

DISSERTATION

EFFECTS OF PERSONALITY AND ATTACHMENT ON SOCIAL
CONNECTEDNESS: THE ROLE OF SHAME PRONENESS AND SHAME AVERSION

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ABSTRACT

EFFECTS OF PERSONALITY AND ATTACHMENT ON SOCIAL CONNECTEDNESS: THE ROLE OF SHAME PRONENESS AND SHAME AVERSION

Social-connectedness has many important implications for both psychological and physical health (Holt-Lunstad, Smith, & Layton, 2010; Stavrova & Luhmann, 2016). Given the importance of having social-connectedness needs met, it is important to understand the relations among variables that predict or influence social connectedness. Two of the earliest-in-life predictors of later social outcomes are personality and attachment tendencies (Haggerty, Hilsenroth, & Vala-Stewart, 2009; Lee, Dean, & Jung, 2008). Shame proneness has been linked to both attachment tendencies and social outcomes (Lutwak, Panish, & Ferrari, 2003; Muris et al., 2014). Shame aversion has been less studied but shows promise for being a more specific and powerful predictor than general trait-level shame (Schoenleber & Berenbaum, 2010). The literature to this point has not included these variables in a single multivariate model. In the current study, it was hypothesized that Personality and Attachment would predict Social Connectedness through Shame Proneness and Shame Aversion. Structural equation modeling (SEM) was used to test this model. Data ($n=1,386$) were collected from an undergraduate student population in the Mountain region of the United States and were randomly split to create two large samples – a testing and a confirmatory sample. Results revealed a good fit between the hypothesized model and the data for the Personality, Attachment, and Social Connectedness portions of the structural model. The hypotheses regarding the indirect effects of Shame Proneness and Shame Aversion in the model, however, were not supported. The modified model

demonstrated good fit with the confirmatory sample, but the fit was significantly different between the two samples. Thus, a third study was conducted wherein the hypothesized model was tested and modified with the full sample. Implications of findings for theory and clinical intervention as well as directions for future research based on results from study 3 are discussed.

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DEDICATION

This work is dedicated to my clients. Your courage, willingness, and vulnerability inspire me. I am honored to be part of your journey.

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INTRODUCTION AND LITERATURE REVIEW

According to Self-Determination Theory (SDT; Deci & Ryan, 1985), humans have three basic psychological needs or drives: autonomy, competence, and relatedness (Deci & Ryan, 2008; Ryan & Deci, 2000; Sheldon, Elliot, Kim, & Kasser, 2001). When any of these needs are not met, there can be psychological distress. Determining barriers to these needs being satisfied is consequently of utmost importance. The current study specifically addresses barriers to the last of these three needs – relatedness (i.e., social-connectedness).

Social Connectedness

Social connectedness is a basic human need (Baumeister & Leary, 1995). A sense of social connectedness is theorized to begin developing early in childhood (Baker & Baker, 1987; Detrick, 1985; Kohut, 1984; Lee & Robbins, 1995). Seppala, Rossomando, and Doty (2013) define social connection as “a person's subjective sense of having close and positively experienced relationships with others in the social world” (p. 412). Lee and Robbins (1995) developed their definition of social connectedness based on self-psychology theory (Kohut, 1984). Specifically, Lee and Robbins theorized that the construct of social connectedness constitutes individuals' views of themselves in relation to others (Lee, Draper, & Lee, 2001). Lee, Dean, and Jung (2008) further specified that social connectedness is a “self-evaluation of the degree of closeness between the self and other people, the community, and society at large” (p. 415), and specify that this definition does not include any indication of motivation or agency on behalf of the individual. Rather, it is simply the person's evaluation of their closeness. Thus, those who have defined social connectedness have typically described it as a person's subjective

feeling of connection with a larger community of people, regardless of the outward appearance of connection.

Many early psychological theorists postulated a need for social connection (e.g., de Rivera, 1984; Freud 1930; Fromm, 1955; Hogan, 1983; Horney, 1945; Sullivan, 1953). In more recent years, some theorists (e.g., Baumeister & Leary, 1995) have argued that people are not motivated to continue pursuing social connection once they have that need "satisfied". Others (e.g., Lee & Robbins, 1998) have argued that people are less socially motivated when they feel less connected. Lee and Robbins supported their claim with findings from their study that indicated that women in their sample were less likely to want to initiate connection with others when they already had a sense of low social connectedness.

A lack of social connectedness is associated with a variety of deleterious mental health outcomes. When people experience a lack of social connection, they are at heightened risk for general psychological distress (Lee et al., 2001), loneliness (Lee et al., 2001), anxiety, jealousy, anger, low self-esteem (Baumeister & Leary, 1995; McWhirter, 1990), and depression (Baumeister & Leary, 1995; Cacioppo, Hawkley, & Thisted, 2010). In contrast, having a strong sense of social connectedness is related to lower trait anxiety, implying that more social connectedness means perceiving life as less threatening or stressful (Lee & Robbins, 1998). Feeling that social relatedness needs are met is related to higher well-being (Lee et al., 2008; Rook, 1987) and engaged and meaningful living (Brown, 2012; Stavrova & Luhmann, 2016).

Social connectedness can also affect physical health (Cacioppo & Cacioppo, 2014), and mortality (Holt-Lunstad, Smith, & Layton, 2010; Luo, Hawkley, Waite, & Cacioppo, 2012). Specifically, low social connectedness is associated with increased stress responses in the body for people who have cancer (Andrykowski et al., 2000; De Leeuw et al., 2000) as well as a lower

quality of life for those who have survived cancer (Foley et al., 2006; Steginga et al., 2001). A lack of connectedness (i.e., “loneliness”) is associated with an increased risk of having high blood pressure (Hawkley, Masi, Berry, & Cacioppo, 2006; Hawkley, Thisted, Masi, & Cacioppo, 2010) and decreased immunity (Dixon et al., 2006; Glaser, Evandrou, & Tomassini, 2005; Pressman et al., 2005). Additionally, social connectedness has been shown to play an important role in successful and healthy aging (Rote & Markides, 2014; Watt et al., 2014).

