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Association between shame aversion and ruminative retribution: Evidence for moderation by externalization of blame and control

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Abstract

Shame aversion has been theorized to motivate aggression against the self or others as means of down-regulating shame. Additionally, the direction of aggression may depend on tendencies to attribute blame or causes internally or externally. Data from two separate samples were used to examine shame aversion and its interaction with causal or blame attributions in relation to aggression, controlling for shame-proneness, which is more commonly studied. Results indicated that shame aversion was positively associated with verbal, relational, and passive-rational aggression, as well as with ruminative retribution and non-suicidal self-injury, after accounting for shame-proneness. Most noteworthy, a significant two-way interaction indicated that the association between shame aversion and ruminative retribution (fantasizing about people getting their comeuppance) was particularly strong at high levels of externalization of blame. Findings therefore suggest that although shame-proneness may create situations in which shame regulation strategies are necessary, aggressive fantasies may be used as a regulation strategy when individuals have difficulty tolerating shame and blame others for their circumstances.

Keywords: Shame, Externalization of Blame, Locus of Control, Aggression, Non-suicidal self-injury

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While shame is a universal human experience, individuals differ in their subjective perceptions of the emotion. Those who experience elevated shame aversion (Schoenleber & Berenbaum, 2010) – perceptions of shame as an especially painful and intolerable emotion – have been theorized to be motivated to engage in a variety of emotion regulation strategies as efforts to avoid or reduce their shame (Schoenleber & Berenbaum, 2012). In their model of shame regulation strategies, Schoenleber and Berenbaum (2012) proposed that one form of shame regulation is aggression. Indeed, past theory suggests that shame can sometimes be redirected into anger (e.g., Lewis, 1971; Bateman & Fonagy, 2004; Velotti et al., 2014), and research has demonstrated associations between shame and anger (e.g., Ferguson et al., 2000; Tangney et al., 1992); for example, shaming events contribute to greater feelings of anger among adolescents (Thomaes et al., 2011). This redirection purportedly alters the behavioral response of the person feeling shame, causing behaviors that are more typically associated with anger, such as self-destructive impulsive behavior (e.g., Peters et al., 2014; Cassiello-Robins et al., 2019). Thus, a primary assertion of the Schoenleber and Berenbaum (2012) model of shame regulation strategies was that shame aversion would be associated with aggression.

In particular, this model and prior evidence suggest that other-directed forms of aggression may be used to regulate shame, including acts of physical, verbal, relational, and passive-rational aggression, as well as ruminative retribution (i.e. dwelling on fantasies of others getting their comeuppance). Past studies provide support for relationships between shame and some of these other-directed forms of aggression. For instance, parents' feelings of shame contribute to anger and tendencies to engage in physically and verbally aggressive punishments

toward their children (Scarnier et al., 2009), and shame is associated with verbal aggression toward intimate partners (Harper et al., 2005; Kim et al., 2009). Additionally, in a small sample of men experiencing incarceration, thematic analysis of qualitative interview data revealed that shame was a prevalent emotion and contributed to fantasies of revenge and violence (Falcus & Johnson, 2018). Similarly, in undergraduate samples, higher levels of self-reported shame were strongly associated with self-reported anger rumination, including revenge-planning (Peters et al., 2014; Peters & Geiger, 2016).

In sum, there are already studies indicating that trait-like propensities to experience shame (i.e. shame-proneness; Lewis, 1971) are related to anger and aggression, and as such, shame-proneness was not the focus of the present investigation. However, shame-proneness and shame aversion are distinct concepts, and we are not aware of any study to date that has examined shame aversion in relation to these other-directed forms of aggression (Schoenleber & Berenbaum, 2012). As a propensity or readiness to experience shame, elevations in shame-proneness suggest a greater frequency of shame experiences across situations. By contrast, shame aversion is an attitude about or dispositional reaction to actual or anticipated shame; elevations in shame aversion suggest a desire to avoid the experience of shame. Moreover, to the degree that shame aversion motivates behaviors that successfully (if sometimes maladaptively) reduce shame, the association between shame aversion and shame-proneness may be weakened. Ultimately, while the existing research suggests that shame-proneness may create opportunities to use aggression to down-regulate shame, shame aversion may provide the motivation to actually do so. Thus, the first aim of the present study was to examine the association between shame aversion and the other-directed forms of aggression that may function as shame regulation strategies. A second important aim was to consider whether shame aversion would continue to

be relevant to aggression when accounting for shame-proneness. In other words, does the possible motivating role of shame aversion increase the likelihood of engaging in aggression, over and above general tendencies to feel shame often?

