Shame's a pain:

Exploring links between shame-proneness, aggression, and perfectionism

by

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Abstract

Despite decades of research, relatively little is known about the factors that underlie individual differences in responses to shame. Accordingly, the purpose of this MA thesis research was to examine conceptual models that delineate complex associations between shame, aggression, and socially prescribed perfectionism (SPP). A sample of $N = 967$ undergraduate students completed a series of online-questionnaires. Among the results, shame demonstrated indirect associations with: (1) SPP through fear of negative evaluation and self-critical rumination; (2) indirect aggression through hostility and blame; and (3) displaced aggression through hostility. Furthermore, high BIS exacerbated the pathway from shame to SPP, whereas low BIS exacerbated the pathway from shame to indirect aggression. Finally, the pathway from shame to SPP was stronger for females, whereas the pathway from shame to indirect aggression was stronger for males. Overall, this study provides important findings that may allow for a more comprehensive understanding of shame and its associated responses.

Keywords: Shame-proneness, aggression, socially prescribed perfectionism, BIS

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List of Abbreviations

BAS	Behavioural Activation System
BIS	Behavioural Inhibition System
FFFS	Fight Flight Freeze System
FNE	Fear of Negative Evaluation
SCR	Self-Critical Rumination
SPP	Socially Prescribed Perfectionism

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Shame's a pain: Exploring links between shame-proneness, aggression, and perfectionism

Shame is considered a basic emotion (Tomkins, 1963), essential to our perceptions of ourselves as social beings (Tangney, 1995a; Tomkins, 1995). Accordingly, we all experience shame, perhaps even more frequently than we may realize. However, when individuals fail to properly address their shame, or when shame becomes enmeshed in one's sense of self, shame can have deleterious effects on one's social and emotional well-being (Kaufman, 1985; 1989; Lewis, 1971, 1992).

Shame is defined as an intensely painful, complex emotion, characterized by feelings of inadequacy, inferiority, and unworthiness (Lewis, 1971; Tangney, 1995a). Shame is typically elicited by perceptions of being criticized or devalued by others (Gilbert, 1997, 1998; Lewis, 1971; Tangney, 1996; Tangney & Dearing, 2002b). These negative evaluations leave the shamed individual feeling exposed, with the intense fear that others will uncover the self's inherent failings or deficiencies (Gilbert, 1998; Tangney, 1996). Accordingly, shame evokes *damage-limitation strategies* (Elison, 2005; Gilbert & McGuire, 1998), including desires to escape or hide, in attempts to shield the self from the evaluative scrutiny of others, and minimize or prevent threats of social rejection or exclusion (Gilbert, 2000, 2002, 2007; Lewis, 1971; Nathanson, 1992; Tangney & Dearing, 2002b).

According to Tangney (1996), individuals vary considerably in their propensity to experience shame, both across time and situations, which she refers to as *shame-proneness* (i.e., dispositional or trait shame). Numerous factors may contribute to an individual's propensity to experience shame, including temperament/personality, gender, attributional style, and experiences in childhood (see Mills, 2005 for review). Researchers have postulated that shame-

proneness arises from a history of interpersonal failures throughout development (Gilbert, 1998; Kaufman, 1985). Accordingly, the individual develops global negative self-attributions of failure, whereby the self is internalized as inadequate and unworthy. Temperament has also been suggested as an important predisposing factor in the development of shame-proneness, impacting one's reactivity to stimuli and ability to regulate emotions, including processes involved in emotional inhibition and activation (Lewis, 1992; Mills, 2005; Rothbart & Bates, 1998). Lewis (1992) maintained that individuals who are dispositionally predisposed to focus on internal processes are more vulnerable to readily adopt negative global attributions of the self. Accordingly, individuals who are more temperamentally reactive to shame-inducing situations may be more vulnerable to the development of shame-proneness (Mills, 2005).

Given the painful nature of shame, it is perhaps of no surprise that individuals may employ various defensive responses in attempts to mitigate the associated emotional discomfort (Nathanson, 1992; Tangney & Dearing, 2002b). Consequently, shame elicits various coping mechanisms aimed at alleviating the shame experience, including withdrawing from the shame-eliciting situation (either emotionally or physically), denial or suppression of the emotional experience (e.g., substance use, thrill seeking), and aggressing against the (real or perceived) rejecting other (Gilbert, Pehl, & Allan, 1994; Nathanson, 1992; Tangney, 1999). Individuals may also employ preventative responses, in attempt to circumvent the occurrence of shame all together. This may include avoiding situations in which shame is likely to be elicited, or engaging in perfectionism, setting unrealistic standards for oneself as a means to obtain acceptance and belonging (Lewis, 1971; Nathanson, 1992; Tangney & Dearing, 2002b).

Although such responses may initially serve to reduce the emotional discomfort of shame, they inevitably have negative implications for social and emotional functioning (Lewis, 1971; Tangney & Dearing, 2002b). Indeed, shame has been implicated as a key factor in numerous psychopathological outcomes, including anxiety (e.g., Gilbert & Miles, 2000), depression (Kim, Thibodeau, & Jorgensen, 2011), eating disorders (Grabhorn, Stenner, Stangier, & Kaufhold, 2006), and aggression (Lewis, 1971; Stuewig, Tangney, Heigel, Harty, & McClowskey, 2010; Tangney & Dearing, 2002b). Although these pathologies may present a direct target for therapeutic intervention, the underlying origin of these issues (i.e., shame) is unlikely to be addressed. Despite decades of shame research, many questions pertaining to factors underlying the individual and situational variability in shame responses lack empirical support. Accordingly, the overarching goal of this MA thesis was to develop a more comprehensive understanding of shame-proneness, and the corresponding internalizing (perfectionism) and externalizing (aggression) responses to shame, through exploration of potential mediating and moderating factors underlying these relations.

To develop a conceptual framework for these models, the extant literature related to shame is first reviewed, including theories for how it develops and the potential implications for social and emotional functioning. We then turn to the exploration of the associations between shame and perfectionism, including empirical evidence suggesting a possible pathway through which this relation may arise through fear of negative evaluation and self-critical rumination. This will be followed by a review of the literature demonstrating theoretical and empirical associations between shame and aggression, and support for possible underlying factors implicated in this pathway (i.e., hostility and blame). Finally, in the context of potential

moderating factors in the proposed models of shame, some of the personality literature pertaining to temperamental/personality neurobiological substrates (i.e., Behavioural Inhibition System), as well as evidence for gender differences in the experience of shame and guilt, is discussed.

Conceptualizing Types of Shame: An Unacknowledged Emotion

Given that shame is characterized by a fear of being exposed (or *found out*) for one's underlying inadequacies, the experience of shame, in and of itself, is inherently shameful. That is, to acknowledge one's shame would entail exposing oneself as *weak*. This contradicts the very purpose for which shame evolved - to prevent exposing oneself as unworthy of social connection (Gilbert, 1993, 1997). As such, it is perhaps of no surprise that shame often goes unacknowledged or avoided, frequently substituted with a less painful emotional experience, such as anger or sadness (Lewis, 1992). These ideas stem from early seminal work conducted by psychoanalyst Helen B. Lewis (1971), who analyzed transcripts of sessions with patients in her practice. Lewis described two forms of what Scheff (1990) refers to as *hidden* (unacknowledged) shame, namely undifferentiated shame and bypassed shame. Lewis discussed clients who would describe emotional experiences of shame (e.g., feeling foolish, inadequate, exposed, etc.), yet were unable to unable to name the experience. She refers to this as overt and undifferentiated shame, in which the individual is in an emotional state of confusion, unable to identify the emotional experience of shame.

In the case of *bypassed* shame, the individual is completely unaware of their shame. Lewis (1971) described clients limited awareness of shame, who would describe these experiences using words such as a *jolt* or a *blow*, as well as reference to social comparisons (e.g., feeling inferior). Importantly, bypassed shame is implicated in what Scheff (1990) refers to as

the *shame-rage spiral*. When shame goes unacknowledged or avoided, it has the capacity to surreptitiously show up in the form of aggression and hostility (Lewis, 1971; Retzinger, 1995; Scheff, 1987; Tangney & Dearing, 2002b). As will be discussed further in the sections below, although the shamed individual may initially engage in self-directed hostility and anger, Lewis (1971) maintained that this may become so emotionally overwhelming, this anger and hostility becomes directed outwards, *turning the tables* and aggressing against the perceived shaming other (Tangney & Dearing, 2002b). However, these aggressive responses can lead to more shame, leading to a recursive, self-perpetuating loop between shame and aggression (Scheff, 1990).

One of the main issues complicating the lack of shame-awareness is the potentially insidious nature of shame triggers; shame can be elicited by subtle cues during interactions with others, such as a fleeting change in facial expression. In the absence of any obvious trigger, the individual may not even be aware that shame has been elicited (Ohman, 1999). The lack of a clear understanding of the experience of shame, or opting to substitute feelings of shame with another affect (e.g., anger; Scheff, 2015) in attempts to minimize awareness, have likely contributed to the confusions among laypeople between shame and conceptually similar constructs such as guilt and embarrassment.

Differentiating the Self-Conscious Emotions

Despite the abundance of research conducted assessing shame-proneness, considerable methodological challenges in the assessment of shame have limited the depth of our understanding of this highly nuanced construct (Tangney & Dearing, 2002b). One challenge has been the conceptual confusion between the different self-conscious emotions (i.e., shame, guilt,

and embarrassment). Accordingly, in the following sections the distinction between these commonly confused constructs is clarified.

Shame versus guilt. Although shame and guilt are both self-conscious emotions that entail self-evaluative appraisals, they are distinguished based on the specific aspects of the self that are appraised. This is perhaps best illustrated by the distinction between the phrase *I am bad* (shame) versus *I did something bad* (guilt). In this regard, shame involves a negative focus on *the self* as inherently flawed or inadequate (i.e., internal focus), whereas guilt entails a focus on one's *behaviour* (i.e., external focus; Lewis, 1971). Accordingly, guilt is associated with motivation to make amends or to repair one's transgression. In contrast, shame entails a feeling of hopelessness, such that any transgression is a result of one's inherent inadequacy, and thus motivates actions to remove oneself for the situation (e.g., withdrawal, avoidance).

These distinctions between the motivational responses to shame and guilt have been demonstrated across numerous studies (e.g., Joireman, 2004; Leith & Baumeister, 1998; Schmader & Lickel, 2006; Tangney 1991, 1995b; Wicker, Payne, & Morgan, 1983). For example, Schmader and Lickel (2006) explored the predictive relations between shame and approach-avoidance motivations, which were operationalized as motivations to make amends or to withdraw (respectively). Participants were randomly assigned to either write about a time in which they felt either guilty or ashamed, with respect to something either they or someone else had done (i.e., self- versus other-caused wrongdoing). As expected, shame uniquely predicted avoidance motivations, while guilt predicted approach motivations. Similarly, across numerous studies, guilt has demonstrated positive associations with perspective taking and empathic concern (Joireman, 2004; Leith & Baumeister, 1998; Tangney, 1991, 1995b; Tangney &

Dearing, 2002b). In contrast, shame-proneness has demonstrated either negative or non-significant associations with various forms of empathy, including perspective taking, empathic concern, and emotional and cognitive forms of empathy (Tangney & Dearing, 2002b).

These seemingly subtle differences between shame and guilt have profound implications for psychopathological outcomes. Indeed, across numerous studies, shame has been associated with various maladaptive outcomes, including both internalizing (e.g., anxiety, depression) and externalizing (e.g., hostility, aggression) problems, as well as indices of poor interpersonal functioning (e.g., low empathy, social anxieties, narcissism) (see Tangney & Dearing, 2002b for a review). In contrast, guilt appears to be more adaptive, as evidenced by positive associations with prosocial behaviours (Tracy & Robins, 2004) and non-significant associations with indices of socioemotional difficulties (e.g., depression, anxiety). Despite the abundance of evidence illustrating the diverging implications of shame and guilt, this distinction is not always acknowledged in the research. This confounding of shame and guilt has led to some inconsistent findings across studies assessing shame, as evidenced in later sections.

Shame versus embarrassment. Although embarrassment was previously viewed as merely a less intense version of shame (e.g., Borg, Staufenbiel, & Scherer, 1988; Izard, 1977), research has provided evidence to suggest that it is a self-conscious emotion distinct from both shame and guilt. Although both shame and embarrassment involve negative self-evaluations, shame is associated with the belief that one is inherently inadequate (Lewis, 1971; Tangney & Dearing, 2002b). In contrast, embarrassment involves transient, negative-evaluations of one's situation-specific transgression, that is often trivial and humorous in nature (Klass, 1990, Tangney, Miller, Flicker, & Barlow, 1996). In support of this distinction, Tangney, Miller, et al.

(1996) asked participants to describe three personal experiences of shame, guilt, and embarrassment, followed by a questionnaire pertaining to their emotional experience in these situations. Compared to embarrassment, shame and guilt experiences were rated as more painful and intense, and were associated with more feelings of anger, disgust, and personal responsibility. Furthermore, the situations described involved moral transgressions. In contrast, embarrassing experiences entailed situations that were humorous and trivial in nature, and rarely occurred while the individual was alone. Accordingly, embarrassment is a less intense, more transient, and situation-specific self-consciousness that is often accompanied by smiling and laughter (Buss, 1980; Buss, 2001; Crozier, 2014).

Evolutionary Roots of Shame

According to Baumeister and Leary (1995), humans possess a fundamental need to belong. Social threats such as rejection or devaluation threaten this basic human need (Baumeister & Leary, 1995; DeWall & Bushman, 2011), motivating the individual to engage in behavioural strategies aimed at reducing or alleviating potential challenges to one's social status. MacDonald and Leary (2005) define social pain as an emotional reaction in response to perceived rejection or devaluation by others. Drawing upon evolutionary theories surrounding the threatening nature of social exclusion for one's survival (Gilbert, 1992; MacLean, 1993; Whiten & Byrne, 1989), they maintain that social regulation mechanisms have co-opted the body's natural threat-defense system that is deployed in response to physical pain (i.e., the fight, flight, or freeze system). Accordingly, they speculate that social exclusion acts as a social learning cue, eliciting corresponding approach and avoidance responses. This pairing of physical and social pain is theorized to begin in early life, when the infant depends on their caregiver to

alleviate the discomfort associated with their physical needs (e.g., hunger pangs; Bowlby, 1973). In this regard, the infant is conditioned to associate separation from one's attachment figure with the experience of physical pain (MacDonald & Leary, 2005).

Given the discomfort associated with the experience of pain, individuals are motivated to employ responses aimed at alleviating social threat. In line with these ideas, the experience of social exclusion or rejection is known to motivate avoidance responses, moving the individual away from the social threat (i.e., Flight; Elison, Garofalo, & Velotti, 2014). Alternatively, MacDonald and Leary (2005) maintain that social threat may also elicit automatic aggressive responses (i.e., Fight). Empirical support for these ideas has been provided across numerous studies demonstrating associations between social exclusion and aggressive responses (Buckley, Winkel, & Leary, 2003; Leary & Springer, 2001; Twenge, Baumeister, Tice, & Stucke, 2001; Vangelisti, 2001; Vangelisti & Crumley, 1998). Shame is a key component of this process, functioning as a warning signal of the presence of social threat (e.g., rejection, devaluation, isolation, exclusion). In turn, shame motivates behavioural responses aimed at alleviating or minimizing this threat (Gilbert, 1992; Gilbert & McGuire, 1998; Keltner & Harker, 1998).

Internalizing versus Externalizing Responses to Shame

Responses to shame can be broadly viewed with respect to the degree to which they are internalized versus externalized (Tangney & Dearing, 2002b). *Internalizing* shame involves negative self-evaluations, with the individual engaging is self-criticism and self-directed hostility and anger. Internalizing responses to shame correspond with the Flight and Freezing components of the threat-defense mechanism (Elison et al., 2014), entailing submissive behaviours, such as gaze aversion and attempts to escape or withdraw from the situation. These behaviours are

thought to act as *damage limitation strategies*, aimed at preventing in the individual from acting in a manner that will further damage their social standing (Gilbert et al., 1994; Gilbert, 1998, 2002). Indeed, results from numerous studies have demonstrated links between shame and negatively valanced social comparisons (e.g., feelings of inferiority; Allan & Gilbert, 1997; Gilbert & Allan, 1998; Gilbert & Miles, 2000; Swallow & Kuiper, 1998), as well as desires to escape or hide (Barrett, Zahn-Waxler, & Cole, 1993; Lewis, 1971; Lindsay-Hartz, 1984; Tangney, 1993; Tangney, Miller, & Flicker, 1992). Importantly, internalized shame entails attributing the cause of any real or perceived transgression to the self, effectively blaming the self for being inherently insufficient (Gilbert, 1998, 2002; Tangney & Dearing, 2002b). Accordingly, such negative internalized thoughts may motivate attempts to achieve unrealistic standards as a means of obtaining a sense of worth (Gilbert, 1998).

In contrast, *externalizing* responses to shame involve making external attributions, with the individual attributing the cause the shame-experience to others. Accordingly, the individual lashes out against the rejecting other, redirecting one's aggression and hostility outwards (Lewis, 1971). Tangney and Dearing (2002b) maintain that externalization of blame in response to shame represents a shift from the submissive stance that characterizes internalized shame, to a place of dominance and authority. Such shift is postulated to serve protective functions, allowing the individual to regain a sense of control and to protect one's self-esteem (Gilbert, 1998; Gilligan, 1996; Scheff, 1987; Tangney, 1992; Tangney & Dearing, 2002b). Furthermore, attributing the blame to others is thought to remove the focus from the self, thus minimizing or alleviating the painful experience of shame (Tangney & Dearing, 2002b). In support of these ideas, Stuewig et al. (2010) found externalization of blame mediated the relation between shame and both verbal

and physical aggression across four different samples (college students, early adolescents, at-risk adolescents, and inmates). As discussed in the following sections, these diverging styles of attributing blame can have implications for the pathological outcomes of shame, namely, perfectionism (internalized shame response) and aggression (externalized shame response). However, despite an accumulating body of research providing evidence for these seemingly contradictory responses to shame, very little is known about *why* some individuals tend towards internalizing responses, whereas others are more prone to engage in externalizing responses.

Internalizing Responses to Shame: Perfectionism, Rumination, and Fear of Negative Evaluation

From an early age, children begin evaluating their behaviours according to the responses that such behaviours elicit from others (Gilbert, 1998; Kaufman, 1989; Mills, 2005). These reactions guide children's internalized understanding of themselves and their interpersonal relationships (Ainsworth, Blehar, Waters, & Wall, 1978; Kaufman, 1989). As discussed in previous sections, shame is thought to arise from a history of failure to elicit positive responses from important others (Gilbert, 1998). For example, when parents or caregivers frequently employ negative or hostile feedback in response to a child or their behaviour, the child may develop an internalized view of themselves as inherently inadequate, in effect learning to attribute the cause of any real or perceived failure to the self's inherent insufficiency (Gilbert, 1998; Kaufman, 1985, 1989; Lewis, 1992). In turn, these feelings of unworthiness may lead to the development of perfectionistic tendencies, as a means to obtain acceptance and approval from others (Lewis, 1992; Mills, 2005).

Perfectionism. *Perfectionism* is a multidimensional construct characterized by placing excessively high standards on oneself and one's performance (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991b). Hewitt and Flett (1991b) maintain that perfectionism can be divided into three dimensions, distinguished based on the underlying motivational forces driving perfectionistic behaviours. Self-oriented perfectionism is internally motivated, characterized by self-imposed perfectionistic ideals and unrealistic expectations for the self. In contrast, other-oriented perfectionists set unrealistic standards and expectations for others. *Socially prescribed perfectionism* (SPP) is characterized by the belief that others hold excessively high standards for them, fears surrounding one's ability to meet these expectations and of being negatively evaluated by others, as well as a strong need for acceptance and approval from others.

Although self-oriented and other-oriented perfectionism have frequently demonstrated positive associations with indices of well-being (e.g., self-esteem; Trumpeter, Watson, & O'Leary, 2006), results from numerous studies suggest that SPP is generally associated with maladaptive social and emotional outcomes (e.g., Chen, Hewitt, & Flett, 2015; Flett, Galfi-Pechenkov, Molnar, Hewitt, & Goldstein, 2012; Mushquash & Sherry, 2012; Trumpeter et al., 2006). For example, Mushquash and Sherry (2012) conducted a week-long daily diary study examining the associations between SPP, self-evaluations, and mood. Results indicated SPP was associated with a maladaptive cyclical pattern, whereby individuals with high levels of SPP more frequently felt as though they had disappointed others, which motived attempts to appear perfect. In turn, these perfectionistic displays were associated with increased depressed affect, which

motivated self-defeating behaviours, including binge-eating, procrastination, and interpersonal conflicts.

Shame is thought to arise from a history of failure to induce positive responses in others, which in turn leads to the internalized belief that one is not capable of adequately meeting others' standards (Gilbert, 1998, 2002, 2003; Lewis, 1971). In this regard, researchers have speculated that perfectionism is likely rooted in one's propensity to experience shame (Kaufman, 1996). Accordingly, perfectionistic behaviours are posited to develop as a compensatory attempt to gain a sense of worthiness (Miller, 1996), and to fulfill one's unrequited need to belong (Banai, Mikulincer, & Shaver, 2005; Hewitt, Flett, & Mikail, 2017). In support of these ideas, Chen et al. (2015) examined the relations between shame, SPP, need to belong, and preoccupied attachment (an attachment style characterized by a strong need for acceptance and approval from others; Bartholomew & Horowitz, 1991). Results indicated shame and need to belong accounted for the relation between attachment and SPP, such that high levels of preoccupied attachment predicted a stronger need to belong, which in turn predicted higher levels of shame-proneness, which then predicted higher SPP tendencies.

Socially prescribed perfectionism has also demonstrated associations with several known associates of shame, including self-criticism, self- and other-blame, fear of negative evaluation, submissive behaviour, hostility, and interpersonal sensitivity (characterized by feelings of inadequacy, inferiority, and self-criticism) (Hewitt & Flett, 1991b; Stoeber, 2014a, 2014b, 2015; Wyatt & Gilbert, 1998). For example, Moroz and Dunkley (2015) examined associations between self-critical forms of perfectionism and depression through self-esteem and experiential avoidance. Experiential avoidance is defined as the tendency to feel discomfort with, and

attempts to alleviate, negative internal states (e.g., thoughts, feelings) by avoiding situations that may elicit them (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Moroz and Dunkley (2015) reported that SPP was associated with higher levels of experiential avoidance, and lower levels of self-esteem, which mediated the relation between SPP and depression.

Further evidence suggesting links between shame and socially prescribed perfectionism can be derived by considering findings from the *Social Disconnection Model* (Hewitt, Flett, Sherry, & Caelian, 2006). Developed in response to the abundance of research linking SPP and psychopathological outcomes, this model is based on the premise that such links are accounted for by feelings of social disconnection (e.g., lack of perceived social support, feeling alienated). For example, studies have found that SPP is associated with feelings that one is not important to others, and these feelings accounted for the relation between SPP and depression (Cha, 2016; Flett, Galfi-Pechenkov, et al., 2012). In another study, Flett, Nepon, Hewitt, and Fitzgerald (2016) reported an indirect relation between SPP and depression through reactivity to social evaluation. That is, individuals who had higher levels of SPP reacted more strongly to social evaluation, and this in turn led to higher levels of depression. Similarly, Flett, Besser, and Hewitt (2014) found an interaction between SPP and rejection sensitivity (i.e., the tendency to be hypervigilant, and react strongly, to rejection; Downey & Feldman, 1996). That is, individuals with high levels of SPP had higher levels of depression if they were also highly sensitive to rejection.

Taken together, these studies highlight potential links between shame and SPP, and the need for a more comprehensive understanding of potential factors that may be contributing to their relation. Given that social evaluative fears and self-criticism are also core features of both

of these constructs (Hewitt et al., 2006; Tangney & Dearing, 2002b), it is possible that these factors may *mediate* relations between shame and SPP.

Self-critical rumination and fear of negative evaluation. Numerous studies have demonstrated positive associations between shame-proneness and *rumination* (Cheung, Gilbert, Irons, 2004; Joireman, 2004; Orth, Berking, & Burkhardt, 2006; Smart, Peters, & Baer, 2016a). For example, Zoccola, Dickerson, and Lam (2012) employed a speech stressor task to explore the implications of social evaluation on shame. Participants were randomly assigned to either receive negative social evaluation in response to their speech or to a control group (i.e., no evaluation). Individuals in the social evaluative threat condition reported higher levels of shame following the speech stressor, which in turn predicted higher levels of both anger- and depression-focused styles of rumination.

There is also some evidence to suggest that rumination may mediate the relation between shame and negative affect. For example, Joireman (2004) found an indirect relation between shame and distress through self-rumination, a form of rumination focused on the experiences of threats or injustices that have occurred to the self (Trapnell & Campbel, 1999). Similarly, Cheung et al. (2004) reported that rumination partially mediated the relation between shame and depression. Taken together, these studies suggest the specific focus of ruminative thoughts may be an important consideration when exploring implications of shame.

Self-critical rumination (SCR) may be particularly pertinent to shame, as it is characterized by negatively valanced repetitive thoughts, focused on berating the self for one's perceived weaknesses and inadequacies (Smart et al., 2016a). Indeed, self-criticism has been posited to serve as a defensive response to shame, intended to discourage the shamed-individual

from engaging in social risks that may further damage their social standing (Gilbert, 1998; Gilbert & Irons, 2005). In support of this notion, Shahar, Doron, and Szepsenwol (2015) found that a history of childhood maltreatment predicted higher shame-proneness, which in turn predicted increased self-criticism. In turn, higher levels of self-criticism predicted higher levels of social anxiety.

Fear of negative evaluation (FNE), which is often used as a proxy for measuring socially anxious fears, has also been frequently assessed as an implicating factor in both shame (e.g., Gilbert, 2000; Gilbert & Miles, 2000; Lutwak & Ferrari, 1997; Tangney, Burggraf, and Wagner, 1995) and SPP (Flett, Coulter, & Hewitt, 2012; Flett, Hewitt, & DeRosa, 1996; Hewitt & Flett, 1991b). Accordingly, we might expect the individuals with high levels of shame-proneness may have increased apprehension in social situations, which in turn may lead to excessive self-condemning rumination. Consistent with these ideas, Harder (1990) maintained that highly shame-prone individuals are often preoccupied with evaluative fears during social interactions. Further, given that individuals who are prone to shame believe that they are inherently flawed, these internalized fears and anxieties may enact a self-fulfilling prophecy, such that they these beliefs shape their perceptions of others' reactions to them. In turn, this belief that others are perceiving them as inadequate may lead to further self-critical thoughts, and thus increased negative evaluative fears, and so on, effectively instigating a vicious cycle (Lewis, 1971). This cycle in turn may promote perfectionistic behaviours, as an attempt to meet these perceived unmet standards.