Social-connectedness has many important implications for both psychological and physical health. Given the importance of having social-connectedness needs met, it is important to understand relations among variables that predict or influence social connectedness.

Attachment

Attachment styles are one of the earliest and most fundamental predictors of later social connection (Haggerty, Hilsenroth, &Vala-Stewart, 2009). Many longitudinal studies have confirmed the predictive power of attachment across the lifespan (Grossmann, Grossmann, & Waters, 2006). Attachment is formed by early experiences with caregivers and is characterized by children’s ability to be able to rely on their caregivers to meet their physical, emotional, and psychological needs (Ainsworth, Blehar, Waters, & Wall, 1978). Traditional attachment theory holds that if the attachment figure (i.e., caregiver) is accessible and attentive, then the infant will feel safe, secure, and loved. If the child does not sense this accessibility and attentiveness from their caregiver, they will feel anxious and exhibit behavior aimed at minimizing this lack of accessibility (e.g., crying, visually searching, aggressing, etc.).

Attachment theory was first formally outlined by Bowlby (1969, 1982, 1973, 1980). Bowlby proposed in his theory that the relationship between infants and mothers was foundational in how children learned to regulate their emotions throughout their development.

Later, Ainsworth (1978) conducted a landmark study based on Bowlby's theory, in which she introduced a laboratory method for studying attachment, called the Strange Situation. In her observations of infant-mother pairs, Ainsworth recognized that infants displayed several distinct types of emotional and behavioral reactions to their mothers upon their mothers returning after a brief absence. Ainsworth described these reactions as demonstrating three distinct types of attachment styles that she coined as: secure, insecure avoidant, and insecure ambivalent attachment.

Although Bowlby postulated about attachment styles in adults, it was not until 1987 that a model of adult attachment was developed. Hazan and Shaver (1987) theorized that attachment in adult romantic relationships mirrored attachment in infant-caregiver relationships. The authors outlined four types of attachment styles for adult romantic relationships: secure, anxious-preoccupied, dismissive-avoidant, and fearful-avoidant.

As the theory has evolved from research over time, so have the attachment classifications and labels. Brennan, Clark, and Shaver (1998) found in their factor analysis of items intended to measure adult romantic attachment styles that two fundamental factors emerged: attachment-related anxiety and attachment-related avoidance. The anxiety dimension captured the degree to which people felt worried about the availability and attentiveness of their partners, whereas the avoidance dimension captured the degree to which people were hesitant to rely on and pursue relational closeness with their partners. Thus, someone with a secure attachment style would presumably be low on these two dimensions.

Like social disconnectedness, attachment tendencies have been linked to negative affect (Simpson, 1990), depression and anxiety (Burnette et al., 2009; Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Wei, Shaffer, Young, & Zakalik, 2005; Wei, Heppner, & Mallinckrodt,

2003; Wei, Mallinckrodt, Russell, & Abraham, 2004), well-being (Hainlen, Jankowski, Paine, & Sandage, 2016), emotion regulation, persistence, self-control, conflict management skills, and adaptive anger expression (Mikulincer & Shaver, 2007), shame (Wei et al., 2005), loneliness (Hecht & Baum, 1984; Kobak & Sceery, 1988; Wei et al., 2005; Wei, Vogel, Ku, & Zakalik, 2005), interpersonal difficulties (Bartholomew & Horowitz, 1991; Horowitz, Rosenberg, & Bartholomew, 1993), greater hostility toward others (Mikulincer, Hirschberger, Nachmias, & Gillath, 2001; Mikulincer & Shaver, 2001), and general psychological distress (Lopez, Mitchell, & Gormley, 2002; McDermott et al., 2015). Apparent mediators between attachment and general psychological distress include hope (McDermott et al., 2015), differentiation of self (Williamson, Sandage, & Lee, 2007), perceived coping (Wei et al., 2003), and psychological needs satisfaction (Wei et al., 2005).

Personality

Like attachment, personality is also predictive of social connectedness (Lee et al., 2008). However, for the most part, these correlations tend to be more modest than those of attachment (Neyer & Voigt, 2004; Nofle & Shaver, 2006). Personality consists of traits that Costa and McCrae (1986) described as consistent and enduring characteristics or attributes that underlie individual differences in cognition, emotion, and behavior. Several models of personality have developed over the past century, consisting of anywhere from 3 to 16 dimensions that have been purported to make up personality. One of the most widely used models of personality is the Five Factor Model, developed by Costa and McCrae (1980, 2008). This model includes five traits on which individual's responses are assessed. Each trait is a continuum, such that individuals who have higher scores on the trait have higher amounts of that trait. These traits are agreeableness, conscientiousness, extraversion, neuroticism, and openness to experience (Costa & McCrae,

1986). Briefly, someone is cooperative, trusting, generous, flexible, acquiescent, lenient, and good-natured would likely have high levels of agreeableness. Someone who tends to be anxious, temperamental, self-conscious, moody, vulnerable, and have difficulty regulating emotion would likely have high neuroticism. Someone who is hard working, well organized, punctual, ambitious, and persevering would likely have high conscientiousness. A person who is highly imaginative, creative, original, curious, liberal, and preferring of variety would likely have high openness. Finally, a person who is warm, affectionate, sociable, talkative, energetic, and passionate likely possesses high levels of extraversion.

