.

Shame-Proneness

Lewis (1995) dismantles shame into its state, expression, and experience. According to Lewis, the shame state involves a specific physiological response involving mental confusion and intense pain that can occur with or without the shamed person’s awareness. Lewis describes shame expression as the external manifestation of the shame state including a downward gaze and slumped posture. Lewis identifies two forms of shame experience; subjective experience occurs outside of conscious awareness and involves the body’s regulation of shame states, whereas objective experience involves conscious reflection on the shame state.

Drawing upon attribution work, Lewis’ model proposes that the shame state arises when (1) individual standards are internalized through a process of acculturation to external norms, (2) the self perceives that the self has failed to live up to the internalized standards, (3) attributions for the failure are internal, and (4) attributions for the failure are global. When all of these conditions are met, the evaluation of the self becomes completely consuming, often triggering the desire to hide or disappear to get rid of the pain (Lewis, 1995).

Chronic shame research either focuses on shame as a relatively stable personality characteristic (e.g., Andrews, Brewin, Rose, & Kirk, 2000) or as a dispositional tendency to enter a shame state as a result of relevant stressors. The latter chronic shame construct, referred to as shame-proneness, is more in line with Lewis’ (1995) framework, and more amenable to experimental manipulation. For

these reasons, we chose to investigate shame-proneness in the current study.

Negative Assumptions and Shame-Proneness Both Contribute to Posttraumatic Distress

Much research has supported a connection between negative self-related cognitions and trauma-related symptoms (e.g., Kaysen, Scher, Mastnak, & Resick, 2005; Wenniger & Ehlers, 1998;). Browne and Winkelman (2007) found negative self-cognitions in people with a history of childhood abuse to be strongly associated with trauma symptoms in adulthood. They concluded that the insidious effects of childhood trauma on the self may be maintained by a maladaptive cognitive style.

A separate body of work has also linked shame-proneness to the development of psychopathology after trauma (e.g., Feiring & Taska, 2005; Leskala et al., 2002). However, research examining the effect of negative cognitive styles on shame experience is lacking. As the experience of shame by definition involves reflection on the worth of the self (Lewis, 1995), the integration of these two lines of research has the potential to advance the field of traumatic stress. The current study aims to shed light on high NUAs as they relate to proneness to shame in trauma survivors.

Proposed Link Between Shame-Proneness and NUAs

Underlying assumptions are relevant to Lewis’ definition of shame in that internalized standards are akin to conditions of self-worth embedded in underlying assumptions. For example, in the underlying assumption, “If I make a mistake, it means that I am stupid,” the individual endorses the value of being intelligent, and then places the blame on her entire self for violating that value by making a mistake. As mistakes are an inevitable part of the human condition, the individual should repeatedly find herself meeting Lewis’ criteria for entering a shame state as her fragile schema of self-worth is repeatedly shattered. Thus, we expect individuals endorsing high levels of NUAs to be more prone to shame after a relevant stressor compared to individuals endorsing low levels of NUAs.

Shame Measurement

Because the shame state may occur without the person’s awareness (Lewis, 1995), self-report measures of shame are limited in that they may only accurately capture the presence of a shame state in individuals with a higher degree of objective self-awareness. Tangney and Dearing (2002) also highlight the difficulty that college students and even psychological “experts” have articulating shameful feelings with words. Specifically, they argue that the terms “guilt” and “shame” are often used interchangeably when, in fact, shame and guilt are closely related, yet distinct emotional constructs.