Indeed, results from several studies suggest that self-criticism may play an essential role in the relation between socially prescribed perfectionism and socio-emotional difficulties

(Dunkley, Blankstein, Masheb, & Grilo, 2006; Dunkley, Zuroff, & Blankstein, 2006; Gilbert, Durrant, & McEwan, 2006). For example, Dunkley and colleagues (Dunkley, Blankstein et al., 2006; Dunkley, Zuroff et al., 2006) examined predictive relations between self-criticism, perfectionism, and maladaptive outcomes. Only self-criticism emerged as a unique predictor of maladaptive outcomes, including stress, avoidance coping, negative affect, and (lack of) perceived social support. Similarly, Gilbert et al. (2006) found the relation between socially prescribed perfectionism and depression was no longer significant upon controlling for self-criticism. Furthermore, SPP (but not self-oriented perfectionism) emerged as a significant predictor of anxiety and depressive symptoms. However, upon controlling for self-criticism, the strength of this associations decreased (Dunkley, Zuroff et al., 2006), suggesting a possible mediation effect of self-criticism on the relation between SPP and internalizing symptoms (Baron & Kenny, 1986).

Further evidence linking shame and SPP is derived by considering studies assessing SPP and coping strategies. In one study, SPP emerged as a unique predictor of self-defeating behaviours (specifically interpersonal conflict), after controlling for self-criticism (Sherry, Stoeber, & Ramasubbu, 2016). Furthermore, the authors speculated that this interpersonal form of self-defeating behaviour may act as a form of escape coping, allowing the individual to distance themselves from the perceived negative evaluations of others (Hammen, 2006; Sherry et al., 2016). Similarly, Prud'homme et al. (2017) conducted a longitudinal study, whereby SPP emerged as a unique predictor of avoidance coping, while self-criticism uniquely predicted negative affect, at both the six-month and three-year follow up. Taken together, these studies

highlight the potential mediating role of both self-criticism and fear of negative evaluation in the link between shame and SPP (see Figure 1).

Externalizing Responses to Shame: Hostility, Blame, and Aggression

As discussed by MacDonald & Leary (2005), social pain is extremely aversive, and can motivate externalized aggressive responses from the individual through the defensive fight threat-defense system. Given that the internalized experience of shame is extremely painful, Tangney and Dearing (2002b) maintain that individuals may opt to externalize the experience of shame, re-directing their anger and hostility towards others. Lewis (1971) referred to this aggressive response to shame as *humiliated fury*, maintaining that shame is a common antecedent of aggression.

Hostility is a cognitive attitude characterized by negative evaluations of others, accompanied by feelings of cynicism, resentment, mistrust, and suspiciousness (Buss, 1961; Plutchik, 1980). Given that shame is associated with unmet needs (i.e., belongingness) and fear of the evaluating other, it is perhaps of no surprise that shame-prone individuals may also develop hostile attitudes towards the perceived rejecting other (Lewis, 1971; Tangney & Dearing, 2002b). Indeed, there is consistent empirical support demonstrating positive associations between shame and hostility (Bennett, Sullivan, & Lewis, 2005; Ferguson, Stegge, Miller, & Olsen, 1999; Tangney, Wagner, Fletcher, & Gramzow, 1992; Tangney, Wagner, Hill-Barlow, Maschall, & Gramzow, 1996; Velotti, Garofalo, Bottazzi, & Caretti, 2017). Furthermore, consistent with suggestions that shame predisposes individuals to aggression (Lewis, 1971; Tangney & Dearing, 2002b), evidence suggests that shame may also be an antecedent of hostility (Heaven, Ciarrochi, & Leeson, 2009). For example, Heavan et al. (2009) found higher levels of shame assessed in a

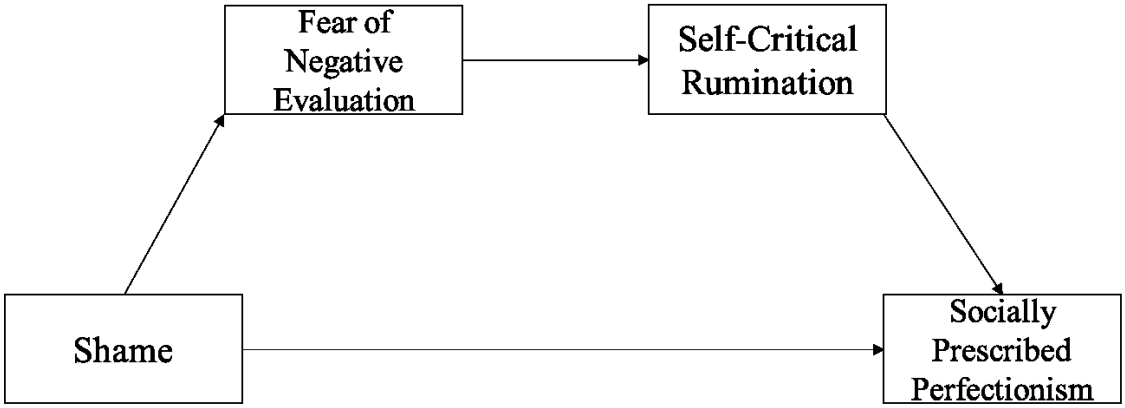

Figure 1. Hypothesized relation between shame-proneness and socially prescribed perfectionism (SPP) through fear of negative evaluation (FNE) and self-critical rumination (SCR).

sample of Grade 9 students predicted higher levels of hostility one year later, while hostility was not predictive of shame.

Hostility can also prime an individual to more readily act out aggressively (Buss & Perry, 1992). Indeed, many researchers maintain that hostility is the cognitive precursor to the manifestation of aggressive behaviours (Anderson & Huesmann, 2003; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). Aggression is broadly defined as the intention to cause harm to another (Baron & Richardson, 1994) and can take many forms (see Ramirez & Andreu, 2006 for review). *Direct aggression* involves both physical (e.g., hitting) and verbal (e.g., name calling) forms of aggression, which is directly aimed at another individual with the intention of causing them harm (Baron & Richardson, 1994). In contrast, *indirect aggression* involves harming an individual indirectly, either through someone or something else (Richardson & Green, 2003). This includes behaviours aimed at removing something of value to the target, such as social status (e.g., malicious gossip) or something they own (e.g., breaking something important to them). Although both forms of aggression are maladaptive, direct aggression is more strongly associated with externalizing problems, whereas indirect aggression tends to demonstrate stronger associations with internalizing problems (e.g., social anxiety; Card, Stucky, Sawalani, & Little, 2008; Loudin, Loukas, & Robinson, 2003).

Finally, *displaced aggression* involves aggressive behaviours directed against someone other than the anger-eliciting agent (Dollard, Doob, Miller, Mowrer, & Sears, 1939). Much like indirect aggression, this form of aggression is circuitous, such that the aggressive behaviours are not directed at the original perpetrator. However, unlike indirect aggression, displaced aggressive behaviours have no bearing on the individual who triggered the aggression, but rather are

directed at an innocent target. Accordingly, this form of aggression often arises in responses to a seemingly irrelevant trigger (Denson, Pederson, & Miller, 2006b; Ramirez & Andreu, 2006). For example, an individual gets chastised at work and later lashes out at their partner for not doing the dishes. Unlike individuals who may be prone to direct forms of aggression, displaced aggression is thought to involve high levels of behavioural inhibition, such that the individual initially inhibits their aggression when confronted by the provoking agent (Denson et al., 2006b). Given that both displaced and indirect aggression involve suppressing and ruminating over an anger eliciting event (Archer & Coyne, 2005; Denson et al., 2006b), it would stand to reason that hostility may be particularly pertinent to these forms of aggression. Indeed, studies have demonstrated moderate correlations between hostility and both indirect (Archer & Webb, 2006; Richardson & Green, 2003) and displaced forms of aggression (Denson et al., 2006b).

Numerous studies have provided evidence linking shame to various forms of aggression (e.g., Paulhus, Robins, Trzesniewski, & Tracy, 2004; Tangney, Wagner, et al., 1996; see Tangney & Dearing, 2002b for review). Evidence suggests individuals who are highly prone to shame are more likely than their less shame-prone counterparts to respond destructively, including using direct, indirect, and displaced forms of aggression (Tangney, Stuewig, & Mashek, 2007; Tangney, Wagner, et al., 1996). However, much of the evidence supporting these links has been correlational in nature. Furthermore, only a small subset of those studies assessed the implications of shame on indirect and displaced forms of aggression (e.g., Tangney, Wagner, et al., 1996). Given that shame is associated with behaviours such as submission and withdrawal, one could argue that non-direct forms of aggression (i.e., indirect and displaced) may be more pertinent when considering externalizing responses to shame. Indeed, Lewis (1971)

maintained that suppressing shame (i.e., bypassed shame) is inevitably likely to resurface, often in the form of sudden aggressive outbursts in the absence of any obvious anger-inducing stimulus (i.e., displaced aggression).

As discussed in the previous section, one of the only studies assessing the predictive links between shame and aggression suggests that this relation may occur indirectly though externalization of blame (e.g., Stuewig et al., 2010). Considering that hostility involves mistrust, cynicism, and resentment, it would stand to reason that hostility may prime individuals to more readily externalize their feelings of shame by blaming others. Furthermore, given evidence suggesting shame is an antecedent of hostility (Heavan et al., 2009) and aggression (Lewis, 1971; Stuewig et al., 2010), and suggestions that hostility is the cognitive precursor to aggressive behaviours (e.g., Spielberger et al., 1983), it is possible that links between shame and aggression may be attributable to mediating associations with both hostility and externalization of blame (see Figure 2).

Considering the Role of Personality: The Behavioural Inhibition System (BIS)

Despite empirical evidence providing support for the links between seemingly contradictory responses to shame (i.e., perfectionism and aggression), factors that may *modulate* these differential responses remain largely unexplored. Numerous studies have examined relations between shame and the Big Five personality traits, many of which providing evidence for positive associations between shame and neuroticism (e.g., Einstein & Lanning, 1998; Muris, Meesters, Asseldonk, 2017; Paulus, Vanwoerden, Norton, & Sharp, 2016). Such personality traits reflect stable individual differences in behaviour, that can be immediately perceived by others (Digman, 1990). These personality traits are thought to arise from interactions between

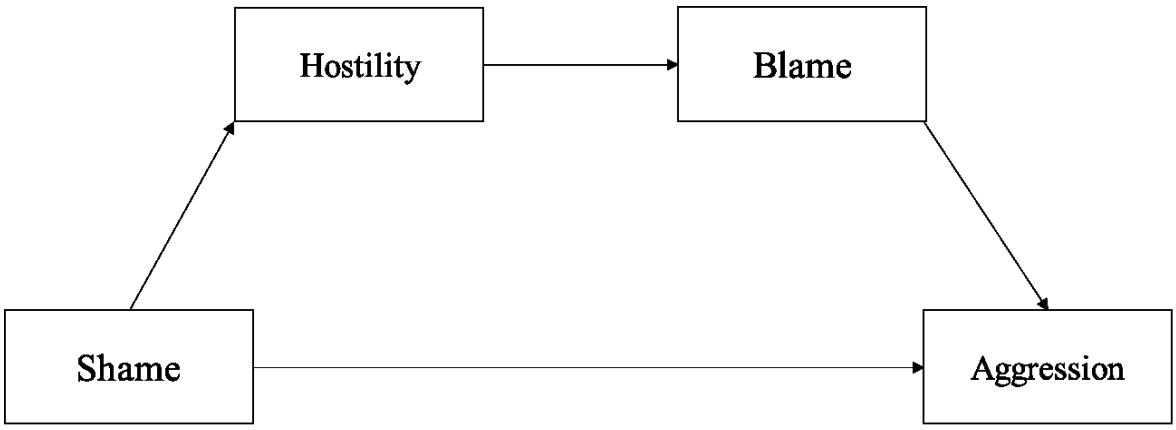

Figure 2. Hypothesized relation between shame-proneness and aggression hostility and blame.

underlying neurobiological systems that motivate approach-avoidance behavioural tendencies (i.e., the BIS/BAS/FFFS; Corr, DeYoung, & McNaughton, 2013; Smits & Boeck, 2006). Accordingly, although examining links between shame and the Big Five offers important insight into individual differences in the experience of shame, full exploration of the underlying cause of specific behavioural responses to shame necessitates examination of those biological systems responsible for approach versus avoidance motivational drives (i.e., the BIS/BAS/FFFS; Corr et al., 2013). Given that the goal of this thesis research study was to develop a comprehensive understanding of why seemingly contradictory responses to shame emerge (i.e., perfectionism and aggression), the present study examined individual differences in the neurobiological systems that motivate approach-avoidance behaviours. Indeed, considering evidence linking physical and social pain through neurobiological systems (Eisenberger & Lieberman, 2004; MacDonald & Leary, 2005), it is plausible that variations in this neurobiological system may contribute to individual (and situational) differences in shame responses.

The *Reinforcement Sensitivity Theory* (RST; Gray, 1970, 1982) posits the existence of three major neuropsychological systems responsible for mediating individual differences in approach-avoidance motivation: the *Behavioural Activation System* (BAS), the *Behavioural Inhibition System* (BIS), and the *Fight Flight Freeze System* (FFFS) (Corr, 2008; Corr & McNaughton, 2008, 2012; Gray, 1987; Gray & McNaughton, 2000; McNaughton & Corr, 2004, 2008). BAS is posited to motivate approach behaviours in response to positively-valanced stimuli. Accordingly, the BAS is involved in reward-seeking behaviours, including reward sensitivity, goal-directed behaviours, and impulsivity (Gray, 1970, 1987). Although BIS was originally believed to motivate avoidance responses to all-negatively valanced stimuli (Gray,

1970), the most recent revisions of this theory now maintain that avoidance behaviours are mediated by both the BIS and FFFS (Corr & Copper, 2016). Specifically, the FFFS is theorized to motivate reactions to aversive stimuli, eliciting either Flight (i.e., escape or active avoidance) or Freezing (i.e., passive avoidance) behaviours in response to avoidable threats, and Fight (i.e., defensive aggression) in response to threatening stimuli that cannot be easily avoided (Corr, 2008; Corr & Cooper, 2016).

Although the BIS is still considered an avoidance system, this system now thought to be responsible for cautious approach behaviours *towards* a threat. Specifically, the BIS is responsible for mediating responses to conflicting goals (i.e., both the BAS and FFFS are activated), and corresponds with the emotional state of anxiety. For example, in response to approach-avoidance conflicts, the BIS appraises the relative weighting of the reward and threat. If the reward is deemed to outweigh the threat, BIS motivates approach behaviours by activating the BAS and concurrently inhibiting FFFS. In contrast, if the perceived threat outweighs the reward, BIS motivates avoidance behaviours by activating FFFS and inhibiting BAS. Accordingly, BIS is responsible for cautious risk assessment, detection of conflict, and attention to threat (Gray & McNaughton, 2000). BIS sensitivity corresponds with personality traits relating to anxious rumination, difficulty making decisions, social withdrawal, and worry-proneness, which can manifest clinically as anxiety disorders (Corr, 2008; Corr & Cooper, 2016; Gray & McNaughton, 2000). Under-activation of the BIS is also problematic, leading to risk-taking behaviours, and can manifest in the form of psychopathy (Corr, 2008).

Decades of research have provided evidence for the proposed associations between the BIS and psychopathological outcomes. However, in the almost 20 years since the RST has been

revised, only a handful of studies have been conducted using the revised version of this theory. As such, much of the literature reviewed here was conducted using the original RST, which did not distinguish between BIS and FFFS subcomponents. In the original RST, BIS sensitivity was considered a vulnerability factor for internalizing problems, whereas BAS sensitivity was believed to provoke externalizing problems (e.g., aggression). However, as discussed in the forthcoming sections, empirical evidence for these assertions has been mixed (Bijttebier, Beck, Claes, & Vandereycken, 2009). This may be due, at least in part to the lack of distinction between BIS and FFFS, which have demonstrated differential implications for psychopathological outcomes (e.g., Bacon & Corr, 2017).

The few studies that have been conducted using the revised RST have highlighted BIS sensitivity as potential vulnerability factor in psychopathology (Bacon & Corr, 2017; Stoeber & Corr, 2015, 2017). For example, Bacon and Corr (2017) found BIS negatively predicted various components of emotional intelligence (EI), including well-being (optimism, self-esteem, happiness), sociability (assertiveness, emotion management, social awareness), self-control (emotion regulation, (low)impulsivity, stress management), and emotionality (empathy, understanding and perception of other's emotions). In another study, high BIS sensitivity predicted poor interpersonal functioning, including low social confidence and perceived social support, as well as excessive reassurance seeking (Hundt, Mitchell, Kimbrel, & Nelson-Gray, 2010). Taken together, these studies highlight the role of the newly conceptualized BIS in the emergence of psychopathology. Given evidence linking BIS to both internalizing and externalizing problems (e.g., Corr, 2008), the BIS may have important implications for understanding links between shame and seemingly contradictory responses (i.e., perfectionism

and aggression). In the following sections, relevant literature is reviewed illustrating the potential modulating roles of the BIS in the proposed models.

BIS and shame. An individuals' propensity to experience shame, the situations in which they are vulnerable to shame, and their corresponding responses are all potentially modulated by temperamental/personality factors that may biologically predispose some individuals to more readily experience shame (Lewis, 1992; Mills, 2005). Accordingly, it stands to reason that variability in the activation of the BIS would have important implications for shame. Indeed, the basic premise of RST is that individuals are genetically predisposed to particular sensitivities of their neurobiological systems, and that experiences throughout development modulate these predisposing genetic factors (Hundt, Nelson-Gray, Kimbrel, Mitchell, & Kwapil, 2007).

A review of the extant literature revealed only one study that has assessed the direct relations between BIS/BAS and shame. Sheikh and Janoff-Bulman (2010) found that BIS was positively associated with shame-proneness (whereas BAS sensitivity was positively associated with guilt). Further evidence for associations between BIS and shame stems from examination of links between shame and morality. Janoff-Bulman, Sheikh, and Hepp (2009) maintain that there are two components of morality: proscriptive and prescriptive. *Proscriptive morality* corresponds with inhibition of immoral behaviours (i.e., what one *should not* do) and is characterized by sensitivity to threat, and thus motivates behavioural inhibition. In contrast, *prescriptive morality* corresponds with engaging in moral behaviours (i.e., what one *should* do) and is characterized by sensitivity to reward, and thus motivates behavioural activation (i.e., approach behaviours).

Examining associations with these moral systems and shame, Sheikh and Janoff-Bulman (2010) found that participants had significantly higher levels of shame when their proscriptive

system (the inhibition system) was primed, compared to when their prescriptive system was primed. In a second study, they asked participants to read a series of vignettes and to report whether the character in the scenario was likely to feel shame or guilt in response to their behaviour. Proscriptive vignettes included scenarios in which the character behaved in a way they should not have, including personal indulgence and violating social norms. Prescriptive vignettes included scenarios in which the character failed to behave in a way in which they should have. Participants were significantly more likely to report that the character likely felt shame in response to proscriptive vignettes, while they believed guilt was the more likely response to prescriptive vignettes.

BIS, shame, and perfectionism. SPP is associated with a cognitive style characterized by hypervigilance and sensitivity to threat (Flett, Hewitt, Oliver, & MacDonald, 2002), which has been posited to underlie the negative self-evaluations and fear of failure characteristic of SPP (Flett et al., 2002; Randles, Flett, Nash, McGregor, & Hewitt, 2010). Accordingly, SPP might be expected to demonstrate positive associations with the BIS. In support of this notion, previous studies using the old version of the RST have demonstrated positive correlations between SPP and BIS (Flett et al., 2002; Kaye, Conroy, & Fifer, 2008; Randles et al., 2010). More recently, Stoeber and Corr (2015, 2017) examined relations between SPP and the revised RST. SPP demonstrated positive correlations with BIS, BAS-I, and FFFS (but not defensive fight). Further, SPP was indirectly associated with higher levels of negative affect and more negative expectations about the future, and this relation was mediated by BIS. That is, high levels of SPP were positively associated with BIS sensitivity, which in turn predicted more negative affect, as well as negative expectations about the future. When considering the role of BIS in anxiety and

rumination, it is plausible that individuals with high BIS sensitivities may be more prone to respond to shame with SPP behaviours, possibly moderating both the direct link between shame and SPP, as well as the indirect pathways through FNE and self-critical rumination (see Figure 3).

BIS, aggression, and hostility. Although RST is thought to underlie emotion regulation, the role of BIS and BAS in these regulatory processes has been controversial. BIS and BAS were originally thought to regulate negative and positive affect, respectively (Depue & Iacono, 1989; Fowles, 1980; Gray, 1987, 1990). However, these assertions have been challenged, with some researchers arguing that BIS and BAS are not uniquely predictive of affective valence (Carver, 2004; Corr, 2002; Harmone-Jones, 2003). Perhaps the most compelling evidence in support of these notions is evidence linking BAS with anger and aggression, both of which are considered negatively-valanced affects (Harmone-Jones, 2003). However, these findings have been inconsistent, with some researchers reporting non-significant associations between BAS and both relational and physical forms of aggression (Bowker, Stotsky, & Etkin, 2017), whereas others have found evidence to suggest that both low BIS sensitivity and high BAS sensitivity are associated with higher levels of physical aggression (Harmon-Jones, 2003; Smits & Kuppens, 2005). For example, Smits and Kuppens (2005) reported that BIS sensitivity negatively predicted both physical and verbal aggression, whereas BAS-Drive and BAS-fun seeking positively predicted physical (but not verbal) aggression. However, upon controlling for trait anger, only BIS remained significantly associated with aggression. The researchers speculated that this may suggest that, upon controlling for anger, aggression may arise as a result low BIS activation, rather than high BAS activation (Smits & Kuppens, 2005).

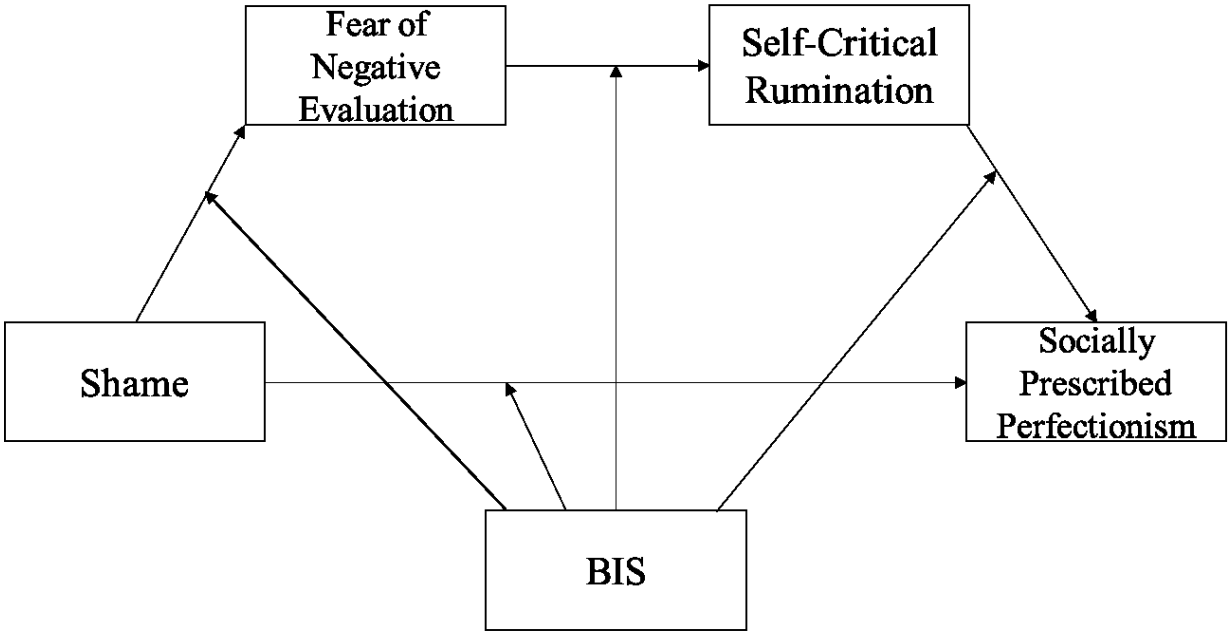

Figure 3. Conceptual model illustrating hypothesized pathways between shame-proneness, fear of negative evaluation, self-critical rumination, and socially prescribed perfectionism, moderated by BIS.

Some evidence suggests that BIS may have different implications for aggression, depending on whether aggression is internalized (e.g., self-aggression) or externalized (e.g., physical aggression). For example, Cooper, Gomez, and Buck (2008) assessed the predictive associations between BIS and BAS and various forms of anger and aggression, including anger-in (i.e., internalizing anger), and direct, indirect, and self-directed aggression. Only BAS-Fun Seeking positively predicted direct and indirect forms of aggression, while the BIS positively predicted self-aggression and anger-in. In another study, Rajchert and Winiewski (2016) assessed the implications of social rejection on indirect aggression. Participants were asked to answer a series of questions in mock-interview. This interview was recorded, and participants were told that the video would be reviewed and rated by a peer. Participants were either told that the peer liked the interview and wanted to work with them (acceptance condition), or that the peer did not like the interview, and would not want to work with them (rejection condition). To measure indirect aggression, participants were then told that their peer was applying to work as a research assistant with the experimenter, and asked to rate how suitable they thought the peer would be for the job. Poorer ratings were used as a measure of indirect aggression. Results revealed a significant interaction between BIS and rejection. BIS significantly predicted indirect aggression for individuals in the rejection condition, however, levels of aggression were higher for those individuals with low compared to high BIS sensitivities.

Further, evidence suggests BIS may also be positively associated with displaced aggression (Denson et al., 2006b; Rajchert & Winiewski, 2016). For example, Rajchert and Winiewsku (2016) recently conducted a study in which they experimentally manipulated social exclusion using the Cyberball paradigm. Participants played an online ball-tossing game with

two other people. Unbeknownst to the participants, the experiment was set up such that participants in the ostracized condition received the ball for the first two passes only (thus manipulating the feeling of being left-out). Participants then engaged in another online game with a new partner. The loser of the game was subjected to an unpleasant loud noise, the duration and intensity of which was determined by the winner. Once again, the experiment was set up such that the participant won the game. Displaced aggression was assessed based on the duration and intensity of the noise chosen by the participant. Both BIS and BAS-drive emerged as a significant predictor of displaced aggression, however, only BAS-drive displayed a significant interaction with exclusion. That is, exclusion evoked higher levels of displaced aggression only for those participants who had high levels of BAS-drive. These findings suggest that BIS may relate to displaced aggression, irrespective of feelings of social exclusion.