Eysenck (1990) argued that the biological attributes of one's personality could influence that person's environment to the extent that it could be useful in predicting thoughts and behaviors in many domains of life including career decisions, social attitudes, life satisfaction, and engagement in health behaviors (Paunonen & Ashton, 2001). Psychiatric disorders such as anxiety and depression are also strongly related to traits such as psychoticism, extraversion, and neuroticism (Eysenck, 1987). Importantly, personality is strongly related to subjective well-being. Subjective well-being has been connected to 137 personality traits, and personality is one of the most significant predictors of this outcome, accounting for up to 63% of variance in well-being outcomes (DeNeve & Cooper, 1998; Steel, Schmidt, & Shultz, 2008).

Many personality traits have been shown to be significantly and meaningfully related to attachment tendencies (Nofle & Shaver, 2006; Shaver & Brennan, 1992; see Table 1). Across studies, attachment security has been moderately negatively correlated with neuroticism and moderately positively correlated with extraversion and agreeableness, modestly positively correlated with conscientiousness, and not correlated with openness (Nofle & Shaver, 2006). Attachment anxiety tends to be moderately to strongly correlated with neuroticism and not

correlated with openness. The relation of attachment anxiety to the other three dimensions is less certain; it has been modestly to moderately correlated with extraversion, agreeableness, and conscientiousness in some studies, but these relations tend not to be consistent (Nofle & Shaver, 2006). Attachment avoidance has been modestly to moderately negatively correlated with extraversion and agreeableness, but not often correlated with openness. However, in Nofle and Shaver's (2006) study, openness was modestly negatively correlated with avoidance. Some studies have found avoidance to be positively correlated with neuroticism and negatively with conscientiousness. In 2006, Nofle and Shaver conducted two large sample studies looking at relations between attachment dimensions and Big Five personality traits and found that, like Shaver and Brennan's (1992) results, insecure attachment, particularly attachment anxiety, correlated positively with neuroticism and those with more avoidant attachment tended to be lower on agreeableness and extraversion. Additionally, these studies confirmed that while attachment and personality are related in how they predict relationship quality, attachment is consistently a stronger indicator of that outcome. Even though several personality traits meaningfully predict attachment styles, attachment styles were still more predictive of relationship outcomes than Big Five personality traits in Nofle and Shaver's (2006) replications.

Table 1. Summary Table Indicating Directionality of Known Relations between Personality Traits and Attachment Tendencies

	Extraversion	Neuroticism	Agreeableness	Conscientiousness	Openness
Secure	+	-	+	+	//
Avoidant	-	+	-	-	?
Anxious	-	+	?	-	//

Note. A “+” indicates a positive relation, a “-” indicates a negative relation, a “?” indicates relations that have indicated both negative and positive directionality in the literature, and a “//” indicates no strong relation of any kind indicated in the literature.

Extraversion is related to, yet distinct from, social connectedness (Lee et al., 2008) and positively related to relationship satisfaction (Karney & Bradbury, 1995; Watson, Hubbard, & Wiese, 2000). Conscientiousness has positively predicted relationship outcomes such as marital adjustment (Bouchard, Lussier, & Saborin, 1999). Agreeableness is negatively related to interpersonal conflict (Jensen-Campbell & Graziano, 2001) and positively related to adjustment to marriage (Bouchard et al., 1999) and fewer disputes in marriage (Buss, 1991). Occasionally, openness has been positively related to relationship satisfaction but also negatively related to relationships stability (Karney & Bradbury, 1995; Shaver & Brennan, 1992). Neuroticism is the strongest and most consistent predictor of relationship outcomes across studies (Karney & Bradbury, 1995; Kelly & Conley, 1987). It is negatively correlated with marital adjustment (Bouchard et al., 1999), relationship satisfaction (Caughlin, Huston, & Houts, 2000), and overall quality of romantic attachment (Collins & Read, 1990; Shaver & Brennan, 1992).

Beyond specific traits, several personality disorders (PDs) have also been linked to attachment. Levy (2005) argued in his review of the literature that the findings support relations between attachment insecurity and borderline PD, antisocial PD, and avoidant PD (e.g., Barone, 2003; Levy et al., 2006; Rosenstein & Horowitz, 1996). Similarly, Bakermans-Kranenburg and van IJzendoorn (2009) found in their meta-analyses of clinical samples that various personality disorders including histrionic, dependent, avoidant, paranoid, antisocial, schizoid, schizotypal, borderline, obsessive-compulsive, and narcissistic were related to adult attachment tendencies as measured by the Adult Attachment Inventory (AAI; George, Kaplan, & Main, 1985).

Two important predictors of social outcomes have been discussed in terms of their association to romantic relationships. Neither of these variables has been studied much in relation to a sense of general social connectedness. Given the early establishment of both

personality and attachment tendencies, and their connection to social outcomes throughout the lifespan, it is of interest to determine what variables might mediate such a relation, and perhaps be more amenable to change throughout the lifespan.

Shame-Proneness

Several studies have shown relations between attachment and shame (e.g., Andrews, 1998; Muris et al., 2014; Wei et al., 2005) as well as shame and personality (Jaksic, Marcinko, Skocic Hanzek, Rebernjak, & Ogrodniczuk, 2017; Rüsck et al., 2007; Schoenleber & Berenbaum, 2010), and shame and social connection (e.g. Brown, 2006; Gilbert & Procter, 2006; Katz, 1997; Lester, 1998; Mokros, 1995; Scheff, 2003; Seu, 2006; Munt, 2008).