Importantly, the relationship between shame aversion and other-directed aggression may be influenced by an individual's tendency to externalize blame or causally attribute outcomes to other people or the world, rather than to themselves or their own actions. Specifically, it may be that higher levels of externalization of blame would facilitate a stronger relationship between shame aversion and aggressive tendencies. Indeed, greater externalization of blame is associated with anger in response to ambiguous scenarios (Neumann, 2000), and with aggression towards intimate partners (Dutton & Starzomski, 1997; Scott & Straus, 2007). Of particular relevance, across four diverse samples of adolescents and adults, higher shame-proneness was associated with higher externalization of blame, which was subsequently associated with greater physical and verbal aggression (Stuewig et al., 2010). No study yet has examined the interaction between shame aversion and externalization of blame, however, despite the shame regulation model suggesting that externalization of blame may moderate the association between shame aversion and the use of aggression strategies. Importantly, although existing studies have assumed that externalization of blame is a mediator and examined *why* shame-proneness leads to aggression, we did not share that assumption in the case of shame aversion. Rather, we hypothesize that shame aversion is why people engage in a wide variety of behaviors that could reduce the probability, intensity, and/or duration of shame. From our perspective, externalization of blame influences how likely it is that aggression will be among the behaviors chosen because it involves identifying an external target at which the person can direct some of their behavioral response. In other words, we expected that shame aversion would be associated with aggression

and that externalization of blame would influence the strength of that association. Therefore, a third aim of the present study was to examine the possible moderating role of externalization in the potential association between shame aversion and aggression.

In addition to other-directed aggression, Schoenleber and Berenbaum (2012) theorized that some self-directed aggressive behavior also functions as a shame regulation strategy, hypothesizing that shame aversion would also be associated with non-suicidal self-injury (NSSI). A recent meta-analysis revealed relationships for shame with NSSI history (i.e. presence vs. absence) and frequency that were medium-to-large in effect size (Sheehy et al., 2019). As yet, one study to date has examined shame aversion in relation to NSSI, finding that women with a history of NSSI reported higher levels of shame aversion than women with no such history (Schoenleber et al., 2014). However, shame aversion was not significantly associated with the frequency of NSSI. In contrast to other-directed aggression, externalization of blame is not expected to moderate the association between shame aversion and NSSI. Given the self-directed nature of the behavior and its potential self-punitive function (Lloyd-Richardson et al., 2007), the association between shame aversion and NSSI may depend on tendencies to internalize responsibility for outcomes. Thus, a final aim of the present study was to examine the relationship between shame aversion and NSSI in a new sample, as well as to account for shame-proneness and examine internal locus of control as a potential moderator.

In summary, we had four hypotheses. First, we hypothesized that shame aversion would be positively associated with other-directed physical, verbal, relational, and passive-rational aggression, as well as ruminative retribution and self-directed NSSI. Although not a focus of the present study, we also examined the associations of shame-proneness to aggressive acts. Second, we hypothesized that these associations would remain important even when taking shame-

proneness into account. Third, we hypothesized that externalization of blame or control would moderate associations between shame aversion and other-directed forms of aggression after accounting for shame-proneness. Fourth, we hypothesized that internal locus of control would moderate the association between shame aversion and self-directed forms of aggression after accounting for shame-proneness. Drawing from existing datasets from larger research projects that were designed for other purposes, we tested these hypotheses in two samples. We tested all of the above hypotheses related to other-directed aggression in one sample and all of the above hypotheses for physical aggression, ruminative retribution, and NSSI in a second sample.