Researchers have supported Lewis’ (1995) contention that the shame expression involves a downcast gaze and slumping posture (Clark & Wells, 1995; Keltner, 1995; Keltner, Young, & Buswell, 1997). In addition, bodily expression of shame is likely innate, albeit purposefully constrained in individualist cultures (Tracy & Matsumoto, 2008). Because of the difficulties associated with relying on self-report of shame experience we decided to use a

relatively novel method of measuring shame in the current study created to minimize the problems associated with verbal self-report of state shame. Feiring and Taska (2005) created a measure of shame called the Shame Posture Measure (SPM) that uses drawings of shame postures and allows participants to rate to what degree each posture represents how he or she currently feels. The authors of the SPM found good concurrent validity with four verbal items measuring trauma-related shame in a sample of youth who had experienced sexual trauma ($r = .72, p < .0001$). Although there is currently no "gold-standard" shame measure against which to assess validity of the SPM, we aim to add incremental evidence of validity to this promising measure.

Aims and Hypotheses

The goals of the current study were (1) to examine the association between trauma history and NUAs, (2) to examine the effects of trauma history and NUAs on shame in response to negative or positive feedback on an academic task in a sample of college students, and (3) to provide incremental evidence of validation for the SPM, one of few existing measures of state shame. Lewis (1995) argued that to elicit shame, an event must tap into a core element of perceived self. Because the study uses a college student sample, we chose to present feedback after a problem set comprised of verbal and mathematical items to involve participants' sense of self as success or failure as students.

In regard to our first research goal, we hypothesized that individuals with a history of at least one traumatic event would endorse higher levels of NUAs compared to individuals without a history of trauma. Regarding our second goal, we hypothesized that higher levels of NUAs would lead to increased feelings of shame after negative feedback and decreased feelings of shame in response to positive feedback on an academic task for people with and without a history of trauma.

Our third goal was to examine the construct validity of the SPM with a college student sample. Although Feiring and Taska's (2005) study provided evidence of validity in youths, before the current study, the SPM had not yet been validated with a college student sample to our knowledge. We predicted good convergent validity between the SPM and the State Shame and Guilt Scale (SSGS; Marschall, Saftner, & Tangney, 1994). We predicted that divergent validity would also be demonstrated between the SPM and all subscales (depression, anxiety, sleep, sexual symptoms, and dissociation) of the Trauma Symptom Checklist (TSC; TSC40-t; Briere & Runtz, 1989). We predicted that divergent validity may or may not be demonstrated from the guilt subscale of the SSGS, as guilt and shame may be difficult to disentangle with the use of verbal measures (Tangney & Dearing, 2002).

In addition to examining evidence of convergent and divergent validity of the SPM, the current study will provide evidence of construct validity if the experimental manipulation is successful. In accordance with Lewis' (1995) conceptualization of shame, individuals with high NUAs are expected to experience significant changes in shame after feedback on an academic task. Borsboom, Mellenbergh, and Heerden (2004) propose that a test is valid for measuring an attribute if the measurement outcome is changed because of changes in the attribute. Thus, if the SPM is valid for detecting changes in shame, it would be expected to detect changes after the shame manipulation.

Method

Participants

There were 306 undergraduate students (104 men, 202 women) in psychology and linguistics classes at the University of Oregon who participated in partial fulfillment of a course requirement. Participants did not self-select into the study based on knowledge of the content; rather, participants were selected into the study based on schedule availability from a large human subject pool. There were no exclusion criteria.

The majority of the sample identified as White ($n = 242$), followed by Asian ($n = 17$), Asian American ($n = 17$), Hispanic ($n = 11$), Black ($n = 9$) and other ($n = 10$). Age and date of birth were omitted from the demographics form to protect confidentiality (it may be possible to identify a nontraditional student by his or her age). However, the average age range for University of Oregon SONA participants is 17 to 55, with a mean age of 20.8.

Participants completed the entire study online from computers of their choosing, at any time of their choosing, at some point during the academic term. Consent forms appeared on the screen and participants were asked to click "I agree" or "I do not agree" before moving on. At any time participants could press an "exit now" button and have their answers deleted. The consent procedures explained that the computer program assigned a random number to their study responses and that there was no way of linking individuals' identity with their data.

Materials

Demographics

Participants' sex, ethnicity, country of birth, number of siblings, religion, and sexual orientation were assessed in a brief demographics questionnaire.