Shame is an infrequently used descriptor in U.S culture when expressing emotion (Brown, 2012). As such, it is especially important to give attention to defining shame and to describing the definitions that come from quantitative researchers as well as those that have emerged from participants in grounded theory studies (Glaser, 1968). Shame has been understood as a human emotion that acts in part to shape moral and socially accepted behavior (Teroni & Bruun, 2011). Brown (2006) defined shame as, “the intensely painful feeling or experience of believing that we are flawed and therefore unworthy of love and belonging” (p. 39). Similarly, Leeming and Boyle (2013) described shame as, “a painful sense of the self as judged to be of less worth in some way” (p. 141). Through her (2008) grounded theory study, Van Vliet defined shame as, “an overwhelming assault on the self, where the individual’s self-concept, social connection, and sense of power come under intense attack” (p. 242).

Evidence of shame experiences is apparent as early as two years old (Barrett, Zahn-Waxler, & Cole, 1993; Barrett, 2005; Lewis, Sullivan, Stanger, & Weiss, 1989; Kochanska, Gross, Lin, & Nichols, 2002; Lewis & Feiring, 1989; Stipek, Recchia, & McClintic, 1992;

Walter & LaFreniere, 2007). Shame experiences are shown in cross-sectional research (Orth, Robins, & Soto, 2010) to be higher for adolescents and older adults than for middle-aged adults. Lewis (1971, 1987) proposed that it is through the initial infant-caregiver attachment relationship that shame is first experienced. The frequency and nature of those early shame experiences thus informs how a person will later regulate and manage their feelings of shame. This process is akin to that of general attachment theory that purports that the initial infant-caregiver attachment informs future attachment styles in adulthood.

Shame and the related emotional construct of guilt are often associated with each other, and thus the differences in definitions, mechanisms, expressions, and outcomes of shame and guilt have been thoroughly discussed and differentiated in the literature (Elison, 2005; Tangney & Dearing, 2002; Tangney & Fischer, 1995). In his review on the differentiation between the two constructs, Elison (2005) argued that shame is an emotional experience, whereas guilt is a cognitive state. He further argued that shame is a single emotional state, whereas the cognitive experience of guilt could elicit any of several emotions related to guilt (such as remorse, fear of consequences, or shame). Tangney and Dearing (2002) on the other hand have argued that guilt and shame are both emotional experiences, but that guilt tends to be socially adaptive and therefore more desirable, while shame tends to be maladaptive and therefore undesirable. This case is built on the evidence showing that when guilt is statistically controlled, shame tends to result in withdrawal or aggressive tendencies, while when shame is statistically controlled guilt tends to result in attempts to amend. However, criticisms have been made (Blum, 2008) that this distinction is not entirely helpful given that guilt is rarely shame-free in real life (and vice-versa). Further, it has been argued that perhaps both shame and guilt can serve adaptive purposes in

certain instances (Gausel & Leach, 2011; Leach & Cidam, 2015; Tignor & Colvin, 2016), and can be maladaptive in others, much like any other human emotion.

Although typically linked with maladaptive tendencies, Gausel and Leach (2011) outlined in their review that more recent studies have also shown evidence of shame being linked to motivation to self-improve, cooperate with others, and engage in other prosocial behavior. For example, shame could help alert us to threats to our social status or encourage and enforce group values and culture (Gilbert, 1997; 1998; Leeming & Boyle, 2013). Often, however, due to the many negative outcomes associated with shame, the emotion is typically viewed as less adaptive. Specifically, shame often results in social withdrawal (Scheff, 2003; Katz, 1997; Lewis, 1971, 1987; Lindsay-Hartz, 1984; Lindsay-Hartz, de Rivera, & Mascolo, 1995) and can make it difficult to resist abuse or oppression (Bartky, 1990; Gilbert & Procter, 2006; Seu, 2006), including in instances of group marginalization (Munt, 2008). Other common responses to shame include violent and aggressive behavior (Scheff, 1995) such as bullying (Ahmed & Braithwaite, 2004).

In the clinical literature, shame has frequently been studied in relation to psychopathology. In fact, persistent, trait-level, shame-proneness has been related to depressive symptoms (Andrews, Quian, & Valentine, 2002; Cheung, Gilbert, & Irons, 2004; Gilbert, 2000; Kim, Thibodeau, & Jorgensen, 2011), anxiety (Matos, Pinto-Gouveia, & Gilbert, 2013; Grabhorn, Stenner, Stangier, & Kaufhold, 2006), suicidality (Hastings, Northman, & Tangney, 2000; Lester, 1998; Mokros, 1995), eating disorders (Cook, 1987; Floyd & Floyd, 1985), substance misuse (Cook, 1987; Potter-Efron & Potter-Efron, 1999), prolonged PTSD symptoms (Feiring & Taska, 2005), and trauma (Aakvaag et al., 2016).

Even beyond clinical disorders, prolonged shame relates to behavioral avoidance (Norberg et al., 2007) and fear of intimacy (Lutwak, Panish, & Ferrari, 2003). Other research has linked shame with isolation and loss of social connectedness (Lutwak et al., 2003). Lutwak and colleagues (2003) found a positive relation between shame-proneness and blame of others, behavioral and characterological self-blame, and self-derogation. Treeby and Bruno (2012) found that people in their study who were more shame prone were more likely to engage in problematic alcohol use to cope with negative affective experiences.

Shame-Aversion

Most of the research on shame has used trait-measures of shame-proneness as predictors of various outcomes. However, both theory and empirical research in the past decade suggest it may be necessary to look beyond the mere presence of an emotion to how a person relates to or manages that emotion (e.g., Hayes & Wilson, 1994; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). For example, Schoenleber and Berenbaum (2010) found that aversion to shame – rather than the mere presence of shame – predicted negative outcomes beyond a person’s proneness to shame, such that shame-proneness was only associated with Cluster C personality disorders (i.e., avoidant, dependent, and obsessive-compulsive) when participants had high levels of shame aversion. The authors proposed that having high sensitivity to shame might make a person especially motivated to avoid any possible shame-inducing experiences in the future. Thus, the withdrawing and avoiding behaviors typically associated with shame may occur for these individuals even before a shame-inducing experience. Carvalho, Dinis, Pinto-Gouveia, and Estanqueiro (2015) also found that experiential avoidance of shame memories was more related to depressive symptoms than was the presence of the shame memories themselves.