Method

Participants

Sample 1. A total of 213 undergraduates were recruited from a Midwestern liberal arts college to participate in a larger project focused on differential associations of emotional dispositions to genuine and egoistic forms of altruism. Data from two participants were excluded due to missing responses on our measures of interest. The final sample of 211 participants had a mean age of 19.6 years (SD = 1.8) and was 74.2% cisgender female, 24.4% cisgender male, and 1.4% reporting transgender male or "other." Consistent with the broader composition of the institution, the sample was primarily White (91.5%), followed by 2.4% bi/multiracial, 1.9% Hispanic, 1.9% Asian/Pacific Islander, 0.9% Native American, 0.9% African American, and 0.5% reporting "other."

Sample 2. A community-based sample of 375 participants was recruited for a larger research project aimed at understanding affective factors related to suicidal thoughts and behaviors in an adult U.S. community sample using Amazon's Mechanical Turk (MTurk). Data were excluded for five participants who were missing responses on our measures of interest. The

final sample of 370 participants was 55.1% female (44.6% male, 0.3% "other") and had a mean age of 36.2 years (*SD* = 10.6). The majority were White (75.1%), along with 10.0% Asian/Pacific Islander, 8.1% African American, 5.4% Hispanic, 0.5% Native American, and 0.8% reporting as "Other." Half of the sample had obtained a college degree or higher (50.6%), and 79.2% were employed at least part-time.

Measures

Shame Aversion. In both samples, the tendency to perceive of shame as an especially unbearable emotion was assess using the Shame-Aversive Reactions Questionnaire (ShARQ; Schoenleber & Berenbaum, 2010). The ShARQ includes 14 items (7 reverse-scored), such as "The most painful experience for me is when I recognize my own defects." All items are rated on a 7-point scale of agreement, producing a mean score between 1 and 7. Consistent with past research, the ShARQ had strong internal consistency (ωs = .87 and .93 in Samples 1 and 2, respectively), and the measure has also demonstrated good convergent validity in past work (e.g., Currie et al., 2017; Schoenleber & Berenbaum, 2010; 2012).

Externalization of Blame/Locus of Control. In Sample 1 and Sample 2, we assessed tendencies to blame others and/or circumstances for outcomes using the externalization of blame subscale from the Test of Self-Conscious Affect-3 (TOSCA-3; Tangney et al., 2000). The TOSCA-3 is a scenario-based measure, presenting participants with 16 situations (e.g., "While out with a group of friends, you make fun of a friend who's not there") and asking how likely it is that they would exhibit a response that externalizes blame (e.g., "You would think that perhaps that friend should have been there to defend him/herself.") on a 1 to 5 scale, producing a mean score between 1 and 5. This subscale demonstrated good reliability and validity in prior samples (e.g., Tangney et al., 1992) and good internal consistency in the present study in Sample 1 (ω =

.79) and Sample 2 (ω = .89).

In Sample 2, we additionally assessed internal and external locus of control using the Multidimensional Locus of Control Inventory (MLCI; Levenson, 1973). The MLCI includes 24 items, eight of which comprise an internal subscale (ω = .87; e.g., "Whether or not I get to be a leader depends mostly on my ability."). An additional 16 items comprise the powerful others (e.g., "My life is chiefly controlled by powerful others") and chance (e.g., "To a great extent my life is controlled by accidental happenings") subscales, which were combined to create a broader external locus of control score in this study (ω = .93), as the two original subscales were strongly correlated (r = .76) and both reflect beliefs that causes of outcomes are external to the self. All items were rated on a 6-point scale, producing mean scores between 1 and 6. The MLCI has been used in numerous past studies.

Shame-Proneness. In both samples, propensities to experience shame across various situations was assessed using the TOSCA-3 (Tangney et al., 2000) shame-proneness subscale. For each of the 16 scenarios such as the one mentioned above ("While out with a group of friends, you make fun of a friend who's not there") participants also indicated how likely it was that they would have a shame response ("You would feel small…like a rat."). Internal consistency was good in the present samples (ωs = .81 and .91), with past research supporting the reliability and validity of the measure (e.g., Tangney et al., 1992). For the purpose of reviewer-requested supplemental analyses, guilt-proneness scores on the TOSCA-3 were also computed; internal consistency for the guilt-proneness subscale was ω = .81 in Sample 1 and ω = .93 in Sample 2. Results are presented in Supplemental Tables 1-3.