Shame Posture Measure (SPM; Feiring & Taska, 2005). The SPM comprises five drawings of figures in a shame posture and two in a neutral posture. Participants are asked to rate the extent to which they feel each drawing depicts current feelings using a 5-point scale. The total shame score is a sum of the responses from the five shame drawings. The original alpha coefficient in Feiring and Taska's scale was .92 demonstrating good internal consistency (Feiring & Taska, 2005). Posture 2 and Posture 5 on the SPM are neutral postures. The original authors of the SPM stated that the neutral postures could be subtracted from the total SPM score to enhance the sensitivity of the measure to differences in shame. In the current study, there were a large number of participants scoring a 0 on the SPM at baseline. Subtraction of the neutral posture scores from SPM scores of 0 would have resulted in negative shame scores. Because of the difficulty of interpreting negative shame scores, we decided not to include the neutral postures in the SPM scoring.

Dysfunctional Attitudes Scale. The 40-item Dysfunctional Attitudes Scale (DAS; Weissman, 1979; Weissman & Beck, 1978) is a measure of underlying assumptions thought to serve as vulnerability factors for clinical symptomatology. Evidence of reliability and validity in college student and adolescent samples has previously been provided (e.g., Dobson & Breiter, 1983; Prenoveau et al., 2009; Weissman, 1979). The factor structure of the

DAS was evaluated by Cane and colleagues (1986) who found that approximately 61% of the variance was accounted for by two factors, labeled Performance Evaluation and Approval by Others. A sample item for the Performance Evaluation subscale is, "It is difficult to be happy unless one is good-looking, intelligent, rich, and creative. An example from the Approval by Others subscale is, "I cannot be happy unless most people I know admire me."

Brief Betrayal Trauma Survey. The Brief Betrayal Trauma Survey (BBTS; Goldberg & Freyd, 2006) is a 14-item, behaviorally defined, self-report measure. Items distinguish between non-interpersonal events (e.g., a major car accident) and interpersonal events perpetrated by someone close or not close (e.g., assault). Each item is assessed before age 12, at ages 12 to 17, and age 18 or older. For each event, the participant is asked to respond yes or no according to whether or not the event ever happened to him or her. Construct validity has been demonstrated based on agreement between traumatic events endorsed on the BBTS and an existing trauma inventory (DePrince, 2001). The BBTS has been used in research investigating issues such as trauma disclosure (Foyne, Freyd, & DePrince, 2009), revictimization (Gobin & Freyd, 2009), and borderline personality disorder (Kaehler & Freyd, 2009).

The State Shame and Guilt Scale. The SSGS (Marschall, Saftner, & Tangney, 1994) is a self-rating scale of current (state) feelings of shame, guilt, and pride. Fifteen items (five for each subscale) are rated on a 5-point Likert scale. Examples of shame items include, "I want to sink into the floor and disappear" and "I feel like I am a bad person." In Marschall et al.'s study, participants reported higher levels of shame after a shame induction, as compared to nonshamed control participants. Participants who were shamed also reported higher levels of guilt than did control participants.

Trauma Symptoms Checklist 40, Time Bound. Trauma Symptoms Checklist 40, time bound (TSC40-t; Briere & Runtz, 1989) is a 40-item checklist, assessing symptoms commonly associated with the experience of traumatic events. Participants are asked to rate whether they experienced each symptom with a frequency from 0 ("never") to 3 ("very often"). The TSC-40 is composed of five symptom subscales: anxiety, depression, dissociation, sexual problems, and sleep disturbances. Sample items include "insomnia," "headaches," and "trouble getting along with others." The total TSC-40-t score is formed by summing responses, for a resulting score falling between 0 and 120, with higher scores indicating greater symptomatology. The original TSC-40 has been shown to have good reliability and validity (Briere & Runtz, 1989; Elliot & Briere, 1992). The TSC was time-bound by Freyd, Klest, and Allard, (2005) such that participants were instructed to report the frequency at which they had experienced each symptom in the past month. In contrast, the original measure by Briere and Runtz (1989) asked participants to report on symptom severity experienced over a longer period of time.