This concept of focusing on how people relate to or manage their emotions is consistent with current directions in both clinical practice and research. For example, third-wave cognitive behavioral therapies (e.g., Acceptance and Commitment Therapy, Dialectical Behavioral Therapy, Mindfulness-based Cognitive-Behavioral Therapy) maintain that psychological distress is not a result of how many negative thoughts and feelings a person experiences, but how a person relates to their negative thoughts and feelings (e.g., avoidance, aversion, fusion, etc.; Didonna, 2009; Hayes & Wilson, 1994; Hayes et al., 1996). Thus, not only would someone's frequency of experiencing shame (shame-proneness) be important, but, according to these theories, so would their evaluation and avoidance of their shame experiences.

Although findings from research on how people relate to their shame experiences would likely have substantial implications for clinical practice, little research has been conducted in this area (Gilbert, 1997; Van Vliet, 2008; Leeming & Boyle, 2013). Studies that do address how people manage shame have typically been qualitative in nature (e.g., Brown, 2006). Arguably, qualitative research on shame is necessary given the complex nature and limited understanding of what shame means and how it is experienced. Given the basis provided by researchers such as those previously mentioned, as well as the quantitative research on antecedents and outcomes of shame, the field requires empirical research to support whether these relations exist in combination with one another in various samples.

How individuals manage their shame may be integral to their ability to connect socially (Brown, 2012). Being willing to tolerate and even embrace personal imperfection has been suggested to be a key factor in how able we are to connect with others (Brown, 2008; 2010). Klik (2015) found a small negative correlation between shame aversion and social support, and a strong negative correlation between shame aversion and self-compassion. In their qualitative

studies of individuals' experiences of natural recovery from shame, Brown (2006) and Van Vliet (2008; 2009) highlighted the importance of reconnecting with others to recover. Additionally, Brown noted, connection with others is needed for others to help normalize experiences of shame and to place these experiences within their sociocultural context.

Cognitive attributions also seem to play a role in how people recover from shame experiences. Van Vliet (2009) found that people in her grounded theory study tended to feel shame when they attributed their negative emotional experiences to global and persistent characteristics about themselves. Blaming the self was also present in most of the participants' shame experiences. Conversely, to recover from shame, participants emphasized the importance of framing their interpretation of the shame experiences because of temporary and specific aspects that were amenable to change. Having a sense of control over failure was also a key component of being able to recover from the shame experience. Similarly, Leach and Cidam (2015) found that, depending on the perceived reparability of a failure, shame would predict both approach and avoidance behaviors (although some, e.g., Lewis, 1971; Lewis, 1993, would consider such an experience to be guilt rather than shame if it is perceived as reparable). For example, when the failure was seen as reparable, shame was positively linked to a constructive approach. The role of cognitive attributions in the recovery of shame suggests that a person's interpretation of the shame experience is important. Along the same lines, being able to approach and not avoid experiencing shame may also be important in the recovery of shame and subsequent experiences of social connectedness.

Rational for the Current Study

Attachment style and social functioning have frequently been linked in the literature as well as attachment and shame proneness and social functioning and shame proneness. Very few

studies have looked at shame aversion. The current study was based on the hypothesis that social-connectedness is influenced by the way a person relates to their feelings of shame. There is evidence to suggest such a relation. Brown (2006; 2012), using a grounded theory approach, found that people who had what she labeled shame resilience (rather than shame-absence) were also those who she identified as being more satisfied and engaged in their relationships (i.e., wholehearted individuals). Those who were shame-resilient were more likely to be aware of and label their feelings of shame as well as to talk about them. Thus, it seems that whether someone feels shame is not the issue; rather, it is how a person evaluates and relates to feelings of shame that affects the outcome. As such, it was hypothesized in the current study that people who tend to experience shame aversion would be less able to experience social connectedness. Thus, the following hypotheses were made for the current study (see Figure 1).

Hypotheses

- H1.** Personality would significantly and positively predict Social Connectedness through Shame Proneness and Shame Aversion.
- H2.** Personality would significantly and negatively predict Shame Proneness and Shame Aversion.
- H3.** Attachment Security would significantly and positively predict Social Connectedness through Shame Proneness and Shame Aversion.
- H4.** Attachment Security would significantly and negatively predict shame proneness and shame aversion.
- H5.** Shame Proneness would significantly and negatively predict Social Connectedness.
- H6.** Shame Aversion would significantly and negatively predict Social Connectedness.
- H7.** Attachment Security and Personality would significantly and positively correlate.

H8. Shame Proneness and Shame Aversion would significantly and positively correlate.