Given the ruminative component of BIS, it stands to reason that BIS would also be associated with hostility. Indeed, Johnson, Kim, Giovannelli, and Cagle (2010) found a positive correlation between BIS and vengefulness, which was operationalized as responses to interpersonal offenses, including both indirect aggression and avoidant responses. Given that BIS is associated with obsessive thoughts and worry, it can be postulated that BIS may be indirectly related to aggression through hostility. Further support for this notion, Izadpanah, Schumacher, & Barnow (2017) found an indirect relation between BIS and aggression five-years later, and this relation was mediated by anger rumination. Importantly, although the authors refer to aggression throughout their study, the subscale used to measure this construct was derived from the *Revised Symptoms Checklist* (Franke, 1995), which actually measures hostility (not aggression).

Taken together, these studies suggest that the relations between BIS and aggression may be dependent on the specific forms of aggression assessed. That is, BIS appears to be negatively associated with more direct forms of aggression, but positively associated with internalized forms of aggression. Given that shame is associated with anxiety, inhibition, and sensitivity to social threats (Gilbert, 1998; Mills, 2005), it can be speculated that BIS sensitivity may predispose individuals to more readily experience shame. However, despite these theoretical assertions, to date these notions remain largely unexplored.

Studies have also suggested plausible links between BIS and blame. For example, Kuppens and Van Mechelen (2007) had participants read a series of hypothetical scenarios and rate their appraisals based on how they would feel in that situation, including, the degree to which they felt their self-esteem was threatened, and the degree to which they would blame others for the hypothetical situation. At high levels of threat to self-esteem, evaluative (versus non-evaluative) unpleasant situations was positively correlated with both anger and BIS. Further, blaming others was positively correlated with BIS, but only for scenarios in which someone else was responsible. In scenarios in which either the self or the circumstances were to blame, high levels of other-blame was positively correlated with interpersonal distrust and anger. These studies suggest BIS sensitivity may moderate at least some of the pathways linking shame and aggression. Specifically, it is possible that individuals with sensitive BIS's and who are more prone to shame, may respond to social rejection by blaming others, possibly mediated through internalized hostile attitudes towards others (see Figure 4).

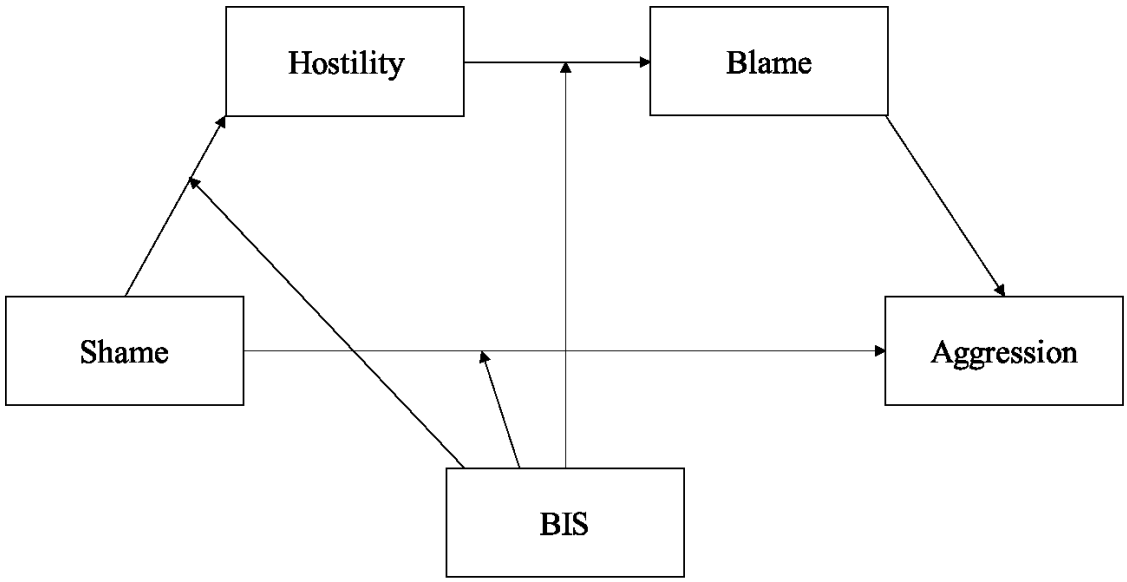

Figure 4. Conceptual model illustrating hypothesized pathways between shame-proneness, hostility, blame, and indirect and displaced aggression, moderated by BIS.

The Role of Gender

The final goal of the current MA research was to examine the potential modulating role of gender in the proposed models. Indeed, an extensive body of research has provided evidence for gender differences in the experience of shame and guilt (see Tangney & Dearing, 2002b). Across numerous studies, with samples ranging from young children to grandparents, Tangney and Dearing (2002a) found that women consistently demonstrated more shame- and guilt-proneness than men. Researchers have argued that this discrepancy likely arises from socialization of women's sex roles, including an emphasis placed on awareness and responsivity towards others (Hill & Lynch, 1983). Similarly, Reimer (1996) speculated that the socialization of gender-roles may lead women to adopt more passive responses to shame, including rumination and self-directed hostility, whereas such socialization may lead to males adopting more externalizing responses (i.e., aggression). Accordingly, we might expect females to be more likely to engage in internalizing shame responses (i.e., FNE, SCR, and SPP), whereas males may be more likely to engage in externalizing shame responses (i.e., hostility and aggression). However, to date, there have been few studies specifically examining these postulations. Thus, a more exploratory basis, the final goal of this thesis research was to examine the role of *gender* as a moderator of internalizing and externalizing responses to shame.

Gender and internalizing responses to shame. Lewis (1987) maintained that gender differences in the propensity to experience shame were likely as a result of gender-socialization, whereby women are expected to be more relationship-oriented than males. In support of her speculations, Gross and Hansen (2000) found that women reported significantly higher levels of shame than men. However, this gender difference was no longer significant upon controlling for

investment relatedness (i.e., emphasizing emotional closeness and fears of abandonment; Blatt, 1990).

Studies have also found that women tend to be more prone to various forms of rumination (Johnson & Whisman, 2013; Simonson, Mezulis, and Davis, 2011), with evidence suggesting this gender difference may emerge due to socialization of gender roles. For example, Simonson et al. (2011) examined the role of femininity (characterized by interpersonal warmth and emotional sensitivity; Spence and Buckner, 2000) in the links between biological sex and rumination. Results revealed that femininity accounted for the links between women's increased tendency to engage in interpersonal (but not achievement-oriented) rumination. In another study, Nolen-Hoeksema and Jackson (2001) found women were more likely to ruminate then were men, and this gender difference was accounted for by women's tendency to believe their emotions are difficult to control, and by their belief that they are responsible for the emotional tone in their relationships with others.

Studies have also provided evidence to suggest women may be more prone to negative evaluative fears (Duke, Krishnan, Faith, & Storch, 2006; Inderbitzen-Nolan & Walters, 2000; Vagos et al., 2016). For example, in a recent study, Biolcati (2017) examined gender differences in links between FNE, compulsive buying, and contingent self-esteem, defined as self-esteem that is dependent on some external standard (e.g., approval from others; Patrick, Neighbors, & Knee, 2004). Results indicated that women reported significantly more FNE compared to men. Furthermore, FNE mediated the relation between self-esteem and compulsive buying among women, but not among men.

Other studies have provided evidence to suggest self-focused attention may be a vulnerability factor for maladaptive outcomes among women but not men. For example, Arndt and Goldenberg (2004) had participants either read a story about themselves (self-focused awareness condition) or read a story about someone else (external focus condition). They found that women who in the self-awareness condition reported significantly more shame compared to those women in the external focus condition. However, no differences emerged among men who completed the same task. In another study, Shahar et al. (2004) found self-criticism predicted increased depressive symptoms for adolescent girls, but not boys.

The few studies examining gender differences in SPP have suggested males and females do not differ in their levels of SPP (Iranzo-Tatay et al., 2015; Sherry, Gralnick, Hewitt, Sherry, & Flett, 2014). However, other studies suggest gender differences may emerge in the relations between SPP and maladaptive outcomes. For example, Klibert, Lamis, Naufel, Yancey, & Lohn (2015) found that, among women, SPP was positively associated with threat perceptions and feelings that one has no control over the environment, which in turn was associated with higher levels of anxiety. In contrast, no-significant relation between SPP and anxiety emerged among men. Taken together, these studies provide evidence to suggest women may be socialized to be more vigilant about their interpersonal relationships, and such socialization may leave women more vulnerable to adopt internalizing responses to shame. Accordingly, we might speculate that the relation between shame-proneness and SPP, through FNE and SCR, would be stronger for females compared to males.

Gender and externalizing shame responses. Despite decades of research examining gender differences in aggression, few studies have examined whether such differences exist in

displaced and *indirect* forms of aggression (e.g., Tangney & Dearing, 2002b; Stuewig et al., 2010). Further, those studies that have been conducted have provided inconsistent evidence for these gender discrepancies. Although some research has found evidence to suggest females are more likely than males to engage in both indirect (e.g., Hess & Hagen, 2006) and displaced aggression (Tangney, Barlow, Borenstein, & Marschall, 2001), other studies have found evidence for the contrary (e.g., Chen, Coccarro, & Jacobson, 2012; Lindeman, Harakka, & Keltikangas-Jarvinen, 1997; Tangney et al., 2001). Still other research has found no evidence for gender differences across various age groups (e.g., Denson et al., 2006b; Richardson & Green, 1999; Walker, Richardson, & Green, 2000).

Of the few studies that have examined gender differences in links between indirect aggression and shame-related constructs, results suggest that males may be more prone to engage in indirect aggression. For example, Chen et al. (2012) found that feelings of embarrassment in response to a hypothetical vignette were positively associated with indirect aggression among males, however this relation was not significant among females. Furthermore, in one of the few studies specifically examining gender differences in displaced aggression (as conceptualized in the current study), Tangney et al. (2001) found that shame-prone girlfriends were more likely engage in displaced aggression and self-directed hostility, whereas shame-prone boyfriends were more likely to engage in indirect aggression and ruminative anger. These findings suggest males may be more prone to engage in indirect aggression, and possibly more prone to blame others and the development of hostile attitudes.

In support of these ideas, Szentagotai-Tatar and Miu (2016) found adolescent boys were more likely than girls to engage in blaming others as an emotion-regulation strategy.

Furthermore, other studies have found that males tend to report higher levels of hostility than their female counterparts (Hoglund & Nicholas, 1995; Matthews, Woodall, Engebretson, & McCann, 1992).

Findings from Tangney et al.'s (2001) study also suggest females may be more prone than males to respond to shame with displaced aggression. Given that displaced aggression involves attempts to suppress one's aggression towards others, it stands to reason that women may be more prone towards this particular form of aggression in light of the gender-role socialization discussed in the previous section. In support of this notion, Velotti et al. (2017) found that, among women but not men, characterological shame (shame surrounding how one presents themselves with others; Andrews, Qian, & Valentine, 2002) was negatively associated verbal aggression and positively associated with emotional suppression. These findings suggest women may be more prone to suppress their feelings of aggression, possible due to shame surrounding how they appear to others.

Further support for these ideas stems from a study examining associations between hostility and rejection sensitivity. Romero-Canyas, Reddy, Rodriguez, and Downey (2013) had participants complete an online dating profile. Participants in the rejection condition were told that their match had rejected them, while participants in the control condition were told their match was unable to make it to the lab that day. Results indicated that, among women but not men, rejection was associated with increased hostility. Furthermore, this effect was stronger for women who engaged in self-silencing (suppressing one's own feelings and beliefs to fit those of others). In addition, self-silencing also mediated the relation between women's rejection sensitivity and post-rejection hostility.

Taken together, the aforementioned studies suggest plausible gender differences in aggressive responses to shame. Given that displaced aggression initially involves suppressing one's feelings of anger against another, it is conceivable that women may also be more likely to respond to shame-induced hostility by engaging in displaced aggression. In contrast, given evidence suggesting males tend towards blaming others and indirect aggression in response to shame (Chen et al., 2012; Tangney et al., 2001), we might expect that the pathway from shame to indirect aggression through hostility and blame would be stronger for males.

The Current Study

Despite decades of research assessing shame, the aforementioned theoretical and methodological gaps in shame research highlight the need for a more comprehensive investigation of this construct. Accordingly, the primary purpose of this thesis research was to explore complex conceptual models of internalizing (i.e., perfectionism) and externalizing (i.e., indirect and displaced aggression) responses to shame (including the implications of a series of potential mediating and moderating variables in these relations).

As discussed in previous sections, evidence suggests plausible links between shame and SPP through FNE and self-critical rumination. Accordingly, a sequential mediation was employed to assess the indirect relations between shame-proneness and SPP through FNE and self-critical rumination (see Figure 1). Specifically, it was hypothesized that shame would be positively associated with fear of negative evaluation, which in turn, would be associated with increased self-critical rumination, which would then be positively associated with perfectionistic behaviours.

The second model explored the relation between shame-proneness and aggression (displaced and indirect). Based on previous findings (Stuewig et al., 2010), it was hypothesized that externalization of blame would mediate the relation between shame-proneness and aggression. Further, given that hostility primes an individual to lash out aggressively, it was also hypothesized that hostility would act as a mediator in the relation between shame-proneness and aggression. Accordingly, the present study explored a sequential mediation model examining the links between shame-proneness and aggression through hostility and blame. Specifically, it was hypothesized that shame-proneness would be positively associated with hostility, which, in turn, would be positively associated with externalizing blame, and in turn, positively associated with aggression (see Figure 2).

Given that the overarching goal of the present study was to develop a more comprehensive understanding of individual differences in responses to shame, it was also of import to further examine some potential modulating factors that may help to explain *why* such seemingly contradictory responses (i.e., SPP and aggression) emerge. Considering BIS is thought to motivate cautious approach behaviours, it was hypothesized that variability in BIS sensitivities may help to explain individual variability in responses to shame emerge (i.e., SPP and aggression). Given that BIS is responsible for mediating anxiety-related responses (Corr, 2008; Gray, 1990), it was speculated that BIS would moderate the direct and indirect relations between shame-proneness and self-critical rumination, FNE, and SPP, such that these relations would be stronger at *higher* levels of BIS (see Figure 3). Furthermore, given that BIS is also responsible for inhibiting one's behaviour, it was also speculated that BIS would moderate the direct and

indirect relations between shame-proneness and aggression, hostility, and blame, such that these relations would be stronger at *lower* levels of BIS (see Figure 4).

Finally, although numerous studies have provided evidence for gender differences in the propensity to experience shame (see Tangney & Dearing, 2002a), few studies have explored gender differences in responses to shame. Accordingly, on a more exploratory basis, gender was also examined as a potential moderator of the links between shame and both internalizing and externalizing responses. Given previous findings (Tangney & Dearing, 2002a), it was hypothesized that women would display significantly higher levels of shame- and guilt-proneness. Furthermore, drawing upon previous speculations (e.g., Reimer, 1996) it was anticipated that females would be more prone to engage in internalizing shame-responses (i.e., FNE, SCR, and SPP), such that links between shame and SPP through FNE and SCR would be stronger for females compared to males. In contrast, gender differences were expected to emerge in externalizing shame responses, such that males were expected to be more prone to engage indirect aggression, whereas females would be more prone to respond to shame with displaced aggression. More specifically, it was anticipated that links between shame and indirect aggression through hostility and blame would be stronger for males, whereas links between shame and displaced aggression through hostility and blame would be stronger for females.

Method

Participants

A total of $N = 967$ (61.9% female) Carleton University students enrolled in undergraduate psychology courses (PSYC 1001, 1002, 2001, 2002) participated in the study. Participants were on average 20.1 years of age ($SD = 4.32$; min = 17, max = 71), with most participants in either

first (63.1%) or second (22.8%) year of their Undergraduate degree. Approximately 57% of participants were Caucasian, 16% were Asian, 9% were African-Canadian, 2% were Hispanic, and 1% were Aboriginal.

Procedure

Participants were recruited through SONA (see Appendix A) and completed a series of questionnaires online through Qualtrics survey software. After providing informed consent (see Appendix B), participants completed a demographics survey (see Appendix D), followed by a series of questionnaires (see Appendices E-K). All questionnaires and their corresponding questions were presented in randomized order. Upon completion of the study, participants were presented with a debriefing form (see Appendix C). The study took an average of approximately one hour to complete. Participants were compensated 0.5% course credit towards their grade in their respective course.

Measures

Demographics. To obtain sample demographics, participants were asked to answer four questions pertaining to their age, sex, ethnicity, and number of years in university (see Appendix D).

Shame, blame, and guilt. The short version of the *Test of Self-Conscious Affect-3* (TOSCA-3; Tangney, Dearing, Wagner, & Gramzow, 2000) was used as a measure of shame-proneness and other-blame (see Appendix E). The TOSCA-3 is a scenario-based self-report measure comprised of 11 commonly occurring situations. Each scenario is followed by three possible reactions, which are intended to reflect either Shame-proneness, Guilt-proneness, or Externalization (i.e. tendency to blame others). Participants are asked to imagine themselves in

each scenario and rate the extent to which they would engage in each of the three corresponding reactions using a 5-point Likert-scale (1 = *not likely*, 5 = *very likely*). For example: "You walk out of an exam thinking you did extremely well. Then you find out you did poorly." Participants then rate the likelihood they would respond with each of the following: a) *You would think: "The instructor doesn't like me."* (Externalization), b) *You would think: "I should have studied harder."* (Guilt), and c) *You would feel stupid.* (Shame). Items corresponding to each subscale are summed across the 11 scenarios to achieve an average total score (ranging from 1-5), with higher scores for each subscales indicative of higher levels of dispositional shame, or a greater tendency to blame others.

The 16-item version has demonstrated evidence for internal consistency reliability (shame, $\alpha = .76 - .88$; Guilt, $\alpha = .70 - .83$; Externalization, $\alpha = .66 - .80$), as well as high test-retest reliability across a two-year period (shame: $r = .59 - .73$, guilt: $r = .32 - .56$; Tangney & Dearing, 2002b). Furthermore, the full version has demonstrated evidence of convergent validity across numerous studies, with the shame subscale demonstrating associations maladaptive outcomes (e.g., low empathy, low self-esteem, anxiety, depression, hostility), and the guilt subscale demonstrating non-significant or negative associations with maladaptive outcomes (e.g., anxiety, depression), and positive associations with adaptive responses (e.g., reparation, empathy) (Tangney & Dearing, 2002b). The brief version of the TOSCA-3 has demonstrated evidence of convergent validity based on correlations with the full 16-item version (shame: $r = .94$, guilt: $r = .93$; Tangney & Dearing, 2002b). The brief version demonstrated evidence of adequate internal consistency reliability in the current sample (Shame: $\alpha = .77$, Guilt: $\alpha = .79$, Blame: $\alpha = .71$).

Self-critical rumination. The *Self-Critical Rumination Scale* (SCRS; Smart et al., 2016b) is comprised of ten items assessing one's propensity to engage in self-critical rumination (e.g., I criticize myself a lot for how I act around other people.; see Appendix F). Two items reference feelings of shame (i.e., "I spend a lot of time thinking about how ashamed I am of some of my personal habits." and "My attention is often focused on aspects of myself that I'm ashamed of."), and thus were excluded from the present study. Participants are asked to rate the extent to which they engage in each of the items using a four-point scale ranging from 1 (*not at all*) to 4 (*very much*). The items are summed to derive a total score (range = 8 – 32), with higher scores indicative of a greater propensity to engage in self-critical rumination. This measure has demonstrated good psychometric properties, including evidence for a single-factor structure and convergent validity with previously established measures of self-criticism and rumination (r = .53 - .81) in samples of emerging adults (Smart et al., 2016a). The SCRS demonstrated good internal consistency reliability in the present sample (α = .93), similar to that found in previous studies (Smart et al., 2016a).

Fear of negative evaluation. The *Brief Fear of Negative Evaluation Scale* (Leary, 1983) contains 12 items that assess fears of being negatively evaluated by others (e.g., "I am afraid that others will not approve of me."; see Appendix G). Participants are asked to rate the extent to which each item is characteristic of them on a scale from 1 (*not at all characteristic of me*) to 5 (*extremely characteristic me*). Items are summed to derive a total score (range = 12 – 60), with higher scores indicative of a greater propensity to hold evaluation fears. This measure has been used in numerous studies, and has demonstrated good psychometric properties, including good internal consistency (α = .90) and test re-test reliability (r = .75; Leary, 1983), comparable to the

full-length version of this measure (Watson & Friend, 1969). The brief FNE has also demonstrated evidence for convergent validity based on correlations with related constructs, including social anxiety (r = .32 - .66) and social avoidance (r = .45), in samples of undergraduate students (Gilbert, 2000; Leary, 1983; Lutwak & Ferrari, 1997). Predictive associations between the FNE and social anxiety in a clinical sample with anxiety disorders have also provided further evidence for validity (Weeks et al., 2005). Consistent with previous findings, the brief FNE demonstrated good internal consistency reliability in the present study (α = .91).

Socially prescribed perfectionism. SPP was measured using the corresponding 15-item subscale of the *Multidimensional Perfectionism Scale* (Hewitt & Flett, 1991a; See Appendix H). Participants are asked to indicate the extent to which the agree or disagree with each item on a seven-point scale (1 = strongly disagree, 7 = strongly agree). Items are average to derive a mean score (range = 1 – 7), with higher scores indicative of higher levels of SPP. Sample items include "The better I do, the better I am expected to do." and "People expect nothing less than perfection from me.". This subscale has demonstrated evidence for reliability and validity in numerous studies (e.g., Hewitt & Flett, 1991b, 2004) including test-retest reliability (r = .75; Hewitt & Flett, 1991b) and good internal consistency (α = .87), similar to that found in the current sample (α = .84). The SPP subscale has also previously provided evidence for validity based on associations with relevant constructs, including self-criticism (r = .48), fear of negative evaluation (r = .46), and need for approval (r = .27; Hewitt & Flett, 1991b), as well as other measures of perfectionism (Dunkley et al., 2006; Hewitt & Flett, 1991b; Prud'homme et al., 2017).

Indirect aggression and hostility. Indirect aggression and hostility were measured using the corresponding 7-item subscales from the 34-item version of the *Aggression Questionnaire* (Buss & Warren, 2000; see Appendix I). The Hostility subscale (8 items; α = .82) contains items pertaining to feelings of resentment, suspiciousness, and paranoia (e.g., *"I wonder what people want when they are nice to me."*). The Indirect Aggression subscale (6 items; α = .71) assesses one's tendency to engage in aggression through indirect means (e.g., *"I sometimes spread gossip about people I don't like."*). Participants are asked to rate the extent to which each item is characteristic of them using a 5-point scale (1 = *not at all like me*, 5 = *completely like me*). Items for each subscale are summed to derive a total score for each. Previous studies have provided psychometric support for this measure, including factor structure and construct validity based on correlations with previously established measures of aggression (e.g., Buss & Warren, 2000). In the current study, the two subscales demonstrated alpha-coefficients similar to those previously reported in previous studies (Hostility: α = .85, Indirect Aggression: α = .69), providing evidence for internal consistency reliability.

Displaced aggression. Displaced aggression was measured using the 10-item subscale from the *Displaced Aggression Questionnaire* (Denson et al., 2006a; see Appendix J). This subscale measures one's tendency to displace one's aggression onto an innocent target (e.g., "Sometimes I get so upset by work or school that I become hostile towards my family or friends."). Participants are asked to rate the extent to which each item is characteristic of them using a 7-point scale (1 = *extremely uncharacteristic of me*, 7 = *completely characteristic of me*). The 10 items are averaged to derive a total score (range = 1 – 7), with higher scores indicative of a greater tendency to displace aggression. This subscale has demonstrated good psychometric

properties in previous studies, including excellent internal consistency (α = .93), and construct validity based on correlations with relevant variables (e.g., aggression: *r* = .34 - .41, hostility: *r* = .49, impulsivity: *r* = .43). Further evidence for validity was derived based on predictive associations between the subscale and observational analyses of experimentally manipulated displaced aggressive behaviour (Denson et al., 2006b). The DAQ demonstrated good internal consistency reliability in the current sample (α = .90).

BIS. The BIS was measured using the corresponding subscale of the *Revised Reinforcement Sensitivity Theory of Personality Questionnaire* (RST-PQ; Corr & Cooper, 2015; see Appendix K). The BIS subscale is comprised of 23 items intended to assess anxiety-related responses, including items that tap into the four components related to BIS: *Motor planning interruption* (e.g., "I take a long time to make decisions."), *Cautious risk assessment* (e.g., "I worry a lot."), *Obsessive thoughts* (e.g., "I am often preoccupied with unpleasant thoughts."), and *Behavioural disengagement* (e.g., "I often find myself going into my shell."). Participants are asked to indicate how much each item corresponds with their general feelings and behaviours, using a 4-point scale (1 = *Not at all*, 4 = *Highly*). Items are averaged to derive a total score (range = 1-4), with higher scores indicative of higher BIS sensitivities. The BIS subscale has demonstrated evidence of good internal consistency reliability (α = .93) and validity, including factor structure and evidence for convergent validity based on correlations with relevant constructs such as anxiety (*r* = .82), extraversion (*r* = -.41), and neuroticism (*r* = .72; Corr & Cooper, 2016). The BIS subscale demonstrated good internal consistency reliability in the current sample (α = .95).

Results

Preliminary Analyses

Prior to conducting the main analyses, accuracy checks, missing data analyses, and analyses of model assumptions were conducted. Descriptive statistics, relations with demographic variables, and bivariate correlations among all study variables were also computed.

Accuracy checks. To determine a cut-off for the minimum duration for participants to complete the series of questionnaires, a research assistant mimicked string responding by completing all questionnaires answering the questions at random. The average duration across three trials was 5.5 minutes. As such, all participants who took five minutes or less to complete the questionnaire were deleted from the dataset (n = 30). To identify string responding, participants' variability in scores were then calculated for each measure. Participants with a variability of 0 on measures containing reverse-coded items had their data removed for the given measure(s). Eight participants were deleted due to having a variability of 0 on all measures, leaving a final sample of N = 967.