Other-Directed Acts of Aggression. In Sample 1, participants completed a shortened version of the Forms of Aggression measure (FOA; Verona et al., 2008) to assess physical,

verbal, relational, and passive-rational forms of aggression. Specifically, this version generally retained the four items on each subscale with the highest factor loadings in the original paper (Verona et al., 2008). The exception was on the passive-rational subscale; for the shortened version of the FOA, the two "passive" items with the highest loadings and the two "rational" items with the highest loadings were retained. The shortened FOA asks participants about what they do when they are upset or angry with others, including engaging in physical aggression (e.g., "I beat them up"), verbal aggression (ω = .80; e.g., "I curse them out"), relational aggression (ω = .83; e.g., "I ruin their friendships with other people"), and passive-rational aggression (ω = .76; e.g., "I take my time doing things they want me to do, just to show them"). The aggression against property subscale from the original FOA was not used in this study, as Schoenleber and Berenbaum (2012) did not include it in their shame regulation strategies model. All items were rated on a 5-point scale of frequency, producing sum scores from 4 to 20. Past work using the original FOA demonstrates its convergent validity and reliability (e.g., Verona et al., 2008; Schoenleber et al., 2011). Unfortunately, however, the physical aggression subscale suffered from poor variability in the present sample; at least 98% of participants responded in the same way (i.e. rating the individual items as "1 Almost never") on each of the items on that subscale. In fact, it was not possible to compute a value for ω for this subscale. The interpretability of results when using the physical aggression subscale is therefore highly questionable; as such, results for the physical aggression subscale are only reported in our Supplemental Material (see Supplemental Tables 4-5), for the sake of comprehensiveness and test all of our theory-driven hypotheses.

Because other-directed aggression was not a focus of the larger project from which we drew Sample 2, physical aggression could only be assessed using the single item: "Have you

been in physical fights?" from the Painful & Provocative Events Scale (Bender et al., 2011). The item was rated on a 5-point scale labeled as *never, once, 2-3 times, 4-20 times,* and *20+ times*. In Sample 2, 41.9% of participants selected *never,* with 14.9% *once,* 28.1% *2-3 times,* 13.5% *4-20 times,* and 1.6% *20+ times*. Verbal, relational, and passive-rational aggression were not assessed in Sample 2.

Ruminative Retribution. Tendencies to dwell on others getting their comeuppance were assessed using the thoughts of revenge subscale on the Anger Rumination Scale (ARS; Sukhodolsky et al., 2001) in Sample 2 and the child version of this measure (C-ARS; Smith et al., 2016) in Sample 1. The two measures each contain 19 items, rated on a 4-point scale of frequency, producing mean scores from 1 to 4. While all items on each measure assess the same content, the child version simplifies the phrasing of 10 items and improves readability. Although the measure includes four subscales, only the four items comprising the thoughts of revenge subscale ($\omega = .69$ and $\alpha = .89$; e.g., "When someone makes me angry, I can't stop thinking about how to get back at this person") were of interest in the present study. Past research using the ARS and C-ARS also demonstrates their reliability and associations with relevant correlates (e.g., Peters et al., 2014; Smith et al., 2016; Sukhodolsky et al., 2001).

NSSI Frequency. The self-report form of the Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock et al., 2007) was used to assess for the history (i.e. presence vs. absence) of NSSI, as well as frequency of NSSI among those with a history of such behavior. Specifically, the SITBI asks "Have you ever actually engaged in NSSI?" and "How many times in your life have you engaged in NSSI?" The SITBI has shown good test-retest reliability and construct validity (Nock et al., 2007) and has been widely used in various samples (e.g., Stanley et al., 2017; Stewart et al., 2015). In Sample 2, we also examined the responses of 94 participants

(25.1%) who reported a history of NSSI, ranging from 1 lifetime act (3.2% of participants with an NSSI history) to 5,000 (2.1%). Data from one additional participant reporting 10,000 lifetime acts was not included in analyses. The mean frequency of NSSI was 236.2 (*SD* = 800.6), with a median frequency of 20 acts of NSSI. As is often the case with count NSSI data, however, the skew (5.0) and the kurtosis (26.5) of the distribution were both very high, and the data were overdispersed.