Problem Set and Feedback. In addition to the self-report measures, participants completed a problem set consisting of three math items and three verbal items. This problem set and feedback material were created for this study. For each of the verbal items and the math items there was one easy question, one question of moderate difficulty and one very difficult question. Participants were randomly assigned to be shown either positive feedback

("Excellent work") or negative feedback ("Your work needs improvement") after completion of the problem set.

Procedure

All participants completed the study online via SONA systems. Participants completed all measures in the following (fixed) order: Demographics, SPM, BBTS, DAS, and TSC. After the series of questionnaires, the problem set appeared on the screen. Participants were randomly assigned to them either see positive feedback ("Excellent work") or negative feedback ("Your work needs improvement"). The SPM was then administered a second time to capture change in state shame after the positive or negative feedback. Finally, participants completed the SSGS.

Upon completion of the study, a debriefing form appeared on the screen. Students were advised to read the debriefing form carefully and print a copy of the form for their personal records. In the event that the student decided to exit out of the study before completion, the debriefing form appeared on the screen at the time of termination. In the event that the sensitive nature of questions regarding participants' victimization history was emotionally upsetting, the debriefing form included contact information for five university and community counseling centers.

Results

Descriptives and Coding for Baseline Shame, Trauma, and NUAs

Scores on the SPM could range from 0 (no shame) to 20 (maximum shame). In this nonclinical sample, almost 75% of the sample ($n = 228$) had baseline shame scores of 4 or lower. Of these, about 33% ($n = 77$) had a total baseline shame score of 0 that was the theoretically lowest possible score. One participant scored 18 and two scored 19 out of a possible maximum of 20. All three of these high-scoring participants happened to be in the positive feedback condition. The distribution of scores was strongly positively skewed. Results focus on the negative feedback condition, as it is difficult to accurately detect decreases in shame in the positive feedback group because of the floor effect present in the baseline SPM scores. Mean baseline shame scores and NUA scores by sex and trauma type are presented in Table 1.

Trauma History

BBTS responses were examined and a dichotomous (yes/no) variable was created for the presence of absence of trauma history. Of the 306 participants surveyed, 215 (71.3%) reported that they had previously experienced at least one traumatic event. Eighty-nine (28.7%) reported never having experienced a trauma. The remaining four participants declined to answer questions regarding trauma history and were not included in the analyses. Of these, 126 participants (41.2%) endorsed experiencing at least one traumatic event involving betrayal by a close other and 136 participants (44%.4) who endorsed experiencing at least one traumatic event not characterized by betrayal by someone close.

Negative Underlying Assumptions

DAS scores were normally distributed. Total DAS scores of participants in the negative feedback group were dichotomized into the

Table 1

Mean Baseline Dysfunctional Attitude Scale (DAS) and Mean Shame Posture Measure (SPM) Scores by Sex and Trauma Type

	Female			Male		
	Trauma type			Trauma type		
	Low betrayal (<i>n</i> = 82)	High betrayal (<i>n</i> = 90)	None (<i>n</i> = 115)	Low betrayal (<i>n</i> = 54)	High betrayal (<i>n</i> = 36)	None (<i>n</i> = 48)
DAS	134.59 (32.67)	133.30 (30.46)	125.99 (29.03)	133.65 (28.13)	135.67 (31.19)	122.58 (28.71)
SPM	4.11 (4.29)	3.71 (3.98)	3.11 (3.33)	3.72 (4.44)	4.17 (5.07)	2.27 (2.85)

Note. DAS = Dysfunctional Attitude Scale; SPM = Shame Posture Measure. Standard deviations in parentheses.

top third (>140 ; $n = 71$) and the lowest third (<109 ; $n = 70$). For the purposes of this study, subjects in the former group are considered high in NUAs and subjects in the latter are considered low in NUAs. Because we used a college student sample rather than a clinical sample, we opted to dichotomize the DAS scores to detect differences between the two ends of the scale. Seven people did not complete the DAS and thus were not included in the analyses.