Missing data. Missing data analysis indicated that 5.26% of the data was missing. To examine potential patterns in the missing data, an independent samples t-test was conducted using a dummy variable to compare participants with complete (n = 832) versus incomplete (n = 135) datasets. Results indicated that participants with incomplete datasets had significantly lower levels of guilt (M = 3.87, SD = 0.68) compared to participants with complete datasets (M = 4.06, SD = 0.61), $t(887) = 2.28$, $p = .023$. Furthermore, participants with incomplete datasets had significantly higher levels of indirect aggression (M = 2.46, SD = 0.82) compared to those with complete datasets (M = 2.29, SD = 0.75), $t(923) = 2.03$, $p = .039$. Finally, those with incomplete

data sets also had significantly higher levels of displaced aggression (M = 3.51, SD = 1.33) compared to participants with complete datasets (M = 3.23, SD = 1.25), $t(920) = 1.99$, $p = .046$. No other significant differences emerged.

Descriptive statistics and testing model assumptions. Descriptive statistics for all study variables are presented in Table 1. Assumptions were tested individually for each model. Visual analyses of histograms and normal probability plots, as well as examination of skewness and kurtosis indicated that both shame and SCR were slightly negatively skewed, and blame, hostility, and indirect and displaced aggression were positively skewed. Given that analyses conducted with PROCESS are robust against violations of normality (Hayes, 2018a), no remedial actions were taken. Plots of studentized residuals against the standardized predicted values indicated homogeneity of variance. Scatterplots of standardized residuals against the predicted values, as well as bivariate scatterplots between each variable pair indicated the linearity assumption was met. All VIFs were significantly smaller than 10, indicating multicollinearity was not an issue. Furthermore, none of the bivariate correlations between the variable pairs were greater than .7 (Tabachnick & Fidell, 2013).

Potential outliers and influential cases were examined using casewise diagnostics, leverage values, dfFits, mahalanobis distance, cook's distance, and studentized deleted residuals for each model. No influential cases were identified based on cook's distance, studentized deleted residuals, or leverage values. Furthermore, no multivariate outliers were identified based on Mahalanobis Distance values. Cases with high dfFits (> 2[p/n]^.5 = .1438; Kutner, Nachtsheim, Neter, & Li, 2005) were further examined to determine whether there were any discernible reasons these cases may be identified as influential (e.g., variability in scores, age,

Table 1

Descriptive Statistics for All Study Variables

	n	*M*(*SD*)	Min	Max	Range	Skew(*SE*)	Kurt(*SE*)
1. Shame	885	3.26(0.69)	1.00	4.91	3.91	-0.34(.08)	-0.12(.16)
2. SPP	919	3.78(0.88)	1.00	6.67	5.67	0.04(.08)	0.15(.16)
3. SCR	933	2.75(0.84)	1.00	4.00	3.00	-0.22(.08)	-0.87(.16)
4. FNE	901	3.24(0.86)	1.00	5.00	4.00	0.01(.08)	-0.50(.16)
5. Blame	890	2.28(0.61)	1.00	4.45	3.45	0.29(.08)	-0.07(.16)
6. Hostility	924	2.45(0.87)	1.00	5.00	4.00	0.32(.08)	-0.45(.16)
7. Indirect	925	2.30(0.76)	1.00	5.55	4.00	0.44(.08)	-0.11(.16)
8. Displaced	922	3.26(1.26)	1.00	7.00	6.00	0.24(.08)	-0.51(.16)
9. BIS	910	2.64(0.67)	1.00	4.00	3.00	-0.13(.08)	-0.66(.16)

Note. SPP = socially prescribed perfectionism; SCR = self-critical rumination; FNE = fear of negative evaluation; Indirect = indirect aggression; Displaced = displaced aggression; BIS = behavioural inhibition system.

**p* < .05; ***p* < .01; ****p* < .001.

etc.). Given that no outliers were identified based on the aforementioned criteria, no further action was taken. Casewise diagnostics revealed one outlier for the first model, and three unique outliers for each of models 2 and 3. The results for each model were examined with and without their respective outliers. Results did not differ and thus the outliers were retained.

Demographic variables. To explore the main effects of gender, a series of independent samples *t*-tests were conducted to examine gender differences in the study variables. As shown in Table 2, females reported significantly higher levels of shame, guilt, self-critical rumination, fear of negative evaluation, displaced aggression, and BIS. In contrast, males reported significantly higher levels of indirect aggression, and were also significantly more prone to blame others. Contrary to expectations, no gender differences emerged for SPP or hostility.

Bivariate correlations. Intercorrelations among all study variables are presented in Table 3. As anticipated, shame demonstrated positive correlations with all study variables. Specifically, shame was moderately correlated with SPP and BIS, and highly correlated with FNE and SCR. Furthermore, shame also demonstrated moderate correlations with blame, hostility, and displaced aggression, but only a small correlation with indirect aggression. In contrast, and consistent with expectations, guilt was not significantly correlated with hostility or SPP, and negatively correlated with blame, indirect, and displaced aggression. However, contrary to expectations, guilt demonstrated moderate correlations with FNE, SCR, and BIS.

Table 2

Results of Independent Samples t-test Examining Gender Differences Among Study Variables

	Males		Females				
	n	*M*(*SD*)	*n*	*M*(*SD*)	*t*-value	*p*-value	Cohen's *d*
Shame	332	3.02(0.65)	538	3.40(0.67)	8.14	<.001	.57
Guilt	333	3.86(0.62)	541	4.16(0.58)	7.29	<.001	.51
SCR	346	2.61(0.84)	573	2.83(0.83)	3.92	<.001	.27
FNE	334	3.07(0.081)	553	3.34(0.88)	4.60	<.001	.31
SPP	336	3.77(0.82)	569	3.77(0.91)	0.10	.92	.007
Blame	332	2.39(0.63)	543	2.22(0.59)	4.05	<.001	.29
Hostility	338	2.46(0.87)	571	2.43(0.87)	0.41	.68	.03
Indirect	340	2.37(0.77)	570	2.26(0.75)	2.05	.041	.14
Displaced	337	3.00(1.25)	570	3.39(1.24)	4.54	<.001	.31
BIS	339	2.51(0.68)	556	2.72(0.66)	4.64	<.001	.32

Note. SCR = self-critical rumination; FNE = fear of negative evaluation; SPP = socially prescribed perfectionism; Indirect = indirect aggression; Displaced = displaced aggression; BIS = behavioural inhibition system.

Table 3

Bivariate Correlations Between Study Variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Shame	-									
2. Guilt	.51***	-								
3. SPP	.31***	-.02	-							
4. SCR	.55***	.28***	.41***	-						
5. FNE	.54***	.25***	.36***	.66***	-					
6. Blame	.22***	-.11**	.19***	.12**	.08*	-				
7. Hostility	.36***	.006	.50***	.58***	.50***	.30***	-			
8. Indirect	.14***	-.10**	.27***	.29***	.22***	.31***	.65***	-		
9. Displaced	.27***	-.09*	.18***	.34***	.34***	.20***	.49***	.49***	-	
10. BIS	.53***	.26***	.45***	.78***	.61***	.14***	.63***	.35***	.42***	-

Note. SPP = socially prescribed perfectionism; SCR = self-critical rumination; FNE = fear of negative evaluation; Indirect = indirect aggression; Displaced = displaced aggression; BIS = behavioural inhibition system.

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

Main Analyses Part 1: Sequential Mediation Models

The goal of these analyses was to examine the links between shame and perfectionism, indirect aggression, and displaced aggression through the proposed mediators. Accordingly, three separate sequential mediation models were computed. Each model was examined individually using SPSS PROCESS version 3 Sequential Mediation Model 6 (Hayes, 2018a). All indirect paths were analyzed using 5000 bootstrap samples, producing 95% bias-corrected bootstrapped confidence intervals. Three effects are quantified when conducting mediation analyses. The *direct effect* represents the variance accounted for in the dependent variable (DV) by the independent variable (IV), after partialling out (i.e., controlling for) any variance accounted for by the mediator(s). The *indirect effect* is the effect (i.e., variance accounted for) of the IV on the DV through the mediator(s) (i.e., from the DV to the mediator and from the mediator to the IV), quantifying the magnitude of the relation between the IV and the DV that is explained (or accounted for) by the mediator(s). A significant indirect effect is indicated if the confidence intervals do not contain zero (Preacher & Hayes, 2008). Finally, the *total effect* is the sum of the direct and indirect effect.

Model 1: Shame → Fear of Negative Evaluation → Rumination→ Perfectionism. The first hypothesized model predicted that *fear of negative evaluation* and *self-critical rumination* would sequentially mediate the relation between shame and *socially prescribed perfectionism*. As illustrated in Figure 5, the total direct effect (*c*) of shame on perfectionism was significant. Both simple indirect effects of shame on perfectionism through: (1) fear of negative evaluation, $b = .092$, $SE = .032$, 95%CIs [0.03, 0.16]; and (2) self-critical rumination, $b = .11$, $SE = .021$, 95%CIs [0.069, 0.15], were significant. Furthermore, the indirect effect of shame on

perfectionism through both fear of negative evaluation and rumination (sequentially) was also significant, $b = .11$, $SE = .017$, 95%CIs [0.073, 0.14]. Finally, the direct effect of shame on perfectionism (*c'*) was no longer significant after fear of negative evaluation and self-critical rumination were added to the model, $t(821) = 1.94$, $p = .053$, 95%CIs [-0.001, 0.19], indicating a significant mediation effect and suggesting that the serial effects of negative evaluation and rumination are accounting for a significant proportion of the relation between shame and perfectionism. Thus, the first hypothesized model was supported; higher levels of shame-proneness was associated with increased fear of negative evaluation, which in turn predicted increased self-critical rumination, which in turn was associated with increased levels of socially prescribed perfectionism. See Table 4 for the unstandardized regression coefficients, *SE*s, *t*-values, and 95% bootstrapped CIs.

Model 2: Shame → Hostility → Blame → Indirect Aggression. The second hypothesized model predicted that hostility and blame would sequentially mediate the relation between shame and indirect aggression. As illustrated in Figure 6, the total direct effect (*c*) of shame on indirect aggression was significant. Furthermore, both simple indirect effects of shame on indirect aggression through: (1) hostility, $b = .26$, $SE = .025$, 95%CIs [0.21, 0.31]; and (2) blame, $b = .019$, $SE = .0067$, 95%CIs [0.008, 0.034] were significant, as was the sequential indirect effect through both hostility and blame, $b = .013$, $SE = .0036$, 95%CI [.0069, .0213]. Finally, the direct effect (*c'*) of shame on indirect aggression became negative upon adding hostility and blame to the model, $t(863) = -4.55$, $p < .001$, 95%CIs [-0.19, -0.077], indicating a significant serial mediation. Thus, the second hypothesized model was supported; higher levels of shame-proneness was associated with increased hostility, which in turn predicted an increased

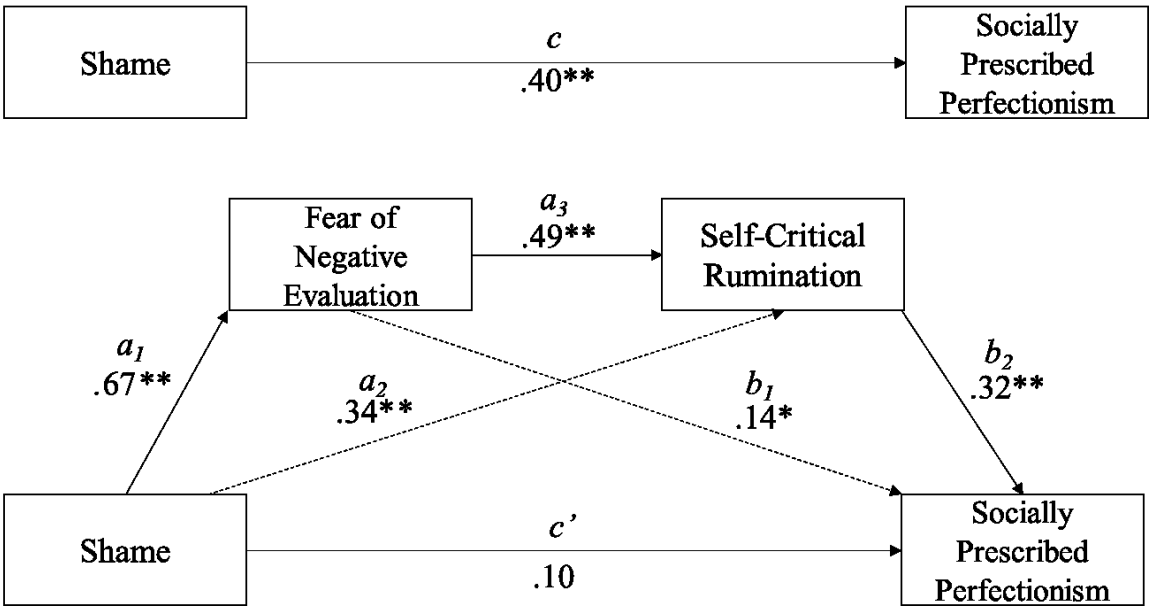

Figure 5. Unstandardized regression coefficients for sequential mediation model linking shame-proneness and socially prescribed perfectionism (SPP) through fear of negative evaluation (FNE) and self-critical rumination (SCR).
*$p < .01$; **$p < .001$.

Table 4

Results of the Sequential Mediation Analysis Testing the Links Between Shame and Socially Prescribed Perfectionism (SPP) through Fear of Negative Evaluation (FNE) and Self-Critical Rumination (SCR) (N = 825)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI	
						Lower	Upper
			Y: FNE				
			R^2 = 28.28%, *F*(1, 823) = 324.51, p < .001				
Shame	a_1	.67	.04	18.01	.001	0.60	0.75
			Y: SCR				
			R^2 = 48.81%, *F*(2, 822) = 391.82, p < .001				
Shame	a_2	.03	.04	9.44	<.001	0.27	0.41
FNE	a_3	.49	.03	17.30	<.001	0.44	0.55
			Y: SPP				
			R^2 = 20.30%, *F*(3, 821) = 69.72, p < .001				
Shame	c’	.10	.05	1.94	.053	-0.001	0.19
FNE	b_1	.14	.04	3.12	.002	0.05	0.22
SCR	b_2	.32	.05	6.92	<.001	0.23	0.41
			Total effect of X on Y				
			R^2 = 9.72%, *F*(1, 823) = 88.65, p < .001				
Shame	C	.40	.04	9.42	<.001	0.32	0.48

Note. Regression coefficients are unstandardized.

propensity to blame others, which in turn was associated with increased levels of indirect aggression. Furthermore, once hostility and blame were taken into account, shame became negatively associated with indirect aggression, such that as shame-proneness increased, levels of indirect aggression decreased. See Table 5 for detailed results.

Model 3: Shame→ Hostility→ Blame→ Displaced Aggression. The third hypothesized model predicted that hostility and blame would sequentially mediate the relation between shame and displaced aggression. As illustrated in Figure 7, the total direct effect (*c*) of shame on displaced aggression was significant. Furthermore, the indirect effect of shame on displaced aggression through hostility was also significant, $b = .29$, $SE = .033$, 95%CIs [0.23, 0.36]. However, the indirect of shame on displaced aggression through blame was not significant, $b = .0081$, $SE = .0083$, 95%CIs [-0.007, 0.026], nor was the sequential indirect effect through both hostility and blame, $b = .0054$, $SE = .0056$, 95%CIs [-0.005, 0.018]. Finally, the direct effect (*c'*) of shame on displaced aggression remained significant upon adding hostility and blame to the model, $t(859) = 2.92$, $p = .004$, 95%CIs [0.055, 0.28]. Thus, the third hypothesized model was not supported; only hostility emerged as a significant mediator in the relation between shame proneness and displaced aggression such that increased shame-proneness was associated with increased hostility, which in turn predicted increased displaced aggression. See Table 6 for detailed results.

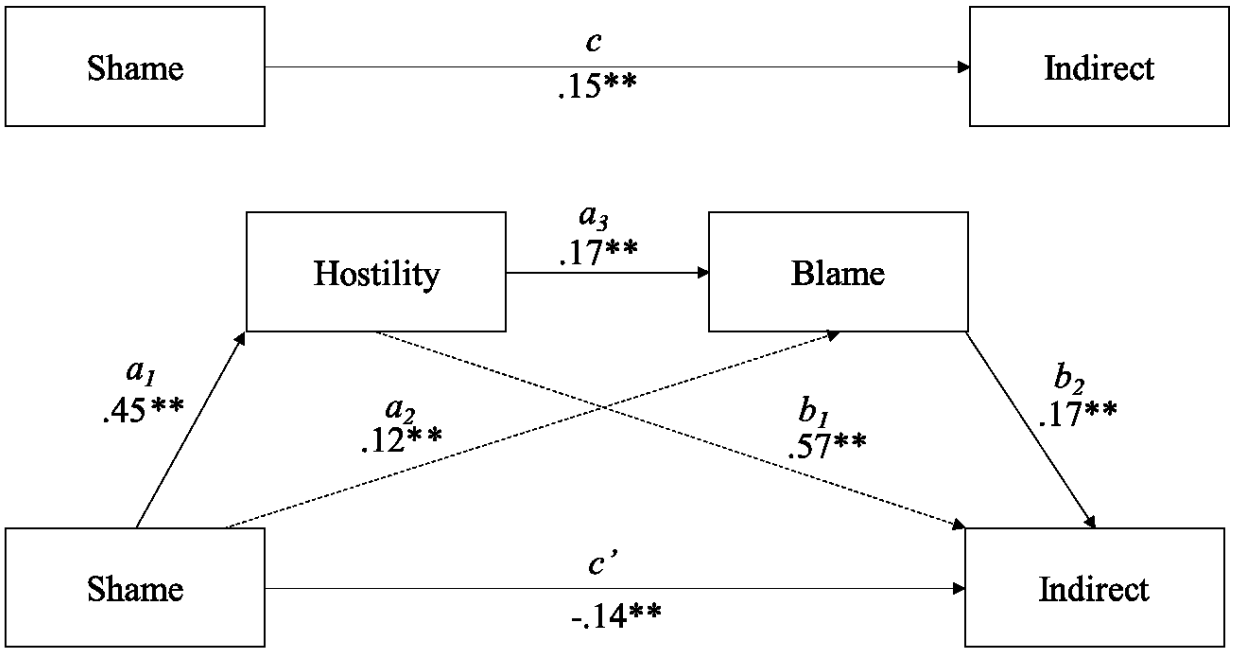

Figure 6. Unstandardized regression coefficients for sequential mediation model linking shame-proneness and indirect aggression through hostility and blame. $^{**}p < .001$.

Table 5

Results of the Sequential Mediation Analysis Testing the Links Between Shame and Indirect Aggression Through Hostility and Blame (N = 867)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 13.25%, $F(1, 865) = 132.14$, $p < .001$			
Shame	a_1	.45	.04	11.50	<.001	0.38	0.53
				Y: Blame			
				R^2 = 10.19%, $F(2, 864) = 49.01$, $p < .001$			
Shame	a_2	.12	.03	3.80	<.001	0.06	0.18
Hostility	a_3	.17	.02	7.13	<.001	0.13	0.22
				Y: Indirect			
				R^2 = 45%, $F(3, 863) = 230.53$, $p < .001$			
Shame	c'	-.14	.03	-4.55	<.001	-0.19	-0.08
Hostility	b_1	.57	.02	23.29	<.001	0.52	0.62
Blame	b_2	.17	.03	5.06	<.001	0.10	0.23
				Total effect of X on Y			
				R^2 =14.25 %, $F(1, 865) = 17.94$, $p < .001$			
Shame	c	.16	.04	4.24	<.001	0.08	0.23

Note. Regression coefficients are unstandardized.

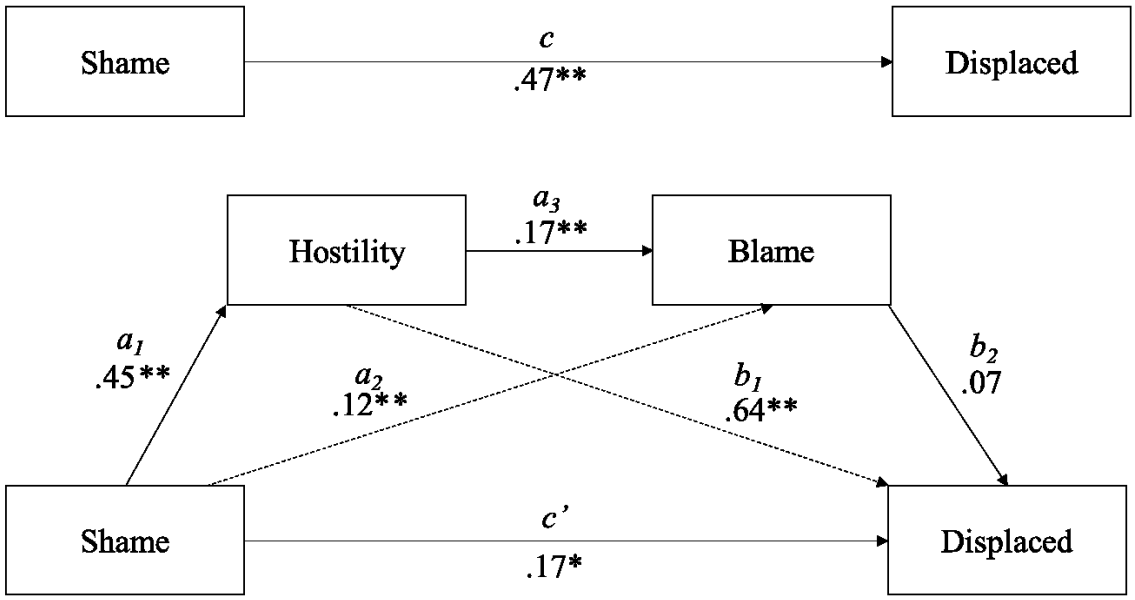

Figure 7. Unstandardized regression coefficients for sequential mediation model linking shame-proneness and displaced aggression through hostility and blame. $^{*}p < .01$; $^{**}p < .001$.

Table 6

Results of the Sequential Mediation Analysis Testing the Links Between Shame and Indirect Aggression Through Hostility and Blame (N = 863)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 13.16%, $F(1, 861) = 130.49$, $p < .001$			
Shame	a_1	.45	.04	11.42	<.001	0.37	0.53
				Y: Blame			
				R^2 = 10.19%, $F(2, 860) = 48.78$, $p < .001$			
Shame	a_2	.11	.03	3.82	<.001	0.06	0.18
Hostility	a_3	.17	.02	7.11	<.001	0.13	0.22
				Y: Displaced			
				R^2 = 24.59%, $F(3, 859) = 93.35$, $p < .001$			
Shame	c'	.17	.06	2.92	.004	0.06	0.28
Hostility	b_1	.64	.05	13.53	<.001	0.55	0.73
Blame	b_2	.07	.07	1.08	.28	-0.06	0.20
				Total effect of X on Y			
				R^2 = 6.84%, $F(1, 861) = 63.17$, $p < .001$			
Shame	c	.47	.06	7.95	<.001	0.36	0.59

Note. Regression coefficients are unstandardized.

Main Analyses Part 2: Moderated Sequential Mediation Models - BIS

The goal of these analyses was to examine the moderating role of BIS on the proposed pathways in each of the three aforementioned models. Accordingly, three separate *moderated* sequential mediation models were computed using PROCESS Macro version 3 (Hayes, 2018a). Both shame and BIS were mean centered prior to running the analyses. When examining moderated mediation, PROCESS produces an index of moderated mediation for each indirect effect, which is derived from the product of the conditional effect of X on the mediator (i.e., the moderated pathway), and the unconditional effect of the mediator on Y (i.e., the unmoderated pathway). This index provides a quantification for the relation between the moderator and each indirect effect of X on Y through the mediator (Hayes, 2015, 2018b). A significant moderated mediation is indicated if the 95% bootstrapped CI corresponding with the index does not contain zero.

Model 1 and BIS. Model 1 previously tested a sequential mediation from shame, to fear of negative evaluation, to self-critical rumination, and then to socially prescribed perfectionism. Follow up analyses tested the moderating role of BIS at different junctures in this model (illustrated in Figure 4).

First, the program *Model 88* from the Process macro was used to test whether BIS moderated the pathways from fear of negative evaluation to perfectionism, and from rumination to perfectionism. As indicated by the index of moderated mediation, BIS did not significantly moderate the simple indirect effect of shame on perfectionism through fear of negative evaluation, Index = -.010, *SE* = .04, 95% BootCIs [-0.093, 0.073], nor through self-critical rumination, Index = .031, *SE* = .02, 95% BootCIs [-0.013, 0.075]. Furthermore, BIS did not

significantly moderate the overall sequential indirect effect of shame on perfectionism through both mediators, Index = .030, *SE* = .02, 95% BootCIs [-0.013, 0.072]. See Table 7 for detailed results.

Next, the program *Model 85* was used to test whether BIS moderated the effects of shame on fear of negative evaluation, rumination, and perfectionism (see Figure 8). As shown in Table 8, BIS significantly moderated the effect of shame on fear of negative evaluation (path a_1w), $t(806) = 2.68$, $p = .007$, but not the effect of shame on rumination (path a_2w), $t(805) = -0.04$, $p = .97$. BIS also significantly moderated the direct effect of shame on perfectionism (path $c'w$), $t(804) = 1.98$, $p = .048$. Thus, we can conclude that the direct effect of shame on perfectionism, while holding FNE and SCR constant, is conditional on levels of BIS.[1]

As indicated by the index of moderated mediation, BIS did not significantly moderate the simple indirect effect of shame on perfectionism through fear of negative evaluation, Index = .01, *SE* = .007, 95% BootCIs [-0.002, 0.026], nor the indirect effect of shame on perfectionism through self-critical rumination, Index = -.0002, *SE* = .005, 95% BootCIs [-0.009, 0.009]. However, the overall moderated indirect effect of shame on perfectionism through fear of negative evaluation and self-critical rumination entered sequentially was significant, Index = .004, *SE* = .002, 95% BootCIs [0.0003, 0.0093]. As such, the strength of the indirect relation between shame and perfectionism through fear of negative evaluation and self-critical rumination is conditional on BIS, with BIS exerting a moderating effect on the pathway from shame to fear of negative evaluation. See Table 8 for detailed results.

[1] To ensure clarity, "holding the other variables constant" does not refer to removing the variance attributable to the other variables. Rather, here we are referring to the conditional relation between shame and SPP, when individuals have equal levels of hostility and blame (Hayes, 2018a).