Results

To test our first hypothesis – that shame aversion would be associated with the proposed aggression shame regulation strategies – we began by examining the correlations between shame aversion and these outcomes. Because NSSI frequency is a count variable, Spearman rank correlations were used when examining that outcome in the subsample of individuals that had a history of NSSI. For the sake of comprehensiveness, we additionally examined the associations of shame-proneness, as well as externalization of blame and locus of control, to these aggression outcomes. Because of the larger number of overall tests in the present study, we have opted to focus on measures of effect size (e.g., *r*, f^2, odds ratios), rather than relying solely or primarily on *p*-values.

As shown in Table 1, shame aversion was positively associated with all forms of aggression in Sample 1, with small-to-medium effect sizes (based on Cohen, 1992). In Sample 2, shame aversion demonstrated a large-sized association with ruminative retribution but was not particularly related to either physical aggression or NSSI frequency. In contrast, shame-proneness demonstrated positive small-sized effects with only verbal and passive-rational aggression in Sample 1, as well as a positive small effect with NSSI frequency and a positive medium effect with ruminative retribution in Sample 2. With regards to our moderator variables,

in Sample 1 externalization of blame demonstrated positive relationships to aggression. In Sample 2, externalization of blame showed only small-sized effects in relation to physical aggression and NSSI frequency. By comparison, both externalization of blame and external locus of control demonstrated positive medium-sized effects in relation to ruminative retribution. Additionally, internal locus of control demonstrated negative small-sized effects in relation to ruminative retribution and, unexpectedly, NSSI frequency.

To test our second and third hypotheses – that the association between shame aversion and these outcomes would hold even when accounting for shame-proneness, and that externalization of blame/external locus of control would moderate the association between shame aversion and other-directed aggression – we next ran a series of hierarchical multiple regressions. All independent variables were mean-centered prior to analysis. Predicting each of the other-directed aggression outcomes individually in separate analyses, we entered shame-proneness in Step 1. Shame aversion and externalization of blame/external locus of control were entered simultaneously in Step 2, followed by the two-way interaction between these variables in Step 3.

In Sample 1 (top portion of Table 2), shame aversion remained associated with all forms of other-directed aggression after taking shame-proneness into account, with all associations being small in size. Similarly in Step 2, externalization of blame demonstrated small-sized effects with all forms of other-directed aggression. However, externalization of blame only moderated the association between shame aversion and ruminative retribution in Step 3. As shown in Figure 1, post-hoc simple slopes analyses with estimates at +1 SD and -1 SD (Aiken & West, 1991) revealed that the relationship between shame aversion and ruminative retribution was stronger at higher levels of externalization of blame ($\beta = .21$, $p < .001$, $f^2 = .11$), versus at

lower levels of externalization of blame (β = .08, p =.055, f^2 = .018).

These results were broadly replicated in Sample 2 (bottom portion of Table 2) when examining externalization of blame and external locus of control as moderators of shame aversion's associations with aggression outcomes. Shame aversion was not associated with physical aggression, but demonstrated a medium-sized positive association with ruminative retribution even after accounting for shame-proneness. Additionally, both externalization of blame and external locus of control demonstrated small associations with ruminative retribution. In Sample 2, there was little evidence of moderation by externalization of blame or external locus of control; although it met traditional criteria for statistical significance, the interaction between shame aversion and external locus of control was rather small in size (f^2 = .012). A figure depicting this interaction is available in the Supplemental Materials (see Supplemental Figure 1).