SPM Validity Testing

Overall, participants experienced an increase in shame after negative feedback, $t(209) = 2.10$, $p < .05$. Although a floor effect was present for the positive feedback group, a repeated measures t test did yield a significant difference for the pre- and postfeedback scores regardless of whether three outliers close to the ceiling were excluded, $t(93) = 2.26$, $p < .05$ or included, $t(96) = 2.53$, $p < .05$. As the feedback was expected to affect levels of state shame, the success of the manipulation in changing SPM scores provides incremental evidence of validity of the SPM in measuring state shame (Borsboom et al., 2004, for discussion of construct validity).

A large difference was found in baseline shame scores between the high NUAs ($M = 5.03$, $SD = 4.27$) and low NUAs ($M = 1.61$, $SD = 2.14$) groups, $t(138) = 5.96$, $p < .001$, partial $\eta^2 = .21$ for participants in the negative feedback condition. A factor analysis including all DAS items and all SPM items was run to ensure that two measures were not actually measuring the same construct. Results revealed that all SPM items loaded onto their own factor and did not overlap at all with DAS item loadings (see Table 2). Thus, incremental evidence of construct validity was provided for the SPM. In the current study, approximately 32% of the variance in NUAs was accounted for by the first three components in the factor analysis. The first two factors consisted primarily of items defined by previous research as belonging to the Performance Evaluation subscale. Items defined by previous research as Approval by Others were spread across six different factors in the current study. Because of the discrepancy in loadings from the Cane et al. study, the current study used a single DAS score combining all 40 items rather than using the two separate subscales suggested by Cane and colleagues.

Convergent validity was demonstrated between the SPM and the shame subscale of the State Shame and Guilt Scale (SSGS; Marschall, Saftner, & Tangney, 1994; $r = .66$, $p < .001$). A significant, but less robust correlation was found with the SSGS guilt subscale ($r = .44$, $p < .001$). A Fisher's r -to- z transformation revealed that the correlation between the SPM scores and the

SSGS shame subscale scores was significantly greater than the correlation between the SPM scores and the SSGS guilt subscale scores ($z_r = 2.29$, $p < .05$). Divergent validity was also demonstrated in the current study via correlation of the SPM with each of the five subscales of the Trauma Symptom Checklist (TSC). Among the subscales (depression, anxiety, dissociation, sleep, and sexual symptoms), the largest correlation was .39 with the anxiety subscale (see Table 3). Thus, although SPM scores do relate to other psychological constructs, they relate much more strongly to a second measure of state shame than to measures of other symptoms and self-conscious emotions.

Traumatic Experiences and NUAs

Crosstabulations were examined for trauma (no/yes) and NUAs (low/high). As expected, a larger proportion of people high in

Table 2

Factor Loadings for Exploratory Factor Analysis With Varimax Rotation of DAS and SPM Items

Scale item	DAS: Approval	DAS: Other	SPM
DAS23, 24, 25, 26, 29, 30, 31, 32, 33, 34, 35, 36	.98		
DAS27, 28, 39, 40	.97		
DAS37	.68		
DAS4, 9, 10		.76	
DAS21		.73	
DAS3		.71	
DAS15		.69	
DAS22		.68	
DAS19		.67	
DAS11, 20		.66	
DAS7		.63	
DAS1		.61	
DAS18		.54	
DAS14		.52	
DAS8, 13		.50	
DAS5		.40	
DAS12		.32	
SPM4			.83
SPM3			.79
SPM2			.77
SPM5			.73
SPM1			.55

Note. Factor loadings $< .30$ not displayed. DAS = Dysfunctional Attitudes Scale; SPM = Shame Posture Measure.