Table 7

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathways Linking Fear of Negative Evaluation (FNE) and Self-Critical Rumination (SCR) with Socially Prescribed Perfectionism (SPP) (N = 810)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: FNE			
				R^2 = 27.56%, $F(1, 808) = 307.35$, $p < .001$			
Shame	a_1	.67	.04	17.53	<.001	0.59	0.74
				Y: SCR			
				R^2 = 48.46%, $F(2, 807) = 379.46$, $p < .001$			
Shame	a_2	.34	.04	9.28	<.001	0.27	0.41
FNE	a_3	.49	.03	17.20	<.001	0.43	0.55
				Y: SPP			
				R^2 = 23.24%, $F(6, 803) = 40.52$, $p < .001$			
Shame	c'	.05	.05	0.94	.35	-0.05	0.14
FNE	b_1	.09	.04	1.86	.06	-0.005	0.17
SCR	b_2	.14	.06	2.52	.01	0.03	0.25
BIS		.38	.07	5.67	<.001	0.25	0.51
FNE x BIS	b_1w	-.01	.06	-0.24	.81	-0.14	0.11
SCR x BIS	b_2w	.09	.07	1.41	.16	-.04	0.22

Note. Regression coefficients are unstandardized.

Table 8

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathways Linking Shame and Socially Prescribed Perfectionism (SPP) through Fear of Negative evaluation (FNE) and Self-Critical Rumination (SCR) (N = 810)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: FNE			
				R^2 = 44.28%, $F(3, 806) = 213.48$, $p < .001$			
Shame	a_1	.36	.04	9.09	<.001	0.28	0.44
BIS		.61	.04	15.25	<.001	0.53	0.69
Shame x BIS	a_1w	.13	.05	2.68	.007	0.04	0.23
				Y: SCR			
				R^2 = 66.50%, $F(4, 805) = 399.52$, $p < .001$			
Shame	a_2	.15	.03	4.72	<.001	0.09	0.21
FNE	a_3	.23	.03	8.89	<.001	0.18	0.28
BIS		.70	.03	20.81	<.001	0.64	0.77
Shame x BIS	a_2w	-.002	.04	-0.040	.97	-0.07	0.07
				Y: SPP			
				R^2 = 23.33%, $F(5, 804) = 48.94$, $p < .001$			
Shame	c'	.06	.05	1.19	.24	-0.04	0.16
FNE	b_1	.08	.04	1.84	.07	-0.005	0.17
SCR	b_2	.13	.06	2.32	.02	0.02	0.24
BIS		.38	.07	5.68	<.001	0.25	0.51
Shame x BIS	$c'w$	.11	.06	1.98	.048	0.0009	0.23

Note. Regression coefficients are unstandardized.

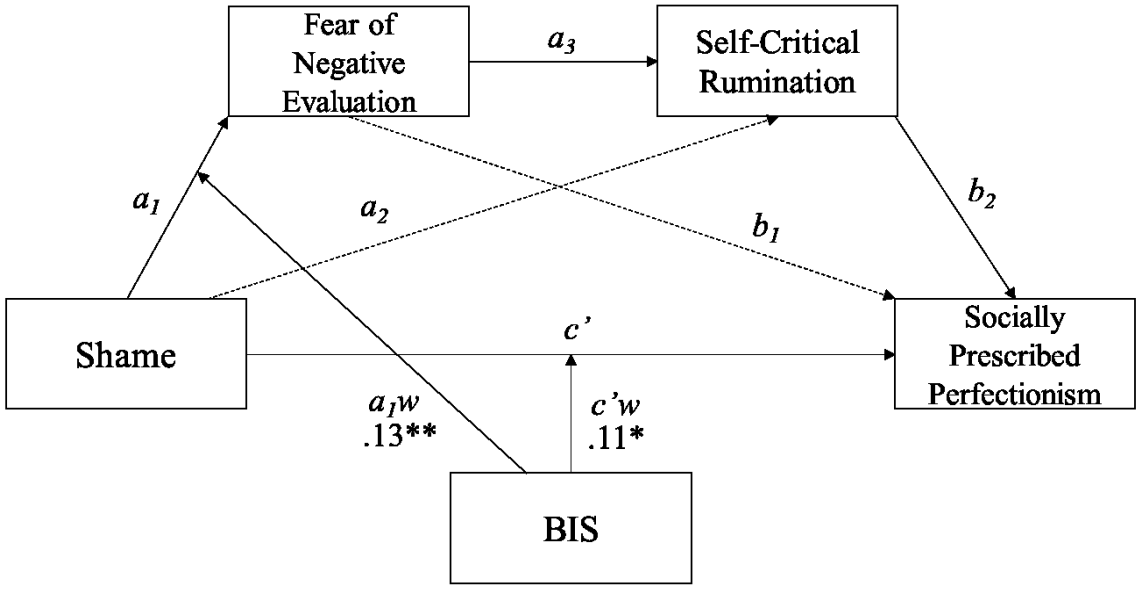

Figure 8. Unstandardized regression coefficients for pathways moderated by BIS in the sequential mediation model linking shame-proneness and socially prescribed perfectionism through fear of negative evaluation and self-critical rumination.
*$p < .05$; **$p < .01$

To further probe significant interactions, PROCESS tests the effects of the moderator at three levels (low, moderate, and high), with the values of these levels derived from the 16th, 50th, and 84th percentiles of the moderator's distribution (respectively). The interaction between shame and BIS on the pathway from shame to fear of negative evaluation was significant at low, effect = .27, *SE* = .05, $t(806) = 5.31$, $p < .001$, 95% CIs [0.17, 0.37], moderate, effect = .36, *SE* = .04, $t(806) = 9.09$, $p < .001$, 95% CIs [0.28, 0.44], and high levels of BIS, effect = .46, *SE* = .06, $t(806) = 8.18$, $p < .001$, 95% CIs [0.35, 0.57] (see Figure 9a). Note that the size of the effect increases as the levels of BIS increase. As such, the strength of the sequential indirect effect of shame on perfectionism through fear of negative evaluation and self-critical rumination increases as BIS increases. Finally, the interaction between shame and BIS on the direct effect between shame and perfectionism was significant at high levels of BIS, effect = .15, *SE* = .07, $t(804) = 2.13$, $p = .034$, 95% CIs [0.012, 0.29], but not at low, effect = -.02, *SE* = .06, $t(804) = -0.33$, $p = .74$, 95% CIs [-0.14, 0.10], or moderate levels of BIS, effect = .06, *SE* = .05, $t(804) = 1.19$, $p = .23$, 95% CIs [-0.039, 0.16] (see Figure 9b).

Finally, the program *Model 91* was used to test whether BIS significantly moderated the pathway linking FNE and SCR (path a_3w). As indicated by the index of moderated mediation, BIS did not significantly moderate this pathway in the overall indirect effect of shame on SPP through FNE and SCR, Index = -.007, *SE* = .006, 95% BootCIs [-0.02, 0.004]. See Table 9 for detailed results.

Model 2 and BIS. Model 2 previously tested a sequential mediation from shame, to hostility, to blame, and then to indirect aggression. Follow up analyses tested the moderating role of BIS at different junctures in this model (illustrated in Figure 5). First, the program *Model 85*

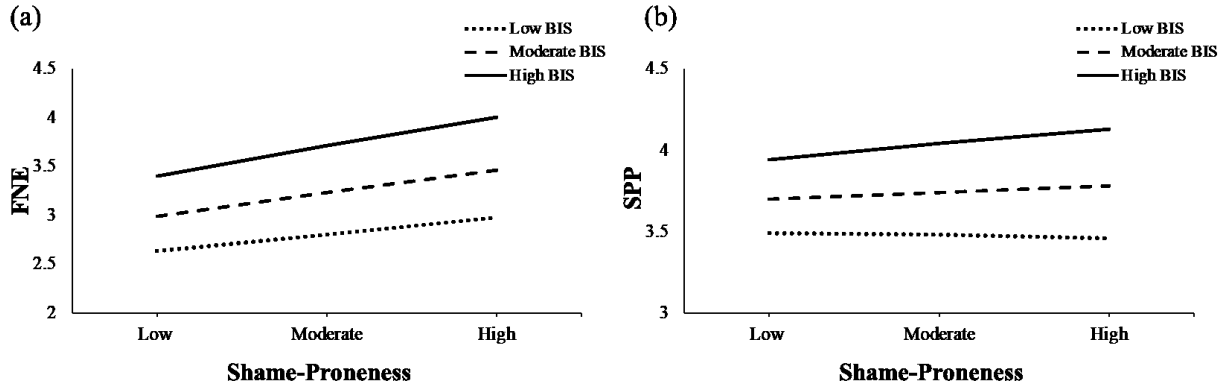

Figure 9. Moderation of BIS on (a) pathway leading from shame to fear of negative evaluation (FNE), and (b) direct effect of shame on socially prescribed perfectionism (SPP).

Table 9

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathway Linking Fear of Negative Evaluation (FNE) and Self-Critical Rumination (SCR) (N = 810)

						Bootstrap 95% CI	
Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Lower	Upper
				Y: FNE			
				R^2 = 27.56%, $F(1, 808) = 307.35$, $p < .001$			
Shame	a_1	.67	.04	17.53	<.001	0.59	0.74
				Y: SCR			
				R^2 = 66.55%, $F(4, 805) = 400.45$, $p < .001$			
Shame	a_2	.15	.03	4.78	<.001	0.09	0.21
FNE	a_3	.24	.03	8.99	<.001	0.18	0.29
BIS		.70	.03	20.72	<.001	0.64	0.77
FNE x BIS	a_3w	-.03	.03	-1.12	.26	-0.09	0.02
				Y: SPP			
				R^2 = 19.93%, $F(3, 806) = 66.86$, $p < .001$			
Shame	c'	.09	.05	1.81	.07	-0.008	0.19
FNE	b_1	.13	.04	3.07	.002	0.05	0.22
SCR	b_2	.32	.05	6.87	<.001	0.23	0.41

Note. Regression coefficients are unstandardized.

was used to test whether BIS moderated the effects of shame on hostility, blame, and indirect aggression. BIS did not significantly moderate the effect of shame on hostility (path a_1w), $t(834) = -0.10$, $p = .92$, however, moderation of the effect of shame on blame was significant (path a_2w), $t(833) = -4.47$, $p < .001$. Although the index of moderated mediation indicated that this effect was significant for the simple indirect effect of shame on indirect aggression through blame, Index = -.027, *SE* = .009, 95% BootCIs [-0.046, -.012], this effect was not significant when applied to the sequential mediation model, Index = -.0002, *SE* = .002, 95% BootCIs [-0.003, 0.003]. See Table 10 for detailed results.

BIS also significantly moderated the direct effect of shame on indirect aggression, $t(832) = -2.41$, $p = .016$ (path *c'w*; see Figure 10). This effect was significant only at moderate, effect = -.14, *SE* = .03, $t(832) = -4.03$, $p < .001$, 95% CIs [-0.20, -0.070] and high levels of BIS, effect = -.21, *SE* = .05, $t(832) = -4.47$, $p < .001$, 95% CIs [-0.30, -0.12], but not at low levels, effect = -.07, *SE* = .04, $t(832) = -1.59$, $p = .11$, 95% CIs [-0.15, 0.016]. Thus, the direct effect of shame on indirect aggression was conditional on levels of BIS. Furthermore, the size of the negative effect is increasing, indicating that the strength of the negative association increases as BIS increases. That is, the strength of the association between shame-proneness and indirect aggression is decreasing as levels of BIS increase (see Figure 11a). Finally, *Model 91* was used to examine whether BIS moderated the pathway leading from hostility to blame in the indirect sequential mediation model (path a_3w; see Figure 10). As shown in Table 11, BIS significantly moderated the effect of hostility on blame, $t(833) = -2.85$, p = .004. Furthermore, the index of moderated mediation indicated that this effect was significant for the overall sequential indirect effect of shame on indirect aggression through hostility and blame, Index = -.007, *SE* = .003, 95%

Table 10

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathways Linking Shame and Indirect Aggression Through Hostility and Blame (N = 838)

						Bootstrap 95% CI	
Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Lower	Upper
				Y: Hostility			
				R^2 = 39.07%, $F(3, 834) = 178.258$, $p < .001$			
Shame	a_1	.04	.04	0.99	.32	-0.04	0.12
BIS		.77	.04	19.15	<.001	0.69	0.85
Shame x BIS	a_1w	-.005	.05	-0.11	.91	-0.10	0.09
				Y: Blame			
				R^2 = 12.00%, $F(4, 833) = 28.40$, $p < .001$			
Shame	a_2	.14	.03	3.98	<.001	0.07	0.20
Hostility	a_3	.22	.03	7.29	<.001	0.16	0.27
BIS		-.12	.04	-2.88	.004	-0.20	-0.04
Shame x BIS	a_2w	-.18	.04	-4.47	<.001	-0.26	-0.10
				Y: Indirect			
				R^2 = 42.53%, $F(5, 832) = 123.14$, $p < .001$			
Shame	c'	-.13	.03	-4.00	<.001	-0.20	-0.07
Hostility	b_1	.55	.03	18.35	<.001	0.50	0.61
Blame	b_2	.15	.03	4.40	<.001	0.08	0.22
BIS		-.002	.04	-0.047	.96	-0.08	0.08
Shame x BIS	$c'w$	-.10	.04	-2.41	.016	-0.18	-0.02

Note. Regression coefficients are unstandardized.

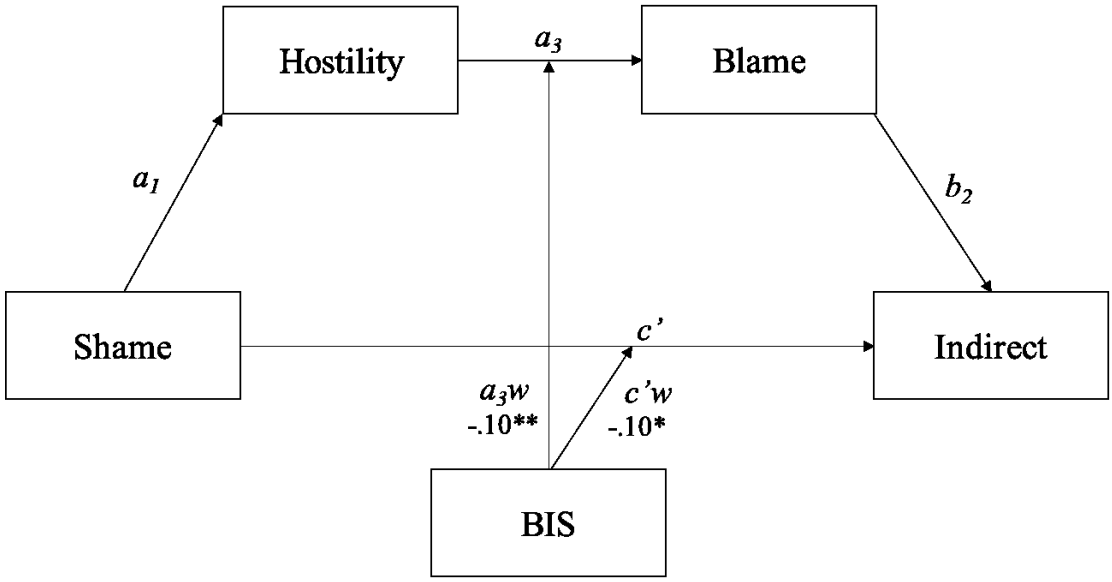

Figure 10. Unstandardized regression coefficients for pathways moderated by the behavioural inhibition system (BIS) in the sequential mediation model linking shame and indirect aggression through hostility and blame. *$p < .05$; **$p < .01$

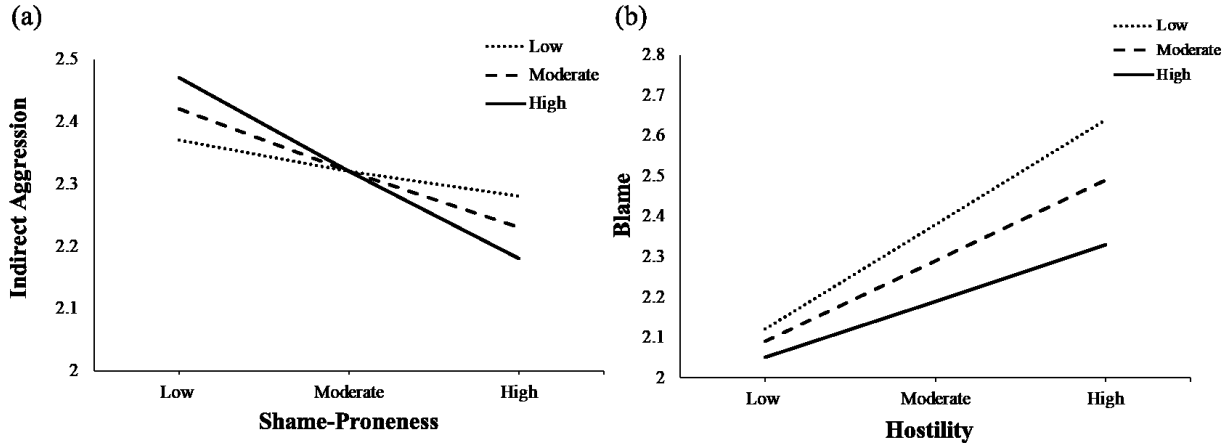

Figure 11. Moderation of BIS on (a) the direct effect between shame and indirect aggression and (b) the pathway linking hostility and blame.

Table 11

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathway Linking Hostility and Blame in the Indirect Association Between Shame and Indirect Aggression (N = 838)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 12.28%, $F(1, 836) = 117.08$, $p < .001$			
Shame	a_1	.43	.04	10.82	<.001	0.36	0.51
				Y: Blame			
				R^2 = 10.76%, $F(4, 833) = 25.11$, $p < .001$			
Shame	a_2	.15	.03	4.29	<.001	0.08	0.21
Hostility	a_3	.23	.03	7.65	<.001	0.17	0.29
BIS		-.14	.04	-3.30	.001	-0.22	-0.06
Hostility x BIS	a_3w	-.10	.03	-2.85	.004	-0.16	-0.03
				Y: Indirect			
				R^2 = 42.13%, $F(3, 834) = 202.36$, $p < .001$			
Shame	c'	-.13	.03	-4.31	<.001	-0.19	-0.07
Hostility	b_1	.55	.03	21.95	<.001	0.50	0.60
Blame	b_2	.16	.03	4.84	<.001	0.10	0.23

Note. Regression coefficients are unstandardized.

BootCIs [-0.014, -0.002]. Furthermore, this interaction was significant at low, effect = .30, *SE* = .04, $t(833) = 7.21$, $p < .001$, 95% CIs [0.22, 0.38], moderate, effect = .23, *SE* = .03, $t(833) = 7.63$, $p < .001$, 95% CIs [0.17, 0.29], and high levels of BIS, effect = .16, *SE* = .04, $t(833) = 4.25$, $p < .001$, 95% CIs [0.08, 0.23]. The size of the effect is decreasing, suggesting that the strength of the indirect effect of shame on indirect aggression through hostility and blame decreases as BIS increases (see Figure 11b).

Model 3 and BIS. Model 3 previously tested a sequential mediation from shame, to hostility, to blame, and then to displaced aggression. Follow up analyses tested the moderating role of BIS at different junctures in this model (illustrated in Figure 5).

As illustrated in Table 12, BIS did not significantly moderate the path from shame to hostility (path a_1w), $t(831) = -0.10$, $p = .92$. Although BIS significantly moderated the path from shame to blame (path a_2w), $t(830) = -4.48$, $p < .001$, the index of moderated mediation indicated that this effect was not significant for the simple indirect effect of shame on displaced aggression through blame, Index = -.015, *SE* = .013, 95%CIs [-0.049, 0.042], nor for the indirect effect through both hostility and blame, Index = -.0001, *SE* = .001, 95%CIs [-0.003, 0.002]. Finally, BIS did not significantly moderate the direct effect of shame on displaced aggression (path $c'w$), $F(1, 829) = 3.44$, $p = .06$. See Table 12 for detailed results.

Finally, Model 91 was used to examine whether BIS significantly moderates the pathway linking hostility and blame (path a_3w). Although the interaction between hostility and BIS was significant, the index of moderated mediation indicated that this interaction was not significant for the indirect sequential effect linking shame and displaced aggression through hostility and blame, Index = -.003, *SE* = .003, 95% BootCIs [-0.011, 0.003]. See Table 13 for detailed results.

Table 12

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathways Linking Shame and Displaced Aggression Through Hostility and Blame (N = 835)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 38.94%, $F(3, 831) = 178.25$, $p < .001$			
Shame	a_1	.04	.04	0.96	.34	-0.04	0.12
BIS		.77	.04	19.08	<.001	0.69	0.85
Shame x BIS	a_1w	-.005	.05	-0.10	.92	-0.10	0.09
				Y: Blame			
				R^2 = 12.06%, $F(4, 830) = 28.46$, $p < .001$			
Shame	a_2	.13	.03	3.97	<.001	0.07	0.20
Hostility	a_3	.22	.03	7.31	<.001	0.16	0.27
BIS		-.12	.04	-2.86	.004	-0.20	-0.04
Shame x BIS	a_2w	-.18	.04	-4.48	<.001	-0.26	-0.10
				Y: Displaced			
				R^2 = 25.71%, $F(5, 829) = 57.38$, $p < .001$			
Shame	c'	.05	.07	0.82	.41	-0.07	0.18
Hostility	b_1	.49	.06	8.49	<.001	0.38	0.60
Blame	b_2	.08	.07	1.27	.20	-0.05	0.21
BIS		.35	.08	4.42	<.001	0.19	0.50
Shame x BIS	$c'w$	-.14	.08	-1.85	.06	-0.30	0.009

Note. Regression coefficients are unstandardized.

Table 13

Results of Moderated Sequential Mediation Analysis Testing Moderation of BIS on the Pathway Linking Hostility and Blame in the Indirect Association Between Shame and Displaced Aggression (N = 835)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 12.18%, $F(1, 833) = 115.48$, $p < .001$			
Shame	a_1	.43	.04	10.75	<.001	0.35	0.51
				Y: Blame			
				R^2 = 10.81%, $F(4, 830) = 28.16$, $p < .001$			
Shame	a_2	.14	.03	4.28	<.001	0.08	0.21
Hostility	a_3	.23	.03	7.76	<.001	0.17	0.29
BIS		-.14	.04	-3.29	.001	-0.22	-0.06
Hostility x BIS	a_3w	-.10	.03	-2.87	.004	-0.16	-0.03
				Y: Displaced			
				R^2 = 23.64%, $F(3, 831) = 85.75$, $p < .001$			
Shame	c'	.18	.06	3.06	.002	0.06	0.30
Hostility	b_1	.63	.05	12.96	<.001	0.53	0.73
Blame	b_2	.07	.07	1.13	.26	-0.06	0.20

Note. Regression coefficients are unstandardized.

Main Analyses Part 3: Moderated Sequential Mediation Models – Gender

The goal of this final set of analyses was to conduct exploratory analyses on the potential moderating role of gender on each of the three sequential mediation models. Accordingly, three separate moderated sequential mediation models were computed using PROCESS Macro version 3 (Hayes, 2018a).

Model 1 and gender. Model 1 previously tested a sequential mediation from shame, to fear of negative evaluation, to self-critical rumination, and then to socially prescribed perfectionism. Follow up analyses tested the moderating role of gender at different junctures in this model. First, the program *Model 88* was used to test whether gender moderated the pathways from fear of negative evaluation to perfectionism, and from self-critical rumination to perfectionism. The index of moderated mediation indicated that neither the indirect effect through fear of negative evaluation, Index = -.057, *SE* = .06, 95% BootCIs [-0.19, 0.06], nor the indirect effect through rumination, Index = .025, *SE* = .03, 95% BootCIs [-0.03, 0.09] were significantly moderated by gender. Furthermore, gender did not significantly moderate the indirect effect through both fear of negative evaluation and rumination entered sequentially, Index = .026, *SE* = .03, 95% BootCIs [-0.19, 0.06]. See Table 14 for detailed results.

Next, the program *Model 85* was used to test whether gender moderated the effects of shame on fear of negative evaluation, self-critical rumination, and perfectionism. As illustrated in Figure 12, the index of moderated mediation indicated gender significantly moderated the indirect effect of shame on perfectionism through fear of negative evaluation, Index = .022, *SE* = .014, 95% CIs [0.0007, 0.054], with this effect larger for females, effect = .10, *SE* = .036, 95% CIs [0.033, 0.17], compared to males, effect = .078, *SE* = .029, 95% CIs [0.025, 0.14].

Table 14

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathways Linking Fear of Negative Evaluation (FNE) and Self-critical Rumination (SCR) with Socially Prescribed Perfectionism (SPP) (N = 812)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: FNE			
				R^2 = 28.26%, $F(1, 810) = 319.08$, $p < .001$			
Shame	a_1	.68	.04	17.86	<.001	0.60	0.75
				Y: SCR			
				R^2 = 48.35%, $F(2, 809) = 378.61$, $p < .001$			
Shame	a_2	.33	.04	8.98	<.001	0.26	0.40
FNE	a_3	.49	.03	17.26	<.001	0.44	0.55
				Y: SPP			
				R^2 = 21.00%, $F(6, 803) = 35.66$, $p < .001$			
Shame	c'	.13	.05	2.50	.01	0.03	0.23
FNE	b_1	.19	.07	2.66	.008	0.05	0.33
SCR	b_2	.27	.07	3.87	<.001	0.13	0.41
Gender		-.17	.06	-2.89	.004	-0.29	-0.05
FNE x Gender	b_1w	-.08	.09	-0.96	.34	-0.26	0.09
SCR x Gender	$b_2'w$	.08	.09	0.85	.39	-0.10	0.25

Note. Regression coefficients are unstandardized.