SEM was used to test a mediational model of attachment, shame-proneness, shame aversion, and social connectedness. Data for the current study were collected over the course of the fall 2016 semester. The data were randomly split into two separate samples to provide testing

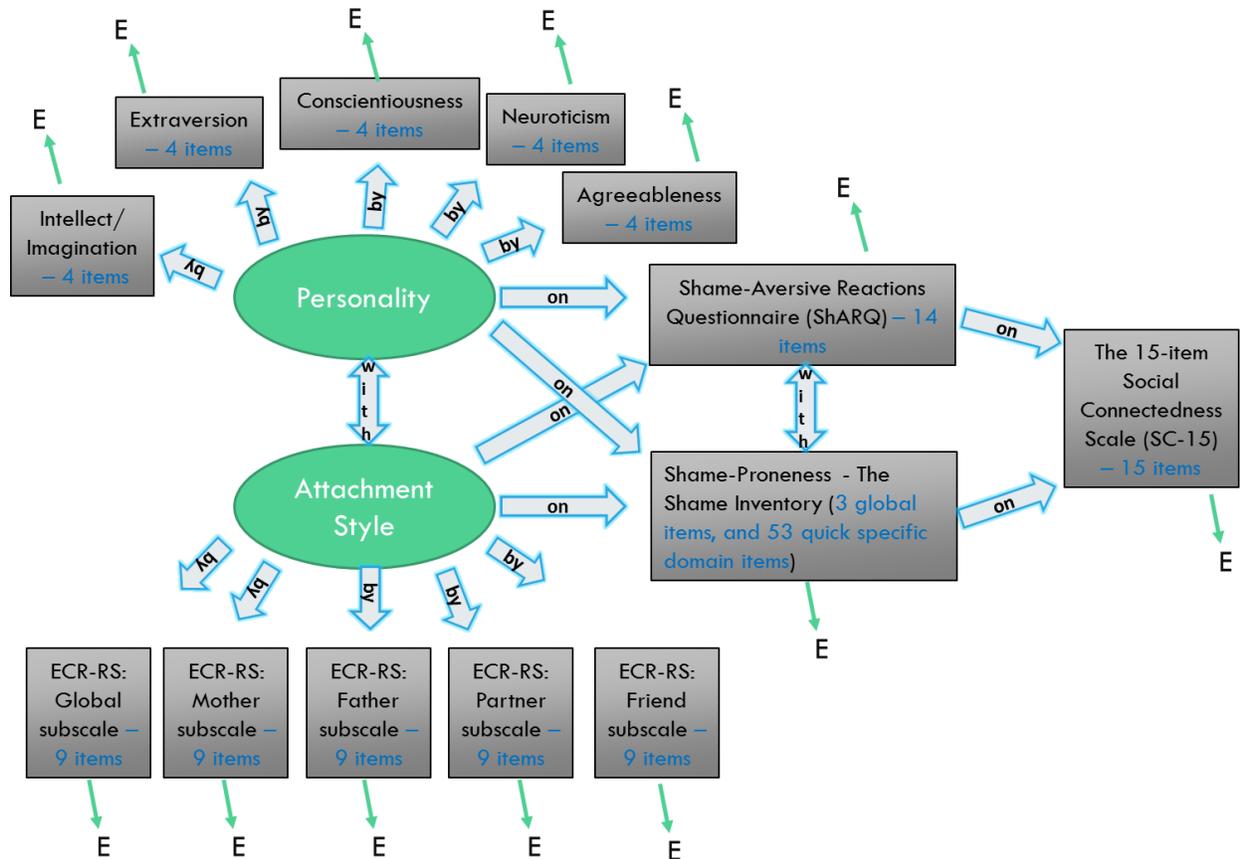


Figure 1. *Hypothesized Model of the Role of Shame in the Relation of Personality and Attachment Security with Social Connectedness.*

Note. Circles are latent variables, rectangles are measured variables, “on” arrows are regression paths, “by” arrows are factor loadings, and “with” arrows are correlations.

and confirmatory samples for the model. The hypothesized model was tested on the first sample.

The model would be subjected to model modification if misfit was indicated. The modified

model would be confirmed with the second sample. Study participants, measures, and procedures

were the same for both samples. Thus, these pieces are described below in one section and the results for each sample are subsequently discussed in separate sections.

METHODS

Participants

Participants for the current study were recruited from the undergraduate psychology research pool. Participation in the study was voluntary, and participants received research credit toward a class requirement for their participation. Given the number of parameters in the hypothesized model and the commonly used conservative estimate of 10 participants required per estimated parameter, a goal of collecting a minimum of 310 participants was set, with an ideal goal of at least 620 to be able to divide the sample into a testing sample and a confirmatory sample. The final number of participants was 1,386. The average age of participants was 19.3 ($SD=1.5$; range=17.3-36.9). The sample was 66% female, with 87% identifying as White, 5% as multi-racial, 4% Asian, just under 3% Black, and 14.8% additionally identifying with Hispanic or Latino ethnicity. Most of the sample (93%) selected the U.S. as their country of origin. Twenty-three percent identified as Catholic, 17% as Other Christian, 16.5% as Non-religious, 11.7% as Agnostic, 7.4% as Evangelical Christian, 5.8% as Atheist, 4.3% as Protestant, 1.7% as Jewish, and 61% identified as either not religious or a little religious.

Procedures

Appropriate IRB paperwork was completed and approval from the board was obtained before collecting data. Students from the undergraduate psychology research pool electronically received a link to the survey to take on their own computer. The measures for the current study were included as part of a larger survey for the students. The survey was estimated to take under an hour to complete. Participants were provided with an informed consent page at the beginning of the survey and a debriefing page at the end.

Measures

Demographics. The following demographic information was asked of participants and used in preliminary analyses: age in years, year in school, academic major, gender, sexual orientation as measured by the Kinsey Scale (Kinsey et al., 1948, 1953), ethnicity, race, country of origin, religious orientation, religiosity, mother's education, father's education, political views, disability status, how long the participant has resided in their current town/city, how they have felt in general compared to how they felt before beginning college, and current relationship status. A full list of the demographic questions and response options are presented in Appendix A.

Attachment Security. The Relationship Structures (ECR-RS; Fraley et al., 2011a) questionnaire was used to measure participants' attachment tendencies. Attachment Security was modeled in the current study as a primary predictor (along with personality) of social connectedness. The five subscales of the ECR-RS were used as indicators of the latent variable of Attachment Security (see the Appendix for the full scale).