Table 3
Relationship Between Trauma Symptom Checklist (TSC) Subscale Scores, Baseline Shame (SPM), and Number of Traumas Experienced

	1	2	3	4	5	6	7
1. TSC anxiety	—						
2. TSC dissociation	.72***	—					
3. TSC sleep	.77***	.70***	—				
4. TSC depression	.81***	.69***	.83***	—			
5. Baseline shame (SPM)	.39***	.36***	.38***	.36***	—		
6. Number of low betrayal trauma experiences	.22**	.29***	.28***	.26***	.28***	—	
7. Number of high betrayal trauma experiences	.20**	.32***	.28***	.25***	.16*	.48***	—

Note. SPM = Shame Posture Measure. Number of high and low betrayal traumas experienced measured using the Brief Betrayal Trauma Survey (BBTS).

* $p < .05$. ** $p < .01$. *** $p < .001$.

NUAs had a history of trauma when compared to people with low NUAs ($\chi^2(1) = 4.14, p < .05$).

Shame Change After Negative Feedback

To examine the effects of NUAs and trauma history on the shame change scores in response to negative feedback, the data

were analyzed nonparametrically and shame (SPM) scores were recoded dichotomously into those that changed in the expected direction (i.e., increased) and shame scores that did not change in the expected direction. Results revealed a substantial association between the specific combination of trauma history (yes/no) and NUAs (high/low) with the effectiveness of the shame manipulation (increase/no increase), ($\chi^2(3) = 9.85, p < .05, V = .27$). Participants with low NUAs, both with and without a trauma history, were less shamed by the feedback than expected. Participants with high NUAs without a trauma history were about as likely to be shamed by the feedback as expected. Participants with high NUAs and with a trauma history were substantially more likely to be shamed by the negative feedback than expected (see Figure 1).

Discussion

Previous research has demonstrated both negative cognitive styles and feelings of shame lead to higher rates of clinical symptoms after traumatic experiences (Browne & Winkelman, 2007; Feiring et al., 2002). The current study explored the relation between NUAs, experience of trauma, and feelings of shame to determine whether people with higher levels of NUAs are more susceptible to shame after traumatic events. The current study also contributed to the validation of an existing measure of state shame (SPM) with a college student population.

As hypothesized, participants scoring high in NUAs were much more likely to report having experienced a traumatic event than to