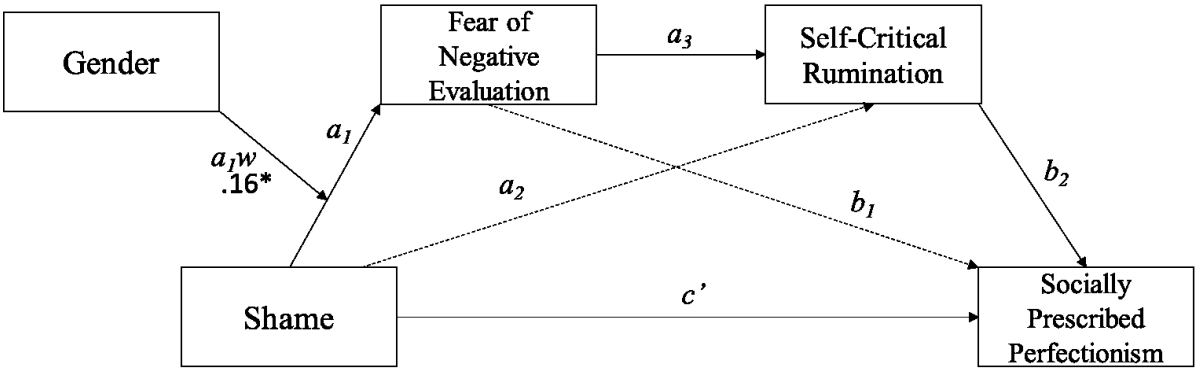

Figure 12. Moderation of gender in the sequential mediation model linking shame and socially prescribed perfectionism through fear of negative evaluation and self-critical rumination. *$p < .05$

Furthermore, gender significantly moderated the overall indirect effect of shame on perfectionism through fear of negative evaluation and self-critical rumination entered sequentially, Index = .026, *SE* = .014, 95% CIs [0.001, 0.055]. The indirect effect was larger for females, effect = .12, *SE* = .020, 95% CIs [0.079, 0.16], compared to males, effect = .090, *SE* = .017, 95% CIs [0.059, 0.13]. As such, the strength of the indirect relation between shame and perfectionism through fear of negative evaluation and self-critical rumination is conditional on gender, such that the strength of this indirect effect is stronger for females. As illustrated in Figure 13, at low levels of shame, males have higher levels of FNE compared to females. However, the opposite is true at high levels of shame, with females exhibiting higher levels of FNE compared to males. See Table 15 for detailed results.

Finally, the program *Model 91* was used to test whether gender moderates the effect of FNE on SCR (path a_3w). As indicated by the index of moderation, gender did not significantly moderate this pathway in the overall sequential indirect effect of shame on SPP through FNE and SCR, Index = -.009, *SE* = .01, 95% BootCIs [-0.030, 0.011]. See Table 16 for detailed results.

Model 2 and gender. Model 2 previously tested a sequential mediation from shame, to hostility, to blame, and then to indirect aggression. Follow up analyses tested the moderating role of gender at different junctures in this model. First, the program *Model 88* was used to test whether gender moderated the pathways from hostility to indirect aggression, and from blame to indirect aggression. The index of moderated mediation indicated that neither the indirect effect through hostility, Index = .005, *SE* = .02, 95% BootCIs [-0.04, 0.05], nor the indirect effect through blame, Index = -.009, *SE* = .01, 95% BootCIs [-0.03, 0.006], were significantly moderated by gender. Furthermore, gender did not significantly moderate the indirect effect of

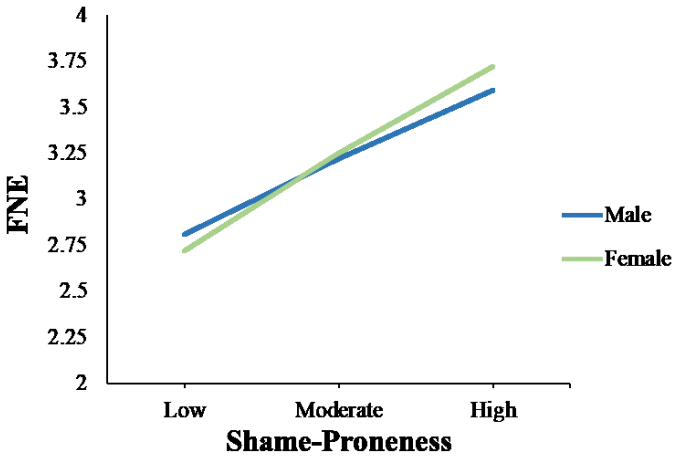

Figure 13. Moderation of gender on the indirect pathway from shame to socially prescribed perfectionism (SPP) through fear of negative evaluation (FNE) and self-critical rumination (SCR).

Table 15

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathways Linking Shame and Socially Prescribed Perfectionism (SPP) Through Fear of Negative Evaluation (FNE) and Self-Critical Rumination (SCR) (N = 812)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: FNE			
				R^2 = 28.62%, $F(3, 806) = 107.98$, $p < .001$			
Shame	a_1	.57	.04	8.80	<.001	0.45	0.70
Gender		.03	.07	0.50	.62	-0.08	0.14
Shame x Gender	a_1w	.16	.06	2.00	.046	0.003	0.32
				Y: SCR			
				R^2 = 48.40%, $F(4, 807) = 189.22$, $p < .001$			
Shame	a_2	.35	.06	6.37	<.001	0.25	0.46
FNE	a_3	.50	.03	17.24	<.001	0.44	0.55
Gender		-.04	.05	-0.80	.42	-0.12	0.05
Shame x Gender	a_2w	-.03	.07	-0.49	.63	-0.16	0.10
				Y: SPP			
				R^2 = 20.91%, $F(5, 806) = 42.61$, $p < .001$			
Shame	c'	.14	.07	1.92	.056	-0.004	0.29
FNE	b_1	.14	.04	3.11	.002	0.05	0.22
SCR	b_2	.32	.05	6.87	<.001	0.23	0.41
Gender		-.17	.06	-2.88	.004	-0.29	-0.05
Shame x Gender	$c'w$	-.03	.09	-0.28	.78	-0.20	0.15

Note. Regression coefficients are unstandardized.

Table 16

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathway Linking Fear of Negative Evaluation (FNE) and Self-Critical Rumination (SCR) (N = 812)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: FNE			
				R^2 = 53.69%, $F(1, 810) = 319.08$, $p < .001$			
Shame	a_1	.68	.04	17.86	<.001	0.60	0.75
				Y: SCR			
				R^2 = 48.42%, $F(4, 807) = 189.42$, $p < .001$			
Shame	a_2	.34	.04	8.94	<.001	0.26	0.41
FNE	a_3	.52	.04	11.90	<.001	0.44	0.61
Gender		-.04	.04	-0.81	.42	-0.12	0.05
FNE x Gender	a_3w	-.04	.05	-0.81	.42	-0.1	0.06
				Y: SPP			
				R^2 = 20.09%, $F(3, 808) = 67.72$, $p < .001$			
Shame	c'	.10	.05	1.88	.06	-0.004	0.19
FNE	b_1	.13	.04	3.02	.002	0.05	0.22
SCR	b_2	.32	.04	6.92	<.001	0.23	0.41

Note. Regression coefficients are unstandardized.

shame on indirect aggression through hostility and blame entered sequentially, Index = -.006, *SE* = .006, 95% BootCIs [-0.02, 0.004]. See Table 17 for detailed results.

Next, the program *Model 85* was used to test whether gender moderated the effects of shame on hostility, blame, and indirect aggression. As indicated by the index of moderated mediation, gender did not significantly moderate the indirect effect of shame on indirect aggression through hostility, Index = -.079, *SE* = .047, 95% CIs [-0.17, 0.014]. Although gender significantly moderated the simple indirect effect of shame on indirect aggression through blame, Index = -.028, *SE* = .013, 95% CIs [-0.058, -0.006], this effect was not significant when applied to the sequential mediation model, Index = -.003, *SE* = .002, 95% CIs [-0.008, 0.0006]. See Table 18 for detailed results.

Finally, program *Model 91* was used to examine whether gender moderates the pathway from hostility to blame in the sequential mediation model (path a_3w; see Figure 14). As shown in Table 19, gender significantly moderated the effect of hostility on blame, $t(847)= -2.32$, $p = .02$. This pathway was significant for males, effect = 0.12, *SE* = .03, $t(847) = 3.89$, $p < .001$, 95% CIs [0.06, 0.17], but not for females, effect = 0.008, *SE* = .07, $t(847) = 0.12$, $p = .91$, 95% CIs [-0.13,0.14] (see Figure 15). As indicated by the index of moderated mediation, gender significantly moderated the overall indirect effect of shame on indirect aggression through hostility and blame, Index = -.008, *SE* = .004, 95% BootCIs [-0.02, -0.008]. Furthermore, this indirect effect was significant for both males, effect = .02, *SE* = .005, 95% CIs [0.008, 0.028], and females, effect = .009, *SE* = .003, 95% CIs [0.004, 0.015], however the strength of this indirect effect was stronger for males compared to females.

Table 17

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathways Linking Hostility and Blame with Indirect Aggression in the Indirect Association Between Shame and Indirect Aggression (N = 852)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 12.98%, $F(1, 850) = 126.79$, $p < .001$			
Shame	a_1	.45	.04	11.26	<.001	0.37	0.53
				Y: Blame			
				R^2 = 9.82%, $F(2, 849) = 46.20$, $p < .001$			
Shame	a_2	.11	.03	3.69	<.001	0.05	0.17
Hostility	a_3	.17	.02	6.95	<.001	0.12	0.22
				Y: Indirect			
				R^2 = 45.15%, $F(6, 845) = 115.93$, $p < .001$			
Shame	c'	-.12	.03	-3.78	<.001	-0.18	-0.06
Hostility	b_1	.56	.04	14.13	<.001	0.48	0.64
Blame	b_2	.21	.05	3.95	<.001	0.11	0.32
Gender		-.01	.04	-0.30	.76	-0.10	0.07
Hostility x Gender	b_1w	.01	.05	0.21	.83	-0.08	0.11
Blame x Gender	$b_2'w$	-.08	.07	-1.18	.24	-0.21	0.05

Note. Regression coefficients are unstandardized.

Table 18

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathways Linking Shame and Indirect Aggression Through Hostility and Blame (N = 852)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 14.37%, $F(3, 848) = 47.43$, $p < .001$			
Shame	a_1	.58	.068	8.48	<.001	0.44	0.71
Gender		-.21	.059	-3.52	<.001	-0.33	-0.09
Shame x Gender	a_1w	-.14	.086	-1.61	.11	-0.31	0.03
				Y: Blame			
				R^2 = 14.10%, $F(4, 847) = 34.77$, $p < .001$			
Shame	a_2	.28	.050	5.60	<.001	0.18	0.38
Hostility	a_3	.15	.024	6.24	<.001	0.10	0.20
Gender		-.26	.042	-6.16	<.001	-0.34	-0.18
Shame x Gender	a_2w	-.18	.061	-2.92	.004	-0.30	-0.058
				Y: Indirect			
				R^2 = 45.11%, $F(5, 846) = 139.07$, $p < .001$			
Shame	c'	-.08	.050	-1.63	.11	-0.18	-0.02
Hostility	b_1	.57	.025	23.20	<.001	0.52	0.62
Blame	b_2	.16	.034	4.69	<.001	0.09	0.23
Gender		-.02	.043	-0.54	.59	-0.11	0.06
Shame x Gender	$c'w$	-.06	.060	-0.92	.36	-0.17	0.06

Note. Regression coefficients are unstandardized.

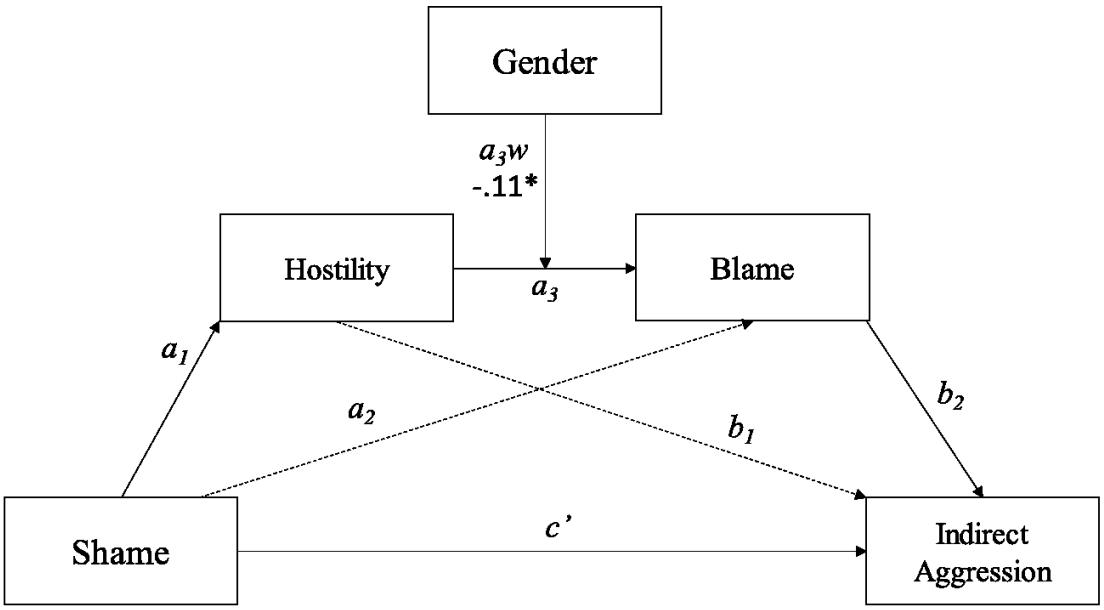

Figure 14. Moderation of gender in the sequential mediation model linking shame and indirect aggression through hostility and blame. *$p < .05$

Table 19

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathway Linking Hostility and Blame in the Indirect Association Between Shame and Indirect Aggression (N = 852)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 12.98%, $F(1, 850) = 126.79$, $p < .001$			
Shame	a_1	.45	.04	11.26	<.001	0.37	0.53
				Y: Blame			
				R^2 = 13.79%, $F(4, 847) = 33.86$, $p < .001$			
Shame	a_2	.16	.03	5.16	<.001	0.10	0.23
Hostility	a_3	.22	.04	5.86	<.001	0.15	0.30
Gender		-.24	.04	-5.76	<.001	-0.32	-0.16
Hostility x Gender	a_3w	-.11	.05	-2.31	.02	-0.20	-0.02
				Y: Indirect			
				R^2 = 45.05%, $F(3, 848) = 231.72$, $p < .001$			
Shame	c'	-.12	.03	-4.05	<.001	-0.18	-0.06
Hostility	b_1	.57	.02	23.34	<.001	0.52	0.62
Blame	b_2	.17	.03	4.98	<.001	0.10	0.23

Note. Regression coefficients are unstandardized.

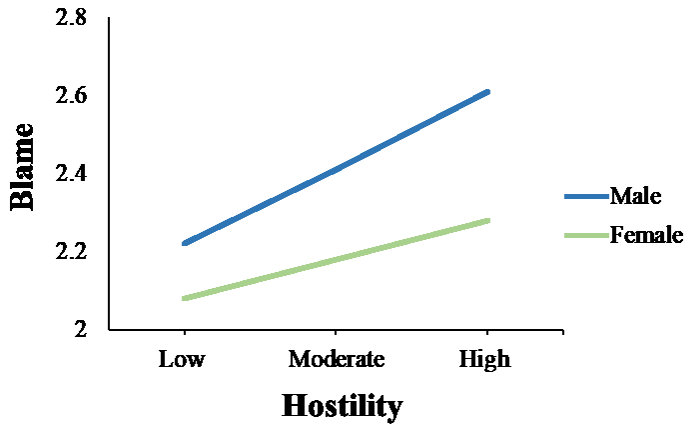

Figure 15. Moderation of gender on the pathway leading from hostility to blame in the sequential mediation model linking shame and indirect aggression through hostility and blame.

Model 3 and gender. Model 3 previously tested a sequential mediation from shame, to hostility, to blame, and then to displaced aggression. Follow up analyses tested the moderating role of gender at different junctures in this model. First, the program *Model 88* was used to test whether gender moderated the pathways from hostility to displaced aggression, and from blame to displaced aggression. The index of moderated mediation indicated that neither the indirect effect through hostility, Index = .020, *SE* = .05, 95% BootCIs [-0.07, 0.11], nor the indirect effect through blame, Index = -.011, *SE* = .02, 95% BootCIs [-0.05, 0.02], were significantly moderated by gender. Furthermore, gender did not significantly moderate the indirect effect of shame on indirect aggression through hostility and blame entered sequentially, Index = -.007, *SE* = .01, 95% BootCIs [-0.03, 0.01]. See Table 20 for detailed results.

Next, the program *Model 85* was used to test whether gender moderated the effects of shame on hostility, blame, and displaced aggression. As indicated by the index of moderation, gender did not significantly moderate the indirect path from shame to displaced aggression through hostility, Index = -.087, *SE* = .057, 95% CIs [-0.20, 0.027], nor the indirect path through blame, Index = -.022, *SE* = .016, 95% CIs [-0.059, 0.002]. Finally, gender did not significantly moderate the overall sequential indirect effect of shame on displaced aggression through hostility and blame, Index = -.003, *SE* = .002, 95% CIs [-0.008, 0.0008]. See Table 21 for detailed results. Finally, the program Model 91 was used to test whether gender moderated the effects of hostility on blame. As indicated by the index of moderated mediation, gender did not significantly moderate this pathway in the overall sequential indirect effect of shame on displaced aggression through hostility and blame, Index = -.003, *SE* = .004, 95% BootCIs [-0.013, 0.004]. See Table 22 for detailed results.

Table 20

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathways Linking Hostility and Blame with Displaced Aggression (N = 848)

						Bootstrap 95% CI	
Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Lower	Upper
			Y: Hostility R^2 = 12.89%, $F(1, 846) = 125.15$, $p < .001$				
Shame	a_1	.45	.04	11.19	<.001	0.37	0.53
			Y: Blame R^2 = 9.81%, $F(2, 845) = 45.96$, $p < .001$				
Shame	a_2	.11	.03	3.70	<.001	0.05	0.17
Hostility	a_3	.17	.02	6.93	<.001	0.12	0.22
			Y: Displaced R^2 = 26.38%, $F(6, 841) = 50.22$, $p < .001$				
Shame	c'	.08	.06	1.32	.19	-0.04	0.20
Hostility	b_1	.62	.08	8.10	<.001	0.47	0.77
Blame	b_2	.18	.10	1.78	.08	-0.02	0.39
Gender		.39	.08	4.73	<.001	0.23	0.55
Hostility x Gender	b_1w	.04	.09	0.48	.63	-0.14	0.23
Blame x Gender	$b_2'w$	-.10	.13	-0.72	.47	-0.35	0.16

Note. Regression coefficients are unstandardized.

Table 21

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathways Linking Shame and Displaced Aggression Through Hostility and Blame (N = 848)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 14.28%, $F(3, 844) = 46.86$, $p < .001$			
Shame	a_1	.57	.069	8.38	<.001	0.44	0.71
Gender		-.21	.060	-3.54	<.001	-0.33	-0.09
Shame x Gender	a_1w	-.13	.086	-1.56	.12	-0.31	0.03
				Y: Blame			
				R^2 = 14.21%, $F(4, 843) = 34.91$, $p < .001$			
Shame	a_2	.28	.050	5.64	<.001	0.18	0.38
Hostility	a_3	.15	.024	6.20	<.001	0.10	0.20
Gender		-.26	.042	-6.24	<.001	-0.35	-0.18
Shame x Gender	a_2w	-.18	.061	-2.95	.003	-0.30	-0.06
				Y: Displaced			
				R^2 = 26.33%, $F(5, 842) = 60.18$, $p < .001$			
Shame	c'	.07	.097	0.74	.46	-0.12	0.26
Hostility	b_1	.65	.047	13.83	<.001	0.56	0.74
Blame	b_2	.13	.066	1.91	.057	-0.004	0.25
Gender		.38	.082	4.65	<.001	0.22	0.54
Shame x Gender	$c'w$	.02	.12	0.14	.89	-0.21	0.24

Note. Regression coefficients are unstandardized.

Table 22

Results of Moderated Sequential Mediation Analysis Testing Moderation of Gender on the Pathway Linking Hostility and Blame in the Indirect Association Between Shame and Displaced Aggression (N = 848)

Predictor	Path	*b*	*SE*	*t*-value	*p*-value	Bootstrap 95% CI Lower	Bootstrap 95% CI Upper
				Y: Hostility			
				R^2 = 12.89%, $F(1, 846) = 125.15$, $p < .001$			
Shame	a_1	.45	.04	11.19	<.001	0.37	0.53
				Y: Blame			
				R^2 = 13.92%, $F(4, 843) = 13.92$, $p < .001$			
Shame	a_2	.16	.03	5.21	<.001	0.10	0.23
Hostility	a_3	.22	.04	5.91	<.001	0.15	0.30
Gender		-.24	.04	-5.82	<.001	-0.33	-0.16
Hostility x Gender	a_3w	-.11	.05	-2.41	.02	-0.20	-0.02
				Y: Displaced			
				R^2 = 24.40%, $F(3, 844) = 90.81$, $p < .001$			
Shame	c'	.17	.06	2.95	.003	0.06	0.29
Hostility	b_1	.64	.05	13.38	<.001	0.54	0.73
Blame	b_2	.06	.06	0.99	.32	-0.06	0.19

Note. Regression coefficients are unstandardized.

Discussion

A growing body of research supports the notion that shame may promote both internalizing and externalizing responses (Tangney & Dearing, 2002). However, despite decades of research examining these associations, the specific factors that may underlie these responses to shame remain largely unexplored. Accordingly, the overarching purpose of this MA thesis was to explore a series of complex conceptual models linking shame and both internalizing (i.e., socially prescribed perfectionism) and externalizing (i.e., aggression) responses. Further, potential mediating and moderating factors that may explain these relations were also examined.

To accomplish these goals, a large sample of undergraduate students completed on-line questionnaires assessing shame-proneness and potential internalizing and externalizing responses to shame. Among the results, shame-proneness demonstrated an indirect association with socially prescribed perfectionism (SPP) through fear of negative evaluation (FNE) and self-critical rumination (SCR). Furthermore, shame-proneness also demonstrated an indirect association with indirect aggression through hostility and blame, as well as an indirect association with displaced aggression through hostility alone. In the following sections, findings from each of these models are discussed in turn, implications for theory and practice are considered, and limitations are considered with an eye toward potential future research directions.

Correlates of Shame versus Guilt

Although an extensive examination of the differences between shame and guilt was beyond the scope of the current study, correlational differences in these constructs merit a brief discussion. As anticipated, shame and guilt were positively correlated. This association has been

shown across numerous studies utilizing this measure and is often controlled for by partialling out the effects of each variable from the other (i.e., shame controlling for guilt, and vice versa; see Tangney & Dearing, 2002b for review). Furthermore, shame demonstrated significant correlations with all indices of both internalizing and externalizing responses to shame. In contrast, guilt was not significantly associated with hostility and SPP, and was in actually significantly and *negatively* correlated with blame, indirect aggression, and displaced aggression. Guilt did demonstrate significant correlations with both FNE and SCR. Given that guilt is associated with reparative behaviours, the positive association with FNE might reflect motivation to repair one's transgressions in order to avoid negative evaluation from others. Similarly, in face of a transgression, the individual may engage in transient self-condemnation.

Both shame and guilt also demonstrated positive correlations with BIS. This makes sense given that the BIS motivates cautious approach behaviours (Gray & McNaughton, 2000), and thus we would expect guilt to demonstrate some association. In the only previous study to assess associations between guilt and BIS, Sheikh and Janoff-Bulman (2010) found BAS, but not BIS predicted higher levels of guilt, suggesting guilt is associated with approach tendencies. Notwithstanding, taken together, these findings are consistent with previous studies (e.g., Stuewig et al., 2010), and corroborates assertions that shame, but not guilt, is associated with maladaptive outcomes (Tangney & Dearing, 2002b).

Internalizing Shame Responses

Researchers have long theorized that perfectionistic behaviours may act as coping mechanism in response to shame, with the shamed individual attempting to compensate for one's perceived inadequacies (Kaufman, 1996; Miller, 1996). In support of these assertions, previous

studies have demonstrated positive associations between shame and socially prescribed perfection (SPP). For example, one study found SPP was positively associated with fear of experiencing shame or embarrassment (Kaye, Conroy, & Kiefer, 2007). Similarly, Stoeber, Noland, Mawenu, Henderson, and Kent, (2015) reported that SPP was associated with higher levels of shame following failure. Although previous studies have examined the role of shame in the links between SPP and other indices of maladaptive adjustment (e.g., Chen et al., 2015), the present study was the first to explore direct links between shame and SPP, and potential mediating factors implicated in this association. Given evidence suggesting FNE and SCR are key factors in both shame and SPP (Hewitt et al., 2006; Tangney & Dearing, 2002b), it was hypothesized that shame would be associated with SPP indirectly via a serial mediated pathway through FNE and then SCR.

Consistent with these previous findings, results of the present study indicated that individuals with higher levels of shame proneness also tended to have higher levels of SPP. These findings corroborate previous speculations that perfectionism may emerge as a the shamed-individual's compensatory attempt to gain a sense of worthiness and value (Kaufman, 1996; Miller, 1996). Furthermore, the direct relation between shame and SPP was no longer significant once FNE and SCR were added to the model, indicating that these factors may be underlying the links between shame and perfectionism. Specifically, there was evidence of serial mediation, with shame-proneness positively associated with FNE, which in turn was related to SCR, which in turn predicted SPP.

Role of fear of negative evaluation (FNE). Studies have provided evidence to suggest that FNE may have important implications in the associations between shame and maladaptive

outcomes (e.g., Gilbert, 2000; Gilbert & Miles, 2000). For example, Gilbert (2000) found that shame was no longer significantly associated with depression after controlling for FNE. Consistent with these findings, in the present study shame-proneness was positively associated with FNE. These findings lend support to Harder's (1990) assertion that highly shame-prone individuals are more likely to experience excessive negative evaluative concerns during social interactions. Given that shame is associated with fears surrounding being exposed for one's perceived inadequacies, it stands to reason that such fears would be particularly salient during social interactions, manifesting themselves in the form of excessive concerns over how others are perceiving oneself.

Role of self-critical rumination (SCR). In support of the hypothesized model, FNE in turn was positively associated with self-critical rumination. These findings are consistent with previous research exploring the associations between shame, FNE, and SCR. For example, Zoccola et al. (2012) found social evaluative threat was associated with increased rumination, and this association was mediated by shame-related cognition and emotion (but not anger, fear, or sadness). Self-criticism has been posited to serve as a defense mechanism, deterring the shamed individual from further exposing oneself as inadequate, and thus may mitigate potential further rejection from the social group (Gilbert, 1998; Gilbert & Irons, 2005). The present findings corroborate such speculations, as it would appear that the excessive negative evaluative concerns induced by high levels of shame may promote self-condemning thoughts.