Finally, to test our fourth hypothesis – that internal locus of control would moderate the association between shame aversion and NSSI – we ran a negative binomial regression predicting NSSI frequency (an overdispersed count variable), entering shame-proneness, shame aversion, internal locus of control, and the shame aversion x internal locus of control interaction simultaneously in the analysis (left portion of Table 3). Interestingly, while shame-proneness was positively related to NSSI frequency, shame aversion and internal locus of control were both negatively related to NSSI frequency, contrary to expectations. Additionally, the interaction term had an Odds Ratio of 2.16, with post-hoc simple slopes analyses indicating that shame aversion was not associated with NSSI frequency when internal locus of control was high (β = .27, p = .12, OR = 1.31), but shame aversion was significantly negatively associated with NSSI frequency when internal locus of control was low (β = -1.28, p < .001, OR = .28).

In the interest of understanding whether externalization of blame or external locus of control played any role in NSSI frequency, we additionally ran two exploratory post-hoc negative binomial regression analyses. Specifically, we replaced internal locus of control with externalization of blame and then with external locus of control in separate analyses to parallel the analyses we had run for all our other-directed aggression outcomes. As would be expected based on theory, results (right portions of Table 3) indicated that neither externalization of blame nor external locus of control were associated with NSSI frequency. However, the interaction terms were again noteworthy. For externalization of blame, shame aversion was negatively associated with NSSI frequency when externalization of blame was high ($\beta = -1.44$, $p < .001$, OR = .24) but positively associated with NSSI frequency when externalization of blame was low ($\beta = .66$, $p = .04$, OR = 1.93). Somewhat similarly for external locus of control, shame aversion was negatively associated with NSSI frequency when external locus of control was high ($\beta = -.91$, $p < .001$, OR = .40) but not associated with NSSI frequency when external locus of control was low ($\beta = .29$, $p = .14$, OR = 1.33).

Discussion

This study provides the first support for the role of shame aversion in relation to aggressive tendencies. We found that shame aversion demonstrated small-to-medium sized effects in relation to various forms of other-directed aggression, including verbal, relational, and passive-rational aggression, as well as ruminative retribution. Importantly, these relationships persisted even after accounting for shame-proneness, a construct previously shown to be associated with aggression in past research (e.g., Tangney et al., 1992; Thomaes et al., 2011). However, we only found support for our moderation hypotheses in relation to ruminative retribution, which also demonstrated the strongest association with shame aversion. Overall, a

possible interpretation of these findings is that while a greater *propensity* for shame increases opportunities for a person to regulate that emotion through aggression, a greater *intolerance* for shame may influence the likelihood of using aggression as an emotion regulation strategy when feelings of shame arise. Of course, future research using within-person methods is necessary to examine this possibility more closely.

Our results regarding ruminative retribution are particularly interesting, and it is especially noteworthy that these results were similar across two very different samples. Consistent with the idea that externalization of blame would moderate how much shame aversion would be associated with aggressive acts (Schoenleber & Berenbaum, 2012), we found a significant interaction between shame aversion and externalization of blame in relation to ruminative retribution in Sample 1. Specifically, shame aversion was associated with persistent thoughts of revenge against others, but we found that this was especially true for individuals with a tendency to blame others for unwanted outcomes. Interestingly, this interaction did not replicate in Sample 2 when using externalization of blame as the moderator; however, the interaction between shame aversion and external locus of control in Sample 2 was similar to that found in Sample 1, except the size of the effect was quite small. Ultimately, additional research further examining the moderating role of externalization of blame and external locus of control is necessary. Indeed, given that externalization of blame and external locus of control are not synonymous constructs, additional work may help to clarify whether either or both constructs influence the association between shame and aggressive tendencies. Additionally, contrary to our hypothesis, this interaction was not found for other forms of aggression, such as verbal or relational aggression against others.

Why might externalization of blame or external locus of control particularly influence the

relationship between shame aversion and ruminative retribution? One possible reason may have to do with an important difference between ruminative retribution and the other forms of other-directed aggression; ruminative retribution does not require real actions against another person. Ruminative retribution is an intrapsychic cognitive process, an explicit focusing of one's thoughts onto revenge and comeuppance. By comparison, all of the other forms of other-directed aggression involve overt actions taken against someone else. Even if a person is both shame averse and externalizes blame onto others or causally attributes outcomes externally, there may be other factors that counteract engagement in interpersonal acts of aggression. Therefore, it remains an open question what other factors may influence the likelihood of engaging in other-directed aggressive acts when experiencing painful shame. One possible relevant factor is inhibition; whereas ruminative retribution inherently involves stopping to think about who and what is making you feel ashamed and angry, the other forms of other-directed aggression may not require – or may even be hindered by – devoting time to thought before acting.