Frequency of increase versus no increase in shame following negative feedback

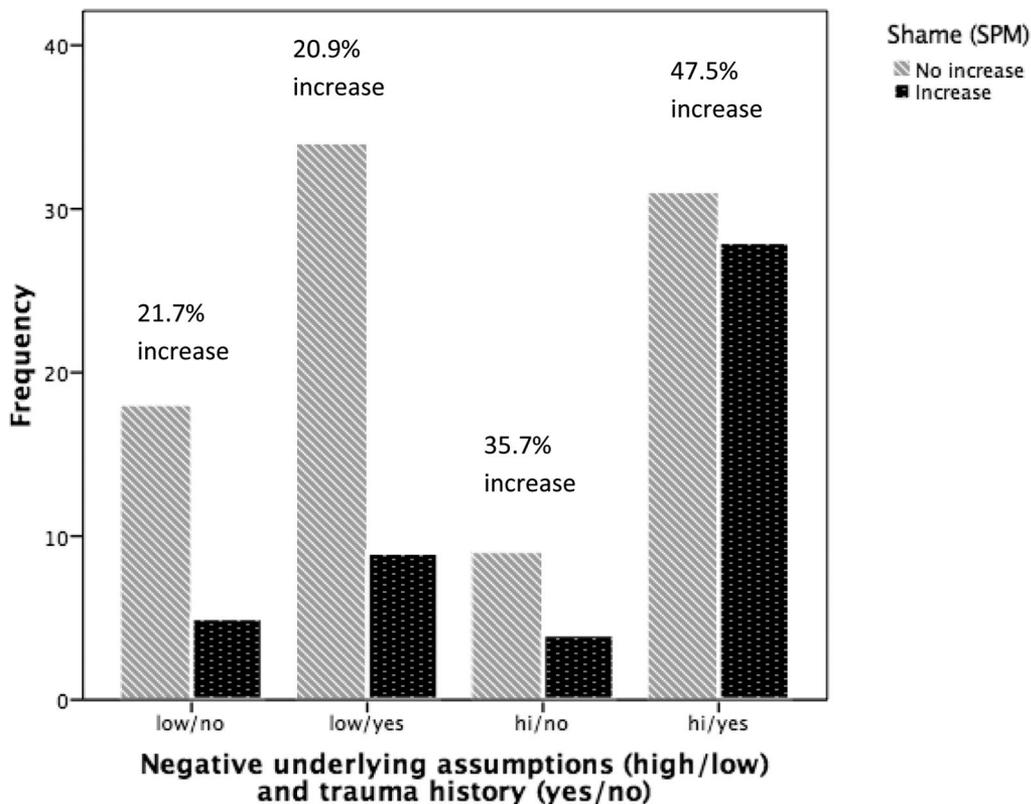


Figure 1. Proportion of participants with increase versus no increase in shame (SPM) scores after negative feedback for each combination of underlying assumptions (high/low) and trauma history (yes/no).

report never having experienced a trauma. This pattern was reversed for people scoring low in NUAs. The association between trauma and NUAs is not novel to the current study. Beck (e.g., 1967, 1976) has theorized that traumatic events directly activate what he refers to as dysfunctional thought processes. Janoff-Bulman's (1992) shattered assumptions theory also indicates that traumatic events have the potential to shatter self-related schemas, thereby rendering them more vulnerable to situational factors.

We also found support for the hypothesis that high NUAs would predict a shame response after negative feedback on an academic task. This finding was expected given that the contingencies of self-worth embedded in NUAs parallel the conditions necessary for a shame response to occur (Lewis, 1995). In addition, we found an unanticipated effect in which the particular combination of high NUAs and having experienced at least one trauma created the strongest vulnerability to an increase in shame after negative feedback. This unexpected result suggests that individuals with both a history of trauma and high NUAs may be particularly prone to feeling globally flawed after relatively minor social-evaluative threat. Future work should investigate whether a kindling effect may occur for trauma survivors whereby subsequent experiences of failure more readily trigger feelings of shame as the sense of the self as worthy becomes more and more easily shattered.

Feiring and Taska (2005) investigated the development of a shame-prone style in a longitudinal study of children who had been sexually abused. They examined the extent to which abuse-related shame predicted generalized shame-proneness in nontraumatic situations 6 years later and found only a very small relation between abuse-related shame and general shame-proneness. The authors recommended that future research assess shame-proneness in contexts relevant to abuse to see stronger relations between abuse-related shame and general shame-proneness. In the current study, the shame manipulation was feedback on an academic task and likely not trauma-relevant for the vast majority of the sample. However, our findings suggest that even trauma-irrelevant shame manipulations may affect traumatized individuals with high NUAs. Future work should consider NUAs as a possible mediating factor in determining why some people develop a general shame-prone style after trauma while others are shamed only in response to trauma-relevant stimuli.

Negative thoughts and attitudes have repeatedly been found to predict adverse mental health outcomes. However, less attention has been paid to the role of functional or healthy thought processes as a potential protective factor after trauma. Results of the current study indicate that individuals who are able to maintain low NUAs after trauma may be resilient to the potentially shaming effects of negative feedback. According to shattered assumptions theory, traumatized individuals can no longer trust their previously held beliefs and as such, may come to believe that they and their meaning systems are flawed. Future work should investigate the factors that may inoculate certain trauma survivors against the effect of shattered assumptions. Peterson, Park, Pole, D'Andrea, and Seligman (2008) examined various domains of posttraumatic growth and found a linear trend for numbers of traumatic events experienced predicting increases in self-reports of qualities including bravery, perspective, creativity, and learning. Additional work may also examine NUAs as a possible negative mediator between trauma and posttraumatic growth.