Consistent with the hypothesized model, SCR in turn positively predicted SPP. Such perfectionistic behaviours are likely to serve as remedial measures, in attempts to rectify those perceived inadequacies for which one is ruminating. In support of these ideas, Kolubinski,

Nikcevic, Lawrence, and Spada (2016) examined the role of beliefs about, and situations that elicit, self-critical rumination. When asked to recall situations that triggered self-critical rumination, participants reported situations such as receiving a poor grade and awkward social interactions. Furthermore, when asked to report advantages of engaging in SCR, participants reported beliefs surrounding the utility of SCR for promoting motivation to improve or avoid making mistakes in the future. In contrast, disadvantages included things such as feelings of worthlessness, inadequacy in social situations, and feeling trapped, all of which correspond with feelings characteristic of shame. Finally, when asked what the goal was for engaging in SCR, participants reported it served to understand the given situation and to motivate them to resolve it. The present study corroborates these findings, and further demonstrates the implications of SCR in the pathway leading from shame to SPP.

Taken together, results from the present study support the first hypothesized model and suggest negative evaluative fears and self-condemning rumination may explain why shame promotes perfectionism. Specifically, these findings suggest a plausible pathway linking shame and perfectionism, whereby individuals who are more prone to shame may develop excessive fears surrounding how they are being evaluated and perceived by others during social interactions. In turn such negative evaluative fears appear to promote negative self-focused ruminative thoughts, perhaps elicited in attempt to develop an understanding of one's perceived inadequacies during social interactions. In turn these self-condemning thoughts appear to motivate the individual to rectify and compensate for those perceived inadequacies through engagement in socially perfectionistic behaviours.

Externalizing Shame Responses

Lewis (1971) maintained that the self-directed hostility that is initially evoked in response to shame may become externalized, with the shamed-individual redirecting their hostility towards others and externalizing their blame, inevitably leading to aggression. Such a shift is posited to serve an adaptive function, allowing the shamed individual to regain a sense of agency and control (Tangney & Dearing, 2002b). In support of these ideas, numerous studies have demonstrated positive associations between shame and various forms of aggression (e.g., Tangney, Wagner, et al., 1996). For example, Tangney (1995) examined aggression in romantic relationships, and found that partners who had higher levels of shame-proneness engaged in considerably more aggressive behaviours. Despite the accumulating body of research examining links between shame and aggression, much of this work has focused on direct forms of aggression (i.e., physical/verbal; e.g., Stuewig et al., 2010) and has been correlational in nature (e.g., Tangney, Wagner, et al., 1996).

Accordingly, the present study extended previous research by examining links between shame and non-direct forms of aggression (i.e., indirect and displaced aggression). Furthermore, although decades have passed since Lewis (1971) initially proposed a plausible pathway leading from shame to aggression, to date there is limited empirical support for this proposed pathway. Accordingly, this thesis directly examined associations between shame and aggression, as well as potential mediating factors in these associations. Drawing upon Lewis's (1971) speculations, as well as previous research (e.g., Heavan et al., 2009; Stuewig et al., 2010), it was hypothesized that shame would be indirectly associated with both indirect and displaced aggression via a serial mediated pathway through hostility and then blame.

Consistent with previous findings, shame-proneness demonstrated positive associations with both indirect and displaced aggression. These findings further corroborate assertions that individuals who are prone to shame are more likely to engage in externalizing behaviours (Tangney & Dearing, 2002b; Tangney et al., 2007), and provide some of the first evidence of predictive associations between shame and non-direct forms of aggression. More specifically, these findings suggest that individuals who are prone to shame may re-direct their shame outwards, developing a tendency to engage in indirect aggressive behaviours (e.g., malicious gossip), and/or may react to shame-inducing situations by lashing out in sudden aggressive outbursts (i.e., displaced aggression). Furthermore, extending previous research, the present study provides evidence for a plausible pathway linking shame and these forms of aggression through both hostility and blame. That is, results of the sequential mediation analysis indicated that highly shame-prone individuals had higher levels of hostility. This hostility in turn was positively associated with propensity to blame others, which in turn was positively associated with engagement in indirect aggression. Interestingly, the direct association shame and indirect aggression became *negative* once hostility and blame were added to the model. This could suggest that hostility and blame are the key mechanisms underlying shame's association with indirect aggression.

In partial support of expectations, hostility (but not blame) emerged as a significant mediator in the relation between shame and displaced aggression. That is, higher levels of shame-proneness were positively associated with levels of hostility, which in turn was positively associated with propensity to engage in displaced aggression. These findings suggest that externalization of blame does not sufficiently explain the links between shame and all forms of

aggression, suggesting that alternative factors may underly shame's association with displaced aggression.

Role of hostility. Given that hostility involves feelings of mistrust and resentment towards others, it was hypothesized that individuals with higher levels of hostility may be primed to more readily blame others. Previous research has provided evidence to suggest that shame may be an antecedent of hostility (Archer & Webb, 2006; Denson et al., 2006b; Heavan et al., 2009). For example, Heavan et al. (2009) found that shame predicted increased hostility one-year later. In support of these findings, results of the present study indicated that individuals who are more prone to experience shame exhibited higher levels of hostility. These findings support the theoretical assertion that some shame-prone individuals may externalize their shame, developing hostile attitudes towards the perceived rejecting other (Lewis, 1971; Tangney & Dearing, 2002).

Furthermore, results of the present are the first to provide evidence that hostility *mediates* the relation between shame and both indirect and displaced forms of aggression. This is consistent with previous research suggesting that hostility is a cognitive precursor to aggression (Spielberger et al., 1983). For example, Chen et al. (2012) found that a hostile attribution bias (the tendency to attribute hostile intentions to others' actions; Milich & Dodge, 1984) predicted increased levels of physical, verbal, and relational forms of aggression. Furthermore, embarrassment in response to hypothetical vignettes was *positively* associated with physical and verbal aggression, but *negatively* associated with relational aggression. The present study extended these findings, providing evidence to suggest that the positive relation between self-conscious emotions and relational aggression (a construct conceptually similar to indirect aggression) may be due to the positive association between hostility and indirect aggression. In

contrast, it appears that hostility does not fully explain the direct relation between shame and displaced forms of aggression, with shame continuing to exert a significant positive effect on displaced aggression upon removing the variability due to hostility. Together, these findings suggest that the development of hostile attitudes may be one mechanism underlying shame's association with these non-direct forms of aggression. That is, the development of hostile attitudes in response to shame may in turn promote or prime the individual to engage in aggressive responses to shame-inducing situations.

Role of blame. Researchers maintain that some shamed-individual may *turn the tables* and blame others as a means to regain a sense of agency (Lewis, 1971; Tangney et al., 2007). This tendency to blame others has been posited to explain the relation between shame and aggression (Stuewig et al., 2010; Tangney & Dearing, 2002b; Tangney, Steuwig, & Mashek, 2007). However, to date, only one study has directly examined this assertion. Stuewig et al. (2010) found that shame positively predicted both physical and verbal forms of aggression, and these relations were accounted for by the tendency to blame others. Extending on these findings, results of the present study suggest that the tendency to blame others also explains links between shame and indirect (but not displaced) aggression.

The non-significant path from shame to blame to displaced aggression may relate to the extent to which the individual is suppressing their shame. That is, it is plausible that displaced aggression is specific to what Lewis (1971) refers to as *bypassed* shame (i.e., suppressed shame). Indeed, unlike indirect and verbal aggression, displaced aggression involves suppressing one's anger towards another. In support of these ideas, Scott, DiLillo, Maldonado, and Watkins (2015) found that those individuals who were told to suppress their emotions during a computer-

mediated task exhibited significantly more displaced aggression compared to those participants who were told to positively reappraise the task. Given that the individual is suppressing their emotions, it is possible that individuals who are prone to engage in displaced aggression may not even be aware of their propensity to blame others. Indeed, the aggressive outbursts that characterize displaced aggression often occur in response to seemingly minor transgressions.

Alternatively, it may be that individuals are simply more prone to blame themselves for the situation. Drawing upon *Social Cognitive Theory* (Bandura, 1986), Covert, Tangney, Maddux, and Heleno (2003) argued that the interpersonal problems common among individuals who are prone to shame arise due to the intense self-focus that accompanies feelings of shame. Such self-focus is posited to impair the shame-prone individual's capacity to solve interpersonal problems. Furthermore, the feeling of inadequacy that accompanies shame leaves the shame-prone individual feeling as though they aren't capable of adequately implementing effective solutions, ultimately leading to withdrawal and avoidance. However, as Lewis (1971) maintained, such feelings of inadequacy are emotionally painful and overwhelming, and are inevitably likely to resurface in the form of aggressive outbursts (i.e., displaced aggression).

Taken together, the present study extended previous research (Stuewig et al., 2010), demonstrating evidence that externalization of blame also plays an important role in the relation between shame and indirect (but not displaced) aggression, promoting aggressive behaviours in response to shame-inducing situations. Furthermore, the current study provided evidence to suggest that hostility also plays an important role in the relation between shame and non-direct forms of aggression. Specifically, these findings suggest that the development of hostile attitudes may directly promote engagement in displaced aggression, whereas hostility may indirectly

promote indirect aggressive behaviours by promoting or increasing one's propensity to blame others. Finally, the present findings provide some of the first empirical support for the pathway between shame and aggression proposed by Lewis (1971), at least with respect to indirect aggression.

The Moderating Role of BIS

As discussed, the present study provided further evidence for links between shame and both internalizing (i.e., perfectionism) and externalizing (i.e., aggression) responses. Although an accumulating body of research continues to explore shame's associations with these seemingly contradictory responses, few studies have explored potential *modulating* factors in these associations. Simply stated, we know very little about *why* shame may lead to internalizing responses in some individuals, but externalizing responses in others. Accordingly, a secondary goal of this research was to examine the role of one aspect of personality (i.e., BIS) in contributing towards different responses to feelings of shame. Given that BIS is responsible for attention to threat and is thought to motivate cautious approach behaviours in response to such threat, it was hypothesized that variability in BIS sensitivities may explain why individuals may respond to shame – a warning signal for social threat - with such seemingly contradictory responses (i.e., SPP vs. aggression). Specifically, it was speculated that links between shame and internalizing responses (i.e., FNE, SCR, and SPP) would be stronger at higher levels of BIS, whereas links between shame and externalizing responses would be stronger at lower levels of BIS.

To date, only one study has examined links between BIS and shame. Sheikh and Janoff-Bulman (2010) found BIS predicted higher levels of shame, whereas BAS predicted higher

levels of guilt. Furthermore, participants reported higher levels of shame when their moral inhibitory system was primed, compared to when their moral approach system was primed. Consistent with these findings, in the present study, BIS demonstrated an overall positive association with shame-proneness. Furthermore, as discussed in the sections below, BIS emerged as a significant moderator in each of the proposed internalizing and externalizing models, suggesting BIS may be the common factor underlying the seemingly contradictory responses to shame. Specifically, results of the moderated mediation models indicated that higher levels of BIS exacerbated the serial mediated links between shame and SPP (through FNE and SCR), whereas lower levels of BIS exacerbated the serial mediated links between shame and indirect aggression (through hostility and blame).

Shame, BIS, and internalizing responses. Previous studies have provided evidence for direct associations between BIS and SPP (Flett et al., 2002; Stoeber & Corr, 2015, 2017). For example, Stoeber and Corr (2015, 2017) found that SPP was associated with increased BIS, which in turn predicted increased negative affect and more negative expectations about the future. Similarly, Randles et al. (2010) found that SPP was associated with increased trait rumination, and BIS partially mediated this relation. These studies suggest that high BIS may pose a particular risk for those individuals who are already prone to perfectionistic behaviours. Drawing upon these findings, the present study was the first to examine BIS as a modulating factor in the associations between shame and SPP. Specifically, it was hypothesized that high BIS sensitivities would exacerbate the sequential links between shame and SPP through FNR and SCR.

As anticipated, BIS demonstrated positive correlations with FNE, SCR, and SPP (Fee & Tangney, 2000; Joireman, 2004; Shahar et al., 2015). Furthermore, results of the moderated serial mediation analysis indicated that BIS sensitivity significantly moderated the indirect effect of shame on SPP through FNE and SCR. Specifically, the strength of the indirect effect was strongest at higher levels of BIS, however, at lower levels of BIS this serial mediation effect became attenuated. These findings are consistent with the notion that BIS motives cautious approach behaviours towards a threat. That is, the present findings suggest that high BIS sensitivity exacerbates the negative evaluative fears elicited by shame. In turn, these social-evaluative fears promote increased self-critical rumination, which in turn promotes approach behaviours, in the form of compensatory perfectionism.

Results also revealed a significant moderating effect of BIS on the direct association between shame and SPP. Specifically, results indicated that for individuals who have similar levels of FNE and SCR[2], high BIS sensitivity exacerbates shame-prone individuals tendency to engage in socially perfectionistic behaviours. However, the same was not true for those individuals with low or moderate BIS sensitivities. This finding is consisted with the notion that BIS is responsible for attention to threat, and thus high BIS sensitivities would be associated with the hypervigilance to threat characteristic of SPP (Flett et al., 2002). Thus, it appears that individuals who have a highly sensitive BIS are more prone to cope with their shame through engagement in perfectionistic behaviours and beliefs. Taken together these findings support the notion that BIS sensitivity serves a risk factor for maladaptive outcomes, and further

[2] This caveat is necessary to keep in mind, given that PROCESS is examining the moderated direct effect while setting the mediators (FNE and SCR) to zero.

corroborates assertions that an over-active BIS can exacerbate such maladaptive outcomes to the point at which they may become pathological (e.g., SPP).

Indirect aggression. Across studies, BIS has demonstrated inconsistent associations with indirect aggression. For example, Cooper et al. (2008) found BIS significantly predicted self-aggression and anger, but not indirect aggression. In contrast, Rajchert and Winiewski (2016) found BIS positively predicted indirect aggression, however levels of indirect aggression were higher among those with lower BIS sensitivities. In the present study, BIS demonstrated positive correlations with indirect aggression. Furthermore, the present study extends on previous findings, examining the role of BIS in the links between shame and indirect aggression through hostility and blame.

Consistent with previous studies (Johnson et al., 2010; Izadpanah et al., 2017) BIS demonstrated positive correlations with hostility. Furthermore, results of the moderated sequential mediation analysis indicated that BIS moderates the pathway from hostility to blame in the indirect association between shame and indirect aggression. Specifically, the indirect association between shame and indirect aggression through hostility and blame was strongest at lower levels of BIS, however as BIS increased this effect became attenuated. These results suggest that individuals with higher compared to lower BIS sensitivities may be less likely to respond to shame-elicited hostility by blaming others, and in turn less likely to engage in indirect aggression. As expected, while holding hostility and blame constant, BIS also significantly moderated the direct relation between shame and indirect aggression. Specifically, the strength of the negative association between shame and indirect aggression was strongest at higher levels of BIS, but this effect became attenuated at lower levels of BIS. Taken together, these findings

suggest that low BIS sensitivities may exacerbate (or give rise to) externalizing responses to shame (i.e., indirect aggression).

These findings may perhaps initially seem counterintuitive within the context of the original definition of BIS as an avoidance motivation system (Gray, 1970). However, the newly defined role of BIS is as a cautious approach system, responsible for mediating inhibition and activation of the FFFS and BAS (Gray & McNaughton, 2000). High shame-proneness implies that the individual readily perceives threats to the self and to one's social standing. Furthermore, evidence suggests that shame is a potent activator of the fight-or-flight system (e.g., Dickerson et al., 2004, 2009). Accordingly, when levels of BIS are low, it is likely the FFFS of the shame-prone individual is readily activated and motivating defensive aggression in response to shame. In contrast, when BIS sensitivities are higher, the BIS is likely inhibiting such defensive aggressive responses. Taken together, these findings corroborate the newly defined role of BIS, and provide a plausible explanation for the inconsistent findings previously noted in the links between BIS and indirect aggression.

Displaced aggression. Consistent with previous findings (Denson et al., 2006b; Rajchert & Winiewski, 2016), BIS was positively correlated with displaced aggression. However, contrary to expectations, BIS did not significantly moderate any of the pathways involved in the links between shame and displaced aggression through hostility and blame. This was somewhat surprising, given that displaced aggression involves several components related to BIS, including rumination and behavioural disengagement (Denson et al., 2006b). Rajchert and Winiewski (2016) previously found evidence to suggest that higher BIS sensitivity is associated with increased displaced aggression, irrespective of social threat (i.e., rejection). The authors

speculated that this might suggest that individuals with high BIS may be prone to engage in displaced aggression, even without provocation via social threat. Thus, it is possible that the BIS simply isn't involved in mediating links between shame and this particular form of aggression.

Given that displaced aggression involves inhibiting one's aggression upon initial provocation, followed by sudden aggressive outbursts (Denson et al., 2006), it is possible that understanding links between shame and displaced aggression may require examination of interactions between BIS and the other neurobiological systems (i.e., FFFS and BAS). In this regard, it may be that links between shame and displaced aggression initially involve inhibition through activation of either the Flight or Freeze components of the FFFS, followed by disinhibition, possible through interactions between the BIS and the Fight component of the FFFS and/or components of the BAS. Indeed, researchers have speculated that disinhibition may involve either underactive or overactive BIS, or an over-active BAS, as well as interactions between these systems (Corr, 2004; Segarra, Molto, & Torrubia, 2000).

Some support for these ideas stems from a recent study by Rajchert, Konopka, and Huesmann (2017), who examined the role of readiness for aggression on the links between social exclusion and displaced aggression. They found that emotional-impulsive readiness to aggress, characterized by a tendency to respond to frustration with anger and low emotional control (Frączek, Konopka, & Smulczyk, 2009), moderated the association between social exclusion and displaced aggression. That is, individuals with higher emotional-impulsive readiness exhibited significantly more displaced aggression in response to social exclusion compared to individuals with low emotional-impulsive readiness. Accordingly, future studies are necessary to assess the

interactions between these systems, as they relate to links between shame and displaced aggression.

The Moderating Role of Gender

An extensive body of research has provided strong support for gender differences in the experience of shame and guilt (see Tangney & Dearing, 2002b). Across multiple studies, Tangney and Dearing (2002a) found that women consistently reported more shame and guilt than men. Consistent with these findings, women in the present study had significantly higher levels of both shame- and guilt-proneness. Researchers have speculated the differential responses to shame may arise due to socialization of sex-roles throughout development (Reimer, 1996). For example, Zahn-Waxler and Robinson (1995) posited that socialization of female gender roles relating to access to, and acknowledgment of, emotions may lead females to more readily experience shame and self-blame.

Similarly, Reimer (1996) speculated that socialization of gender-roles may lead women to adopt passive responses to shame, including rumination and self-directed hostility, whereas such socialization may lead to males adopting externalizing responses (i.e., aggression). In the present study, females demonstrated significantly higher levels of SCR, FNE, BIS, and displaced aggression, whereas males exhibited significantly higher levels of indirect aggression, and a greater propensity to blame others. Furthermore, in support of Reimer's (1996) speculations, the indirect pathway linking shame and internalizing responses (i.e., SPP) was stronger for females, whereas the indirect pathway linking shame and externalizing responses (i.e., indirect aggression) was stronger for males.

Gender and internalizing shame responses. Results of the preliminary analyses indicated that females reported significantly higher levels of FNE and SCR. This is consistent with previous findings suggesting women tend to be more prone to negative evaluative fears (Inderbitzen-Nolan & Walters, 2000; Vagos et al., 2016) and various forms of rumination (Johnson & Whisman, 2013). Other studies have provided evidence that self-criticism may be a vulnerability factor for maladaptive outcomes among women but not men. For example, Shahar, et al. (2004) found self-criticism was related to increased depression among adolescent girls, but not boys. Consistent with their findings, results of the present study indicated that the relation between shame and FNE was stronger for females compared to males.

Findings from the present study indicated males and females did not differ significantly in terms of levels of SPP. This is consistent with a recent genetic study, which found no significant gender differences in the heritability of this form of perfectionism (Iranzo-Tatay et al., 2015). Despite non-significant gender differences noted in the experience of SPP, previous research has suggested differential relations between shame and SPP among men and women. For example, Lutwak and Ferrari (1996) conducted separate factor analyses for men and women, and found that for women, SPP loaded onto a single factor with shame, however, the same was not found with men. Other studies have suggested gender differences in the associations between SPP and maladaptive outcomes. For example, Klibert et al. (2015) reported an indirect relation between SPP and anxiety through increased threat perception and feelings of insufficient control over the environment among women. However, for men, the relation between SPP and anxiety was not significant upon controlling for demographic variables.

Extending on previous research, results of the present study provide further evidence for gender differences in the experience of SPP. Results of the moderated mediation analysis indicated that the indirect effect between shame and SPP through FNE and SCR was stronger females than for males. Specifically, more so among woman than among men, shame appeared to evoke fear of negative evaluation, which in turn led to self-condemning rumination, ultimately positively predicting SPP. These findings corroborate previous speculations and suggest women may be more prone to employ internalizing responses to shame. In contrast, male responses to shame appeared to follow a different path (more along the externalizing dimension).

Gender and externalizing shame responses. Studies have found evidence to suggest that males tend to engage in more indirect aggression (Chen et al., 2012; Lindeman et al., 1997; Tangney et al., 2001), whereas females tend to engage in more displaced aggression (Tangney et al., 2001). For example, Chen et al. (2012) found that embarrassment in response to a hypothetical vignette was significantly and positively associated with relational aggression among males, but not females. In another study, Tangney et al. (2001) found shamed boyfriends had a greater propensity to respond with indirect forms of aggression, ruminative anger, and tended to lash out against their girlfriends. In contrast, shamed girlfriends had a greater tendency to engage in displaced aggression and self-directed hostility.

In the present study, results of the preliminary analyses indicated that males reported higher levels of indirect aggression, while females reported higher levels of displaced aggression. Furthermore, although no gender differences emerged in levels of hostility, males were significantly more likely to blame others. In support of the aforementioned studies, results of the moderated mediation analyses indicated the indirect relation between shame and indirect

aggression through hostility and blame was stronger for males than for females. Specifically, males were more likely to respond to shame-induced hostility by blaming others. These findings suggest that males' greater propensity to respond to shame with indirect aggression may be due to their greater propensity to redirect their hostility outwards and blame others.

Contrary to expectations, no significant gender differences emerged in the mediation model linking shame and displaced aggression. Given that the present study employed a *trait* measure of displaced aggression, it is plausible that gender differences may emerge at the *situational* level. Indeed, Tangney et al. (2001) assessed displaced aggression in relation to romantic relationships. Considering evidence to suggest females tend to be more relationship oriented (e.g., Taylor et al., 2000), it is plausible that the link between shame and this particular form of aggression may exhibit gender differences when examined in the context of romantic relationships. Alternatively, it may be that other factors underlie gender differences in this association (e.g., self-direct aggression, anger-in). Future research is necessary to clarify these speculations.

Taken together, results of the present study support speculations that females may tend towards internalizing responses to shame, whereas males may tend towards externalizing responses (Reimer, 1996). Specifically, results of the present study provide some of the first evidence to suggest females may be more likely to engage in compensatory perfectionism in response to self-condemning ruminative thoughts elicited in response to shame-induced negative evaluative fears. In contrast, results suggest that males may be more likely to respond shame-induced hostility by blaming others, and in turn may be more likely to respond to this externalization of blame by engaging in indirect aggression.

Limitations and Future Directions

The present study was the first to examine links between shame and internalizing and externalizing responses, and potential mediating and modulating factors in these associations. The findings lend empirical support for longstanding speculations surrounding pathways leading from shame to maladaptive responses (e.g., Lewis, 1971), and provide novel insight into the mechanisms underlying these associations. Notwithstanding, these findings should be interpreted within the context of some limitations.

First, the current sample consisted primarily of Caucasian University students, and thus may not be representative of cultural differences that have previous been noted in the experience of shame. For example, a recent study (Boiger, Uchida, Norasakkunkit, & Mesquita, 2016) found that American students were more likely to blame others in responses to anger-inducing situations and were more self-focused during experiences in which they felt shame. In contrast Japanese students were more prone to blame themselves in response to anger-inducing situations and were more focused on others during experiences of shame.

Other research suggests cultural differences in shame associated with particular values. For example, Greenwald and Harder (1998) maintain that lack of conformity to the social group is likely to be associated with greater shame in collectivist cultures. Accordingly, future studies should examine the present findings using a more culturally representative sample. Furthermore, the sample consisted of University students who completed the questionnaires with the intention of fulfilling their course requirements. Thus, although careful examination of the data was conducted during the preliminary analyses, the possibility of inattentive responding cannot be completely discounted. Future studies might consider utilizing attention checks, or potentially

employing an experimental design. For example, researchers could replicate experimental design employed by Rajchert and Winiewski (2016) and examine how these associations relate to shame.

From a methodological perspective, although the measures used demonstrated evidence of good internal consistency reliability, the sole reliance on self-reports limits ecological validity and heightens vulnerability to response biases. This is particularly problematic given that the construct of interest (shame) is inherently prone to response biases, including lack of shame-awareness and shame about shame (Lewis, 1971; Nathanson, 1992). Given that it is possible we are not adequately accessing what Lewis (1971) refers to as bypassed shame, we are restricted in our ability to develop a complete understanding of the individual variability in the experience of shame. Similarly, the particular population of interest (i.e., shame-prone individuals) are likely to be prone to response biases due to their tendency to readily experience shame.

In addition, it is well documented that measures of aggression are particularly prone to response biases. Indeed, the measure used to assess displaced aggression in the present study has previously demonstrated strong correlations with a measure of social desirability (Denson et al., 2006b). To address these issues, future studies should utilize measures of a more inconspicuous nature. For example, the *Experiential Shame Scale* (Turner, 2014) was developed as a measure of state shame intended to circumvent response biases by using low face-valid items. Furthermore, assessing aggression utilizing experimental designs, such as the *Cyberball* paradigm (Williams & Jarvis, 2006), may evade some of the response biases associated with self-reported aggression.

Further, although the models examined in this study were grounded in theoretical and empirical research, the cross-sectional design employed in the current study limits the capacity to establish causal or temporal links in the associations explored. As discussed in the following section, the links between shame and both SPP and aggression are likely cyclical/transactional in nature. Furthermore, given that data was collected at a single time-point, it is plausible that the specific sequential pathways examined have a different causal order. For example, it may be that shame promotes self-critical rumination, which in turn promotes negative evaluative fears, and then in turn, perfectionism. Accordingly, future studies employing longitudinal designs are necessary to fully explore the nature of these relations, and to ascertain whether there is indeed a cyclical pattern occurring between these variables.