The ECR-RS was derived from the Experiences in Close Relationships (ECR) scale and the Experiences in Close Relationships - Revised (ECR-R) scale and was intended to address the lack of contextual measures of adult attachment. Most other measures of adult attachment ask only about relationships in general or only about romantic relationships (e.g., Collins & Read, 1990; Fraley et al., 2011a; Hazan & Shaver, 1987). There is recent evidence to suggest, however, that attachment frameworks may be more contextual (i.e., different for different relationships) than trait-like (i.e., consistent across all relationships; Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996). A contextual model also makes theoretical sense given that, for example, an individual may have a warm, loving, secure relationship with their partner while also having a

cold, anxious, insecure relationship with one of their parents. Thus, a global measure of attachment would miss the variance within individual attachment frameworks. This measure also eliminates much of the ambiguity found in other measures as to which type of relationship the participant may be rating.

This ECR-RS is composed of five subscales, consisting of 9 items each. The same items are used to inquire about attachment style for 4 different relationships: mother, father, romantic partner, and best friend. The 5th subscale is a global measure of attachment. It is comprised of 9 items written in the same style (with wording modified for context) as the items used on the other 4 subscales. Thus, in this version there were 45 items. For the current study, 5 total scores were derived for each participant by averaging the 9 items for each subscale.

In the initial validation analyses, Fraley and colleagues (2011b) found that the individual subscales had good internal consistency (α ranged from .80-.92 for each of the subscales) and good test-retest reliability ($\alpha = \sim .65$ over 30 days) for the partner subscale as well as the parent subscales ($\alpha = \sim .80$). The scales were also significantly related to other measures of relationship outcomes such as relationship satisfaction. Specifically, the partner subscale was more strongly correlated with romantic relationship outcomes of satisfaction, investment, and commitment than were the parent and friend subscales, indicating utility for measuring attachment in these relationships separately. People who had more variation in their attachment scores across their relationships also tended to have more attachment insecurity. Finally, the individual subscales were also found to correlate with each other. Reliability in the current sample was also high, ranging from $\alpha = .89$ to .92 for the 5 subscales.

Big Five Personality. The Big Five personality traits were included in this study as predictors in the model, due to their relations with attachment styles (Shaver, Phillip, & Phillip,

1992) and other variables of interest. Donnellan, Oswald, Baird, and Lucas' (2006) 20-item Mini-IPIP scale was used to measure these traits. Total subscale scores from the 5 Mini-IPIP scales were used to represent the latent variable of Personality in the hypothesized model.

The Mini-IPIP Inventory was derived from the 50-item representation of the Big-Five lexical markers (Goldberg, 1992) from the International Personality Item Pool (IPIP; Goldberg, 1999). This measure contains 20 items, with 4 items for each of the 5 factors: Extraversion, Conscientiousness, Intellect/Imagination, Agreeableness, and Neuroticism. Response formats are on 5-point Likert scales (ranging from 1 (*strongly agree*) to 5 (*strongly disagree*) with a neutral midpoint at 3 (*neither agree nor disagree*)), asking participants to rate how well each statement describes them. Respondents rate their agreement to statements such as: “[I] am the life of the party” and “[I] sympathize with others’ feelings”.

The factor Intellect/Imagination varies from the traditional Big Five factor of Openness. Although Openness has an intellectual curiosity component, it also contains elements of openness to new experiences. The way this factor is measured in the Mini-IPIP however is more strictly related to comfort with abstract ideas and imaginative creativity. Item prompts for this scale include: “Have a vivid imagination”, “Am not interested in abstract ideas”, “Have difficulty understanding abstract ideas”, and “Do not have a good imagination”. Thus, it might be expected for this factor to be less related with social outcomes than its counterpart from the NEO might.

The Mini-IPIP has demonstrated good internal consistency with Cronbach's α ranging from .65 to .77 for each of the subscales (Donnellan et al., 2006) as well as reasonable criterion validity (Baldasaro, Shanahan, & Bauer, 2013). Some research (Baldasaro et al., 2013) indicates that the Intellect/Imagination scale may not be unidimensional. Naturally, the psychometrics of

this set of scales is inferior to many of the longer personality scales available. However, its acceptable psychometrics and brevity make it ideal for inclusion in longer survey studies.

Reliability for the 5 subscales in the current sample ranged from $\alpha=.64$ to $.80$.

Shame-Proneness. Shame-proneness was modeled in the current study as a mediating variable in the relation between attachment style and social connectedness. This variable was measured with the Shame Inventory (SI; Rizvi, 2009). The SI is a self-report measure of an individual's propensity to experience shame both globally and in response to specific life events. The SI was used to represent the measured variable of Shame-proneness.

The inventory contains two parts. Part I contains three questions, measured on a 5- point Likert scale (Never to Always), with higher scores indicating higher levels of shame. These questions inquire about the frequency, intensity/severity, and negative impact of maladaptive shame in response to a definition of shame.

Part II is comprised of a series of shame cues (e.g., “A time when I was laughed at by others, lost something important, was sexually harassed, etc.”) that participants are asked to rate according to their level of shame regarding those cues. These item responses are also rated on a 5-point Likert-type scale, ranging from 0 (No Shame) to 4 (Extreme Shame). In this section, there is also an additional option to mark an "X" (Didn't Happen/Does Not Apply to Me). Endorsed items from Part I and II are summed and the average calculated to obtain a total score, which ranges from 0 to 4, with 4 indicating more shame proneness.