Future research could also consider the downstream maladaptive effects of ruminative retribution. Despite perhaps presenting fewer immediate interpersonal risks, ruminative retribution may still have damaging social consequences. Perseverating on revenge against others may make it difficult for individuals to be friendly and open when meeting new people or to establish trust in relationships. Ruminative retribution may also contribute to a sense of inefficacy or chronic frustration and irritability over time, as the person's thoughts of revenge may never come to fruition. These possibilities are consistent with past research on anger rumination – of which ruminative retribution is one component – demonstrating causal links to heightened anger and interpersonal aggression (Bushman et al., 2005; Peled & Moretti, 2010), as well as associations with greater mood instability and difficulties in relationships (Peters et al.,

2014).

Results regarding self-directed aggression in the form of NSSI were largely contrary to our hypotheses and are more complicated to interpret. Overall, our results demonstrate reciprocal suppressor effects (see Conger, 1974). Shame-proneness, shame aversion, and locus of control were unrelated to NSSI in our Spearman rank correlations. However, including these variables in a single analysis increased the strength of their associations with NSSI frequency, with the exception of externalization. Suppressor effects should be interpreted with good deal of caution, especially prior to replication. If replicable, suppressor effects may indicate the appropriate removal of irrelevant variance from correlated predictor variables, thereby improving the ability of each variable to predict the outcome (Pandey & Elliott, 2010). However, there would also need to be theory-informed reasons for expecting a suppressor effect. For instance, Paulhus et al. (2004) have demonstrated replicable reciprocal suppression between shame and guilt, which is consistent with theories regarding these self-conscious emotions.

With regard to our results, the strong correlation between shame-proneness and shame aversion, in particular, is theoretically unsurprising. Individuals who tend to experience shame more readily may also have greater awareness of how painful that emotion can be. Moreover, although individuals who are shame averse may put more effort into avoiding shame-eliciting situations, the strategies used to preventatively down-regulate shame may themselves be maladaptive and cause a rebound or increase in shame (see Schoenleber & Berenbaum, 2012). By including both variables in a single analysis, we may be accounting for this complex reciprocal relationship, allowing the remaining variance in both shame-proneness and shame aversion to demonstrate meaningful relationships with NSSI. In this case, and consistent with past research (e.g., Schoenleber et al., 2014; Sheehy et al., 2019), greater propensities to

experience shame were associated with greater NSSI. The negative association between shame aversion and NSSI frequency requires more thought, as we had originally hypothesized a positive relationship, based on existing theories. However, it may be that in addition to being aware of how painful shame is, people may also be aware of how likely it is that engaging in NSSI will ultimately elicit more shame. If so, then as we found, shame aversion would deter individuals from engaging in NSSI. Moreover, the noteworthy interaction term suggests this association is conditioned on levels of internal or external locus of control/externalization of blame. Indeed, some NSSI theories suggest that the behavior serves a self-punishing function (Linehan, 1993). If a person does not tend to view themselves as the cause of an unwanted outcome, there may be little reason to respond with a self-punishing behavior, even if the person has a dispositional intolerance for shame. All that said, future work is imperative, and these interpretations are highly speculative. The suppressor effects require replication, and additional studies are needed to more effectively examine this possible interpretation.