As well, although the TOSCA has received extensive psychometric support, it is possible that the vignettes presented are not fully accessing the particular shame-inducing situations that give rise to certain shame responses. Similarly, reports of the experience of shame and aggression, particularly displaced aggression, are likely subject to recall biases. Indeed, given that shame can be elicited in response to even subtle cues, and that displaced aggression occurs without the individual's conscious awareness of the source of such aggression, highlights the need for assessment tool that can minimize response biases, while capturing these nuanced experiences in real-time. Accordingly, future studies should be employed using ecological momentary assessments in order to asses these experiences as they occur. Such methodology may also allow for a richer and more in depth understanding of the situational factors that may interact with, or give rise to, differential responses to shame.

For example, Scott et al. (2017) employed a momentary assessment study to examine links between perceived rejection, negative affect, and aggression in a sample of adolescent girls with personality disorders. Over the course of three weeks, participants were prompted several times a day on their smartphones, at which time they answered questions pertaining to their mood, perceptions of being rejected or criticized, and aggressive urges. Results revealed that, among women with greater borderline personality disorder symptoms, increased perceptions of rejection were associated with increased feelings of anger and shame, which in turn predicted increased aggressive urges.

The use of momentary assessments may also help to untangle the direction of effect for these associations. For example, Mushquash and Sherry (2012) employed a week-long daily diary study to explore the maladaptive cyclical patterns of SPP. Results indicated SPP was associated with maladaptive behaviours, which in turn predicted increased negative self-evaluations, which in turn motivated further perfectionistic behaviours, and so on. Future studies might consider employing a similar design, assessing interrelations between shame and both perfectionism and aggression, as they occur in real-time. Such methodology would allow researchers to fully explore the nature of the relations between shame and associated responses.

As discussed in previous sections, the BIS is responsible for mediating activation/inhibition of the FFFS and BAS (Gray & McNaughton, 2000). Although the present findings suggested that BIS may be differentially activating/inhibiting these systems in response to the different shame-responses explored, these notions are merely speculative, and cannot be determined solely through self-reported BIS sensitivities. Indeed, research suggests that when considering how individuals react to particular situations, it is important to consider interaction

between these systems (Segarra et al., 2000). This is perhaps of no surprise, given that behaviour is often the result of multiple systems working in concert (Corr, 2013).

Accordingly, future studies should examine the implications of FFFS and BAS in the models explored here, and how these systems interact with each other and with the BIS. For example, given that displaced aggression is initially associated with inhibition, followed by subsequent aggressive outbursts, it is possible that links between shame and aggression may involve interactions between BIS, BAS, and FFFS, and these interactions may be time-dependent. That is, displaced aggression induced by shame may initially involve activation of the FFFS, inducing inhibition of aggressive urges. However, given that emotional suppression is cognitively taxing, the individual inevitably becomes disinhibited and lashes out aggressively, possible due to activation of the components of the BAS or the Fight component of the FFFS, or interactions between these systems.

Furthermore, given that these are neurobiological systems, physiological assessments may be more appropriate. For example, shame has been proposed as an important catalyst in mediating the effect of social threat on cortisol responses – the body's stress hormone elicited through FFFS activation (Dickerson & Kemeny, 2004; Dickerson et al., 2004; Gruenewald, Kemeny, Aziz, & Fahey, 2004). In one study, Gruenewald et al. (2004) examined cortisol responses and self-reported shame in response to a stressor task (i.e., giving a speech and completing a math task). Social-evaluative threat was manipulated by assigning participants to complete the stressing tasks either alone or in front of an audience. Participants in the social evaluation condition reported significantly higher shame post-stressor. Furthermore, participants with higher levels of shame also demonstrated the largest increases in cortisol from pre- to post-

stressor task. Interestingly, only shame (but not anxiety) was associated with cortisol increases, providing support for the notion that shame may be a key factor in the activation of the HPA axis in response to social threats. Future studies might consider employing a similar design, assessing how HPA regulation and cortisol responses might relate to links between shame and aggression – particularly displaced aggression.

Finally, it is also important to note that for some of the significant findings, effects sizes were quite modest in magnitude. This was particularly the case for some of the moderation analyses. For example, as can be seen in Figure 9a, the difference between small, moderate, and high levels of BIS equates to only a half-point change in reported negative evaluative fears in response to shame. Thus, although statistically significant, the practical significance of such small effects remain to be determined.

Implications

Despite the aforementioned limitations, the present study provides novel and important contributions that form a starting point, from which future studies can build upon. Given that shame is often described as an extremely painful emotion, a comprehensive understanding of this complex emotion is essential for the development of shame assessments and interventions. Shame-proneness, or the factors that leave one vulnerable to the development of shame-proneness (e.g., temperament), are likely to arise early in development. As such, the cognitions and tendencies associated with shame are likely deeply rooted, and thus resistant to change. Further complicating the treatment of shame-proneness are the response biases inherent in factors such as unacknowledged shame and the shameful nature of shame itself. Accordingly,

identifying potential targets in the pathways leading from shame to maladaptive outcomes may allow for the development of more successful, targeted therapeutic interventions.

Scheff's (1987) shame-rage spiral implies a cyclical, self-perpetuating link between shame and aggression. Accordingly, the aggressive behaviour enacted by the shame-prone individual is likely to exacerbate one's shame, in turn promoting the development of hostile attitudes. These hostile attitudes in turn are then likely to promote further aggressive behaviour, either directly (in the case of displaced aggression), or indirectly through increasing one's propensity to blame others (in the case of indirect aggression).

Similarly, given that a core feature of SPP is feeling as if one cannot adequately meet others' expectations, it is likely that the pathway leading from shame to FNE to SCR to SPP is cyclical in nature. That is, it is plausible that those perfectionistic behaviours that are employed are inevitably going to be perceived by the socially prescribed perfectionist as insufficient, confirming one's perceived inadequacy and thus leading to increased shame. In turn, this shame is likely to reinforce one's negative evaluative fears, and in turn exacerbate one's tendency to engage in self-critical rumination, and so on. If this is indeed the case, then interrupting a component in these pathways may weaken the link between shame and maladaptive outcomes (i.e., SPP, aggression). The present study provides evidence for plausible therapeutic targets (i.e., negative evaluative fears, rumination, hostile attitudes) that may be more amenable to change. In turn, weakening the links between shame and associated maladaptive cognitions may allow the shame-prone individual to begin to access and work through their feelings of shame.

Understanding how personality variables relate to shame and associated responses may provide useful insight into the mechanisms that underlie – and likely perpetuate – these

associations. Given that the BIS encompasses conditioned response tendencies (Corr, 2013), findings from the present study suggest that those individuals with maladaptive BIS sensitivities may be more resistant to therapeutic intervention. Results of the present study indicated that high BIS sensitivity may underlie associations between shame-proneness and SPP, whereas low BIS sensitivity may underlie associations between shame and indirect aggression.

Given that high BIS sensitivity is likely reinforcing the hyper-vigilance to threat that characterizes each of the variables in the proposed model (i.e., shame, FNE, SCR, and SPP), these findings suggest that shame-prone individuals with high BIS sensitivities may benefit from therapeutic interventions targeted towards de-catastrophizing and re-conditioning one's automatic anxious vigilance (e.g., cognitive restructuring, mindfulness). In contrast, low BIS sensitivity is associated with impulsivity and risk-taking behaviour (Corr, 2004, 2008), suggesting that shame-prone individuals with low BIS sensitivities may benefit from interventions targeted towards learning to identify and regulate one's emotions (e.g., emotion focused therapy). Understanding which neurobiological system underlies associations between shame and maladaptive responses may also have pharmacological implications. Studies have found that, whereas the FFFS is relatively unresponsive to anxiolytic drugs, the BIS tends to be sensitive to them (McNaughton & Corr, 2008). Accordingly, shame-prone individuals who engage in SPP behaviours may benefit from anxiolytics (e.g., SSRIs).

Finally, the emergence of gender differences in internalizing versus externalizing responses to shame are consistent with previous speculations (Reimer, 1996), and may suggest that such tendencies emerge through socialization of gender roles throughout development. If this is indeed the case, then understanding how these gender differences manifest in responses to

shame may provide important information for clinicians, allowing for treatment interventions tailored towards deconstructing internalized gender roles that may have come to underlie one's shame-response tendencies.

Conclusion

Taken together, results of the present study add to the extant shame-literature and provide empirical support for the purported internalizing and externalizing responses to shame. Results indicated that shame-prone individuals may engage in internalizing responses in the form of socially perfectionistic behaviours, which arise due negative evaluative fears and self-condemning rumination in response to shame. Furthermore, the present study extends on previous findings (e.g., Stuewig et al., 2010), and provides empirical evidence for the speculative links between shame and aggression through to hostility and externalization of blame. Specifically, the results of the present study suggest both of these factors explain the links between shame and indirect aggression, whereas hostility appears to be an important factor in understanding the links between shame and displaced aggression.

Furthermore, the present study was the first to examine the role of BIS in the links between shame and associated responses. These findings extend on previous research and provide empirical evidence demonstrating how personality factors can exacerbate shame-proneness and associated maladaptive outcomes. These findings also provide support the notion that inappropriate BIS sensitivities (i.e., too high or too low) can have differential implications for internalizing and externalizing behaviours, and suggest that the BIS may be the common factor underlying the seemingly contradictory responses to shame. Specifically, findings from the present study suggest that an over-active BIS may give rise to internalizing (i.e., SPP)

problems, whereas an under-active BIS may exacerbate or give rise to externalizing problems (i.e., indirect aggression).

Finally, findings from the present study corroborate speculations that women may tend towards internalizing shame responses, whereas men may be more prone to employ externalizing responses. Taken together, the present study contributes to the accumulating body of shame-research and provides important findings that may allow for a more comprehensive understanding of how individuals respond to shame.

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Appendix A

SONA Recruitment Notice

Study Name: How do you feel? The impact of emotions in everyday life

Description: We are interested in how students typically think, feel, and respond to commonly occurring situations, and how this impacts their well-being and their experiences with others. Participation in this study involves completing a series of questionnaires online about your thoughts and feelings in response to hypothetical situations, and how you typically think and feel about yourself and others. There are no anticipated risks to participating in this research, but answering questions about your emotional well-being may make some participants feel uncomfortable. You can skip any questions that you do not feel comfortable answering.

Eligibility Requirements: Interested participants must be enrolled in first- and second-year Psychology or Neuroscience courses (PSYC 1001, 1002, 2001, 2002, or NEUR 2001, 2002) at Carleton University in Ottawa, Canada.

Duration and Locale: Approximately 1 hour, completed online.

Compensation: You will receive 0.5% towards your course (PSYC 1001, 1002, 2001, 2002, or NEUR 2001, 2002) for your time and participation.

Researchers: Danielle Baldwin (Principal Investigator); Dr. Robert Coplan (Faculty Sponsor)
danielle.baldwin@carleton.ca

This study has been approved by the Carleton University Research Ethics Board-B (CUREB-B Clearance #108061)

CUREB-B:

If you have any ethical concerns with the study, please contact Dr. Andy Adler, Chair, Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at ethics@carleton.ca).

Appendix B

Informed Consent Form

Title: How do you feel? The impact of emotions in everyday life

Funding Source: This research is partially funded by the Social Science and Humanities Research Council of Canada

Date of ethics clearance: To be determined by the REB (as indicated on the clearance form)

Ethics Clearance for the Collection of Data Expires: To be determined by the REB (as indicated on the clearance form)

This is a study on students' experiences with self-conscious emotions. This study aims to explore individual differences in students' thoughts, feelings, and reactions to commonly occurring situations, and how these experiences impact social and emotional well-being. The researcher for this study is Danielle Baldwin in the Master of Arts in Psychology program here at Carleton University. She is working under the supervision of Robert Coplan in the Socio-Emotional Development Lab in the Department of Psychology.

What's Involved?

This study involves a series of questionnaires that will take place online. Will be asked to complete a series of questionnaires about how you typically think, feel, and respond to common situations, and about your thoughts and experiences with others. These questionnaires will take approximately 1 hour to complete. You will be compensated 0.5% credit towards your course (PSYC 1001, 1002, 2001, 2002, or NEUR 2001, 2002) for your participation.

Potential Benefits and Risks:

The results of this study will not benefit you directly, but will help researchers understand more about the relation between individuals' experiences with self-conscious emotions, and how these experiences impact one's social and emotional well-being. There are no anticipated risks associated with participating with this study. However, some participants may feel uncomfortable answering questions about their emotions. You can choose to skip any questions you do not feel comfortable answering. If you would like to talk to a qualified counsellor about your personal situation, you can contact Student Health and Counselling Services at (613) 520-6674.

You have the right to end your participation in the survey at any time, for any reason, up until you hit the "submit" button. You will still receive your 0.5% course credit should you choose to withdraw. You can withdraw by exiting the survey at any time before completing it. If you withdraw from the study, all information you provided will be immediately destroyed. (As the survey responses are anonymous, it is not possible to withdraw after the survey is submitted.)

Confidentiality:

We collect data through Qualtrics, which uses servers with multiple layers of security to protect

the privacy of the data (e.g., encrypted websites and password protected storage). Qualtrics servers are located in the US, and therefore data is subject to US laws on privacy and confidentiality. However, we ensure that your Internet IP address will not be collected in Qualtrics. Any identifying information (i.e., name provided to ensure you receive course credit for completion) will be deleted from the data set. Furthermore, data that is rendered anonymous will be deleted after 5 years. Any publications using the data from this study will use the data of the group together, ensuring that no information about a single individual is given.

Contact Information and Ethics Clearance:
If you have any questions about this study or require further information, please contact Danielle Baldwin or Dr. Robert Coplan using the contact information provided. If you would like a copy of the finished research project, you are invited to contact the researcher to request an electronic copy which will be provided to you as long as the safety of all participants will not be compromised by doing so.

The ethics protocol for this project was reviewed by the Carleton University Research Ethics Board, which provided clearance to carry out the research (CUREB-B Clearance # 108061). If you have any ethical concerns with the study, please contact Dr. Andy Adler, Chair, Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at ethics@carleton.ca).

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By clicking “submit”, you consent to participate in the research study as described above.

Appendix C

Debriefing

Thank you for participating in our study!

What are we trying to learn in this research?

The purpose of this study is to examine individual differences in how people experience, appraise, and cope with self-conscious emotions, and how these different factors impact one's social and emotional functioning. The questionnaires you completed assessed your tendency to experience self-conscious emotions (i.e., shame and guilt) and how you typically respond to these emotions. We also asked you to provide information about how you tend to appraise yourself and others, your feelings of social connectedness, and your behavioral responses, including your experiences with anger and your tendencies to approach and avoid different situations. We are interested in learning how these factors might interact with individuals' self-conscious emotions, and the different ways in which people typically respond to these emotions.

Why is this important to scientists or the general public?

Self-conscious emotions can be uncomfortable to experience, leading to many different coping mechanisms people may employ to try to manage them (e.g., avoidance, frustration, anger). Although these responses can make us feel better temporarily, not talking about the source of the issue (i.e., self-conscious emotions) can negatively impact one's social and emotional well-being. Understanding more about how individuals differentially manage and experience these emotions, as well as the different factors influencing them, can provide valuable information, which may allow researchers and clinicians to develop more informed strategies for helping individual's cope with their self-conscious emotions.

Where can I learn more?

If you are interested in learning more about this topic, here are some journal articles, books, and videos that might be of interest:

Brown, B. (2012, March). *Brené Brown: Listening to shame* [Video file]. Retrieved from https://www.ted.com/talks/brene_brown_listening_to_shame

Brown, B. (2010, June). *Brené Brown: The power of vulnerability* [Video file]. Retrieved from https://www.ted.com/talks/brene_brown_on_vulnerability

Cibich, M., Woodyatt, L., & Wenzel, M. (2016). Moving beyond "shame is bad": How a functional emotion can become problematic. *Social and Personality Psychology Compass, 10*(9), 471-483. doi:10.1111/spc3.12263

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Tracy, J. L., Robins, R. W., & Tangney, J. P. (2007). *The self-conscious emotions: Theory and research.* New York, NY: The Guilford Press.

Is there anything I can do if I found this experiment to be emotionally upsetting?
Yes. If you feel any distress or anxiety after participating in this study, please feel free to contact the Carleton University Health and Counseling Services at: 613-520-6674, or the Distress Centre of Ottawa and Region at 613-238-3311 (http://www.dcottawa.on.ca).

What if I have questions later?

If you have any remaining concerns, questions, or comments about the experiment, please feel free to contact Danielle Baldwin (Principal Investigator), at: Danielle.Baldwin@carleton.ca, Dr. Robert Coplan (Faculty Sponsor), at: Robert.Coplan@carleton.ca (613-520-2600, ext. 8691).

If you have any ethical concerns with the study, please contact Dr. Andy Adler, Chair, Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at ethics@carleton.ca).

Thank you for participating in this research!

Appendix D

Demographic Information

Full Name (this will be used to assign credits – then removed):

_____

Age: _____

Sex: Male _____ Female _____ Other _____

Ethnic group: Caucasian _____ Asian _____ African-Canadian _____

Hispanic _____ Aboriginal _____ Other: _____

What year of University are you currently enrolled in?

First_____ Second_____ Third_____ Fourth _____ Other_____

Appendix E

Test of Self-Conscious Affect, Version 3 (TOSCA-3; Tangney, et al., 2000)

Below are situations that people are likely to encounter in day-to-day life, followed by several common reactions to those situations.

As you read each scenario, try to imagine yourself in that situation. Then indicate how likely you would be to react in each of the ways described. We ask you to rate all responses because people may feel or react more than one way to the same situation, or they may react different ways at different times.

For example:

A. You wake up early one Saturday morning. It is cold and rainy outside.

a) You would telephone a friend to catch up on news. 1---2---3---4---5
not likely very likely

b) You would take the extra time to read the paper. 1---2---3---4---5
not likely very likely

c) You would feel disappointed that it's raining. 1---2---3---4---5
not likely very likely

In the above example, I've rated ALL of the answers by circling a number. I selected a "1" for answer (a) because I wouldn't want to wake up a friend very early on a Saturday morning -- so it's not at all likely that I would do that. I selected a "5" for answer (b) because I almost always read the paper if I have time in the morning (very likely). I selected a "3" for answer (c) because for me it's about half and half. Sometimes I would be disappointed about the rain and sometimes I wouldn't -- it would depend on what I had planned.

1. You make plans to meet a friend for lunch. At five o'clock, you realize you have stood your friend up.

a) You would think: "I'm inconsiderate."
b) You'd think you should make it up to your friend as soon as possible.
c) You would think: "My boss distracted me just before lunch."

2. You break something at work and then hide it.
   a) You would think: "This is making me anxious. I need to either fix it or get someone else to."
   b) You would think about quitting.
   c) You would think: "A lot of things aren't made very well these days."

3. At work, you wait until the last minute to plan a project, and it turns out badly.
   a) You would feel incompetent.
   b) You would think: "There are never enough hours in the day."
   c) You would feel: "I deserve to be reprimanded for mismanaging the project."

4. You make a mistake at work and find out a co-worker is blamed for the error.

a) You would think the company did not like the co-worker.
b) You would keep quiet and avoid the co-worker.
c) You would feel unhappy and eager to correct the situation.

5. While playing around, you throw a ball, and it hits your friend in the face.
   a) You would feel inadequate that you can't even throw a ball.
   b) You would think maybe your friend needs more practice at catching.
   c) You would apologize and make sure your friend feels better.

6. You are driving down the road, and you hit a small animal.
   a) You would think the animal shouldn't have been on the road.
   b) You would think: "I'm terrible."
   c) You'd feel bad you hadn't been more alert driving down the road.

7. You walk out of an exam thinking you did extremely well, then you find out you did poorly.

   a) You would think: "The instructor doesn't like me."
   b) You would think: "I should have studied harder."
   c) You would feel stupid.

8. While out with a group of friends, you make fun of a friend who's not there.

   a) You would feel small...like a rat.
   b) You would think that perhaps that friend should have been there to defend himself/herself.
   c) You would apologize and talk about that person's good points.

9. You make a big mistake on an important project at work. People were depending on you, and your boss criticizes you.
   a) You would think your boss should have been more clear about what was expected of you.
   b) You would feel as if you wanted to hide
   c) You would think: "I should have recognized the problem and done a better job

10. You are taking care of your friend's dog while they are on vacation. and the dog runs away.

   a) You would think, "I am irresponsible and incompetent."
   b) You would think your friend must not take very good care of their dog or it wouldn't have run away.
   c) You would vow to be more careful next time.

11. You attend your co-worker's housewarming party, and you spill red wine on a new cream-colored carpet, but you think no one notices.

a) You would stay late to help clean up the stain after the party.
b) You would wish you were anywhere but at that party
c) You would wonder why your co-worker chose to serve red wine with the new light carpet.

Appendix F

Self-Critical Rumination Scale (Smart et al., 2016b)

Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

1 = not at all, 2 = a little, 3 = moderately, 4 = very much

1. I always seem to be rehashing in my mind the stupid things that I've said or done.
2. Sometimes it is hard for me to shut off critical thoughts about myself.
3. I can't stop thinking about how I should have acted differently in certain situations.
4. I criticize myself a lot for how I act around other people.
5. I wish I spent less time criticizing myself.
6. I often worry about all of the mistakes I have made.
7. I spend a lot of time wishing I were different.
8. I often berate myself for not being as productive as I should be.

Appendix G

Brief Fear of Negative Evaluation Scale (Leary, 1983)

Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale:

1 = Not at all characteristic of me
2 = Slightly characteristic of me
3 = Moderately characteristic of me
4 = Very characteristic of me
5 = Extremely characteristic of me

1. I worry about what people think of me even though I know it doesn't make any difference.
2. I am unconcerned even if I know people are forming an unfavorable impression of me.
3. I am frequently afraid of other people noticing my shortcomings.
4. I rarely worry about what kind of impression I am making on someone.
5. I am afraid that others will not approval of me.
6. I am afraid that people will find fault with me.
7. Other people's opinions of me do not bother me.
8. When I am talking with someone, I worry about what they may be thinking about me.
9. I am usually worried about what kind of impression I make.
10. If I know someone is judging me, it has little effect on me.
11. Sometimes I think I am too concerned with what other people think of me.
12. I often worry that I will say or do the wrong thing.

Appendix H

Socially Prescribed Perfectionism (Hewitt & Flett, 1991)

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent.

1= strongly disagree; 2= disagree; 3= somewhat disagree; 4 = neither agree nor disagree; 5= somewhat agree; 6= agree; 7= strongly agree

1. I find it difficult to meet others' expectations of me
2. Those around me readily accept that I can make mistakes too
3. The better I do, the better I am expected to do
4. Anything that I do that is less than excellent will be seen as poor work by those around me
5. The people around me expect me to succeed at everything I do
6. Others will like me even if I don't excel at everything
7. Success means that I must work even harder to please others
8. Others think I am okay, even when I do not succeed
9. I feel that people are too demanding of me
10. Although they may not say it, other people get very upset with me when I slip up
11. My family expects me to be perfect
12. My parent rarely expected me to excel in all aspects of my life
13. People expect nothing less than perfection from me
14. People expect more from me than I am capable of giving.
15. People around me think I am still competent even if I make a mistake

Appendix I

Aggression Questionnaire (Buss & Warren, 2000)

Using this 5-point scale, indicate how uncharacteristic or characteristic each of the following statements is in describing you.

1 = not at all like me
2 = A little like me
3 = Somewhat like me
4 = Very much like me
5 = Completely like me

Hostility

1. I do not trust strangers who are too friendly.
2. Other people always seem to get the breaks.
3. At times I feel I have gotten a raw deal out of life.
4. I wonder why sometimes I feel so bitter about things.
5. I wonder what people want when they are nice to me.
6. I sometimes feel that people are laughing at me behind my back.
7. I know that "friends" talk about me behind my back.
8. At times I am so jealous I can't think of anything else.

Indirect aggression

1. When people are bossy, I take my time doing what they want, just to show them.
2. When someone really irritates me, I might give him or her the silent treatment.
3. I like to play practical jokes.
4. If I'm angry enough, I may mess up someone's work.
5. I have been mad enough to slam a door when leaving someone behind in the room.
6. I sometimes spread gossip about people I don't like.

Appendix J

Displaced Aggression subscale (Denson et al, 2006a)

Directions: Fill out the following questionnaire to the best of your ability. Please be completely honest. Your responses will remain strictly confidential.
Rate each of the items below using the following scale:

1----------2----------3----------4----------5----------6----------7

Extremely Uncharacteristic of me — Extremely Characteristic of me

1) Sometimes I get so upset by work or school that I become hostile toward my family or friends.
2) When things don't go the way I plan, I take my frustration out on the first person I see.
3) If someone made me angry, I would likely vent my anger on another person.
4) If I have a hard day at work or school, I'm likely to make sure everyone knows about it.
5) When angry, I tend to focus on my thoughts and feelings for a long period of time.
6) When angry, I have taken it out on people close to me.
7) I take my anger out on innocent others.
8) Sometimes I get upset with a friend or family member even though that person is not the cause of my anger or frustration
9) When someone or something makes me angry I am likely to take it out on another person.
10) When I am angry, I don't care who I lash out at.

Appendix K

Revised Reinforcement Sensitivity of Personality Questionnaire (Corr & Cooper, 2016)

Below are a list of statements about everyday feelings and behaviours. Please rate how accurately each statement describes you in general. Do not spend too much time thinking about the questions and please answer honestly. Your answers will remain confidential. How accurately does each statement describe *you*?

1 = not at all, 2 = slightly, 3 = moderately, 4 = highly

Behavioural Inhibition System

1. I feel sad when I suffer even minor setbacks.
2. I sometimes feel 'blue' for no good reason.
3. When feeling 'down', I tend to stay away from people.
4. The thought of mistakes in my work worries me.
5. When nervous, I sometimes find my thoughts are interrupted.
6. I often feel depressed.
7. My mind is sometimes dominated by thoughts of the bad things I've done.
8. I'm always weighing-up the risk of bad things happening in my life.
9. People are often telling me not to worry.
10. I often worry about letting down other people.
11. I worry a lot.
12. My behavior is easily interrupted.
13. It's difficult to get some things out of my mind.
14. When nervous, I find it hard to say the right words.
15. I find myself thinking about the same thing over and over again.
16. I often wake up with many thoughts running through my mind.
17. I often find myself 'going into my shell'.
18. My mind is dominated by recurring thoughts.
19. I often find myself lost for words.
20. I have often spent a lot of time on my own to "get away from it all".
21. I am often preoccupied with unpleasant thoughts.
22. I take a long time to make decisions.
23. When trying to make a decision, I find myself constantly chewing it over.