In an initial validation of the SI (Rizvi, 2009), the instrument demonstrated good overall internal consistency ($\alpha=.84$), and good internal consistency in both Part I ($\alpha=.80$) and Part II ($\alpha=.83$). Test-retest reliability was also high with a correlation coefficient of $.85$. The measure demonstrated good convergent validity with the TOSCA-3 (The Test of Self-Conscious Affect;

Tangney, Dearing, Wagner, & Gramzow, 2000) shame subscale and the Personal Feelings Questionnaire version 2 (PFQ-2; Harder & Zalma, 1990) shame subscale as well as good discriminant validity with the TOSCA-3 guilt subscale and PFQ-2 guilt subscale. Finally, the SI indicated good predictive validity in clinical disorders with high shame scores corresponding with borderline personality disorder, moderate shame scores with obsessive-compulsive personality disorder, and low shame scores with non-clinical populations. In the current sample, reliability for the measure overall was very good ($\alpha=.98$).

Shame-Aversion. The Shame-Aversive Reactions Questionnaire (ShARQ; Schoenleber & Berenbaum, 2010) was used in the current study to determine the degree to which participants experience shame as particularly painful and unbearable. This variable was modeled as a mediator – along with Shame-Proneness – in the relationship between Attachment Security and Social Connectedness. The ShARQ was used to represent the measured variable of Shame-Aversion.

The ShARQ consists of 14 statements (e.g., “I am comfortable acknowledging my own imperfections”). Participants are asked to rate on a 7-point Likert scale the extent to which they agree with each statement (1= “Strongly Disagree, 7= “Strongly Agree”). Half of the items are reverse scored, items are summed, and then the average is derived to produce the total score. Higher total scores indicate higher levels of shame aversion.

The ShARQ has previously demonstrated good internal consistency ($\alpha=.89$). Convergent validity was demonstrated through correlation with the TOSCA-3 shame scale (correlations ranged from .44 to .57) as well as negative correlation with positive affect (measured by the PANAS; r s between - .32 and - .42). Schoenleber and Berenbaum further found that the ShARQ predicted scores on both the Acceptance and Action Questionnaire ($r=.64$; Hayes et al., 2004)

and the Affective Control Scale ($r=.55$; Williams, Chambless, & Aherns, 1997) – measures of experiential avoidance and distress tolerance – both of which are constructs similar to shame aversion (p. 200). Finally, the discriminant validity of the ShARQ is promising given it was not significantly related to the TOSCA-3 guilt scale ($r=-.002$) and is therefore likely conceptually related to shame rather than guilt. Reliability in the current sample was $\alpha=.87$.

Social Connectedness. Social connectedness was included in the current study as the outcome variable. A 15-item version of the 20-item Social Connectedness Scale-Revised (SCS-R; Lee et al., 2001) was used to measure participants' social-connectedness. The SCS was designed to measure a person's sense of social belonging, based on the concept of social connectedness put forth by Kohut (1984; Lee & Robbins, 1995). The original SCS was revised to address the psychometric limitation resulting from all items being negatively worded. This issue may have elicited a response-bias in previous administrations, as indicated by a tendency toward negative skewness in the response distribution (Lee et al., 2001). Furthermore, in a 2008 study, Lee and colleagues found that five items from the scale significantly overlapped with extraversion, and that after dropping these five items, the scale had improved psychometric properties. Thus, the authors removed these five items and calculated a new 15-item Social Connectedness Scale (SC-15). Permission to use the Social Connectedness Scale—Revised and other versions were obtained from Richard M. Lee (see the Appendix for the full scale). The SC-15 was used to represent the measured variable of social-connectedness.

The 15-item scale consists of 5 items directly indicating social connectedness (e.g. "I feel close to people"), and 10 items that are reverse-coded (e.g. "I feel distant from people"). Participants indicate their relative agreement with each statement using a 6-point Likert-type scale (1= "Strongly Disagree, 6= "Strongly Agree"). The negatively worded items are reverse-

scored and then summed with the other items to create a total score with a possible range from 20 to 120. It is also possible to derive a mean score with the total score divided by the number of items. The averaged score was used for the current study. Higher scores indicate higher levels of social connectedness.

Both the SCS-R and the SC-15 have demonstrated high internal consistency with Cronbach α 's of .93 (Lee et al., 2008). The SCS has also been demonstrated to be distinct from other measures of social connectedness such as loneliness, social support network size, group membership, and social identity (Lee & Robbins, 1995, 1998, 2000). The SCS has also shown predictive validity with anxiety and self-esteem (Lee & Robbins, 1998). The SC-15 correlates moderately positively with positive affect ($r=.40$) and moderately negatively with negative affect ($r=-.41$) and has been shown to be related to but distinct from measures of extraversion ($r=.58$; Lee et al., 2008). Reliability in the current sample was also high ($\alpha=.93$).

A copy of all survey instruments is in Appendix A.

Description of Analysis

Structural Equation Modeling (SEM) was used to test the model for the current study and was performed in Mplus version 6.11 (Muthén & Muthén, 2012). SEM allows for the simultaneous modeling of several multiple regressions as well as the use of latent variables (Ullman, 2013). A SEM is a two-part model consisting of structural components and measurement components. The fit of the overall model is determined through looking at the fit statistics. χ^2 statistics are used to assess model fit, with a non-significant χ^2 indicating good model fit. However, χ^2 distributions are sensitive to sample size and often yield significant results when sample sizes are large (McDonald & Ho, 2002). As a result, multiple fit indices are usually used to assess model fit. Commonly recommended (Hu & Bentler, 1999; Quintana &

Maxwell, 1999) fit statistics include the root mean squared error of approximation (RMSEA; excellent fit is .06 or less; adequate fit is .08 or less, and poor fit is .10 or less), the comparative fit index (CFI; excellent fit is .95 or greater; adequate fit is between .90 and .95), and Sorbom's root mean squared residual (SRMR; excellent