Some additional results were inconsistent with hypotheses. First, internal locus of control demonstrated unexpected relationships with other variables more broadly in this study. For example, shame is the tendency to blame the self for unpleasant outcomes, and as such it is reasonable to expect that internal locus of control may be positively related to a propensity to engage in this kind of self-blame across a variety of situations (i.e. shame-proneness). Yet we found a negative association between shame-proneness and internal locus of control. With this in mind, as well as the issue of suppressor effects discussed above, it may be premature to interpret the results of our internal locus of control analysis. However, it is worth noting that the interaction between internal locus of control and shame aversion remains significant even when shame-proneness is not included in the analysis. Future work examining internal locus of control

in relation to shame and NSSI may also benefit from the use of different measures of locus of control, specifically by choosing a measure that produces separate scores for perceptions of control over positive and negative events or outcomes; individuals high on shame-proneness, for example, may tend to attribute negative outcomes internally while not attributing positive outcomes internally. Second, although the shame regulation model (Schoenleber & Berenbaum, 2012) explicitly predicted that externalization of blame would not be relevant to NSSI, we found a significant interaction between shame aversion and externalization of blame, as well as between shame aversion and external locus of control. Of course, these results occurred in the context of suppressor effects and should therefore be interpreted with caution. To the extent that they may be replicable, our results indicated that NSSI was less frequent when shame aversion and externalization of blame or control were both high; in other words, perceiving of shame as intolerable and tending to attribute unwanted outcomes to external factors was associated with less engagement in self-directed aggression. Given that high shame aversion and externalization of blame/external locus of control also was linked to greater retributive rumination, perhaps this combination of factors contributes to aggressive emotion regulation strategies focused on others rather than the self.

The present study had some additional limitations that suggest other directions for future research. First, in both samples, we relied on self-report measures even though we were assessing behaviors that might be considered socially undesirable – other-directed aggression and NSSI. Although we hope that the anonymity and confidentiality of the participants' responses allowed them to provide honest assessments of their engagement in these behaviors, we recognize that participants may hesitate to report all instances of these behaviors. This may especially be true for individuals who are shame-prone and may consider these behaviors to be

shameful. Use of informant-reports, particularly for the overt other-directed forms of aggression, would be beneficial in future studies, as would tasks or measures that more directly assess engagement in aggressive acts. Moreover, self-report measures can suffer from memory mistakes; the retrospective reporting of how often participants engaged in aggressive acts or NSSI may be somewhat inaccurate. Daily diary studies or experimental designs that use shame inductions may be helpful for further understanding how shame aversion may motivate engagement in aggression and NSSI. Such designs would also allow for examination causal effects, which could not be examined in the present study despite the shame regulation model and our hypotheses suggesting causality. That our two samples were drawn from larger projects with different goals from one another – and different aims than the present study – also created notable limitations; specifically, an interest in examining the association between shame aversion and aggression, as well as the moderating roles of externalization of blame/external locus of control/internal locus of control, was developed after data collection for both projects had been completed. These circumstances prevented us from choosing measures specific to the needs of our hypotheses or from administering the same measures to both samples. Future investigations designed to specifically address the hypotheses presented herein may benefit from the use of different measures, such as those that assess to whom/what people attribute their experiences of shame. It may also be worthwhile to consider whether externalization of blame/external locus of control specifically moderate the association between shame aversion and aggressive tendencies, as opposed to aversions to guilt (a related but distinct self-conscious emotion) or more general fears of emotional experience. Finally, it is important to note that the ability to test our hypotheses in relation to physical aggression was limited in Sample 1 by a lack of variability in participants' reported levels of physical aggression; although we provide our results in our

supplemental materials, they cannot be interpreted with any real confidence. Future studies will be necessary to look more closely at the roles of shame aversion and externalization of blame/ external locus of control in relation to physical aggression.

In conclusion, although the present findings require replication in additional samples, the present paper is the first to provide some support for the assertions regarding aggression strategies described in the shame regulation model. In particular, results provided some support for the assertion that externalization of blame/external locus of control would moderate the relationship between shame aversion and ruminative retribution. The expectation of moderation was not met for the remaining forms of other-directed aggression, though shame aversion was associated with verbal, relational, and passive-rational aggression over and above shame-proneness. Taken all together, these initial results highlight the need for further investigations into how shame aversion may motivate engagement in aggressive acts as a means of down-regulating shame.

Compliance with Ethical Standards

These projects did not involve any source of funding.

None of the authors have any conflicts of interest to disclose.

All procedures performed in these studies involving human participants were in accordance with the ethical standards of the institutions and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent was obtained from all individual participants included in these studies.

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