Limitations

Although the findings from this exploratory study shed some light on the complex association between trauma, underlying assumptions and shame, limits to the results deserve mention. First, power was inadequate to thoroughly explore the role of different types of trauma as they relate to shame. In particular, people who experience traumatic events high in betrayal, such as physical or sexual assault by a caregiver or partner, may be more shame-prone, as the negative self-focus and withdrawal characteristic of shame may facilitate betrayal blindness (e.g., Freyd, 1994, 1996) and help the victim to survive the abusive relationship. It is possible that a betrayal trauma history may potentiate the negative effects of NUAs on shame-proneness. More work is needed to determine the association between shame-proneness, NUAs, and betrayal.

Another limitation is that there was no control for answering trauma questions in this study, so it is difficult to disentangle the effects of answering questions about trauma from the effects of feedback. The fact that shame scores increased in the negative feedback group and decreased in the positive feedback group demonstrates that valence of feedback affected shame. However, it is possible that participants who answer questions about trauma immediately before completing a task (particularly participants who have experienced a traumatic event) respond differently to feedback on the task as compared to people who have not answered questions about trauma.

Freyd et al. (2005) highlighted a false negative problem that occurs when using a survey design to study experience of traumatic events. That is, many participants who have a history of trauma appear to have never experienced a trauma. False negatives can occur when participants forget the trauma, are unwilling to report the trauma, or fail to recognize the event as traumatic. In a review of studies assessing retrospective recall of childhood abuse in adulthood, Hardt and Rutter (2004) concluded that whereas false positives were probably rare, participants were much more likely to report no abuse when abuse did in fact occur. Goldberg and Freyd (2006) argue that false negatives may be an even larger problem when the abusive event involves a close other and so must be considered in betrayal trauma research in particular.

Although the current study contributed to the validation of a relatively novel scale for measuring state shame, more work is needed examining the validity of the SPM. As there is no "gold-standard" measure of state shame, it is difficult to state whether the SPM is in fact capturing the shame state more accurately than the SSGS. We chose to focus on the SPM rather than the SSGS because the SPM is less face valid and therefore does not require objective self-awareness of the shame state. Future work should assess how strongly the predictive ability of both the SPM and SSGS relates to existing measures of shame-proneness (e.g., Test of Self-Conscious Affect; Tangney et al., 2000). Future work should also assess whether the content of the SPM covers the entire breadth of the shame construct or whether additional measures (e.g., salivary cortisol) may enhance measurement of shame.

Finally, the sample consisted of undergraduate students, who were mainly high functioning. As such, baseline SPM scores were low and the positive feedback condition was subject to a floor effect. A replication of this study with community or clinical samples may increase the possible variance in shame change

scores for the positive feedback group. The sample in the current study was also rather ethnically and racially homogenous. Stereotype threat (Steele & Aronson, 1995) may affect the experience of shame, and should be considered when interpreting the responses of members of cultural minority groups to feedback on performance-related tasks.

Conclusion

Although experimental design is often used to explore the nature of emotions, research investigating trauma-related emotions often must rely on correlational methods for ethical and practical reasons. In the current study, we were able to use an experimental manipulation to demonstrate the effects of negative cognitions and reported history of trauma on shame response to negative feedback on an academic task in a college student sample. The simple feedback manipulation (i.e., “Your work needs improvement” or “Excellent work”), presented online, was successful in producing a shame response that was sensitive to moderating variables. Results supported our hypotheses that individuals with a history of at least one trauma would endorse higher levels of NUAs at baseline and that high NUAs would contribute to increase in shame after negative feedback. Finally, we found an unexpected effect that the particular combination of having experienced at least one trauma and having high NUAs rendered individuals more likely than any other group to experience shame after negative feedback. Future work should examine whether a pronounced shame response to these types of rather ordinary social-evaluative stressors predicts the development of harmful psychological and physical posttraumatic sequelae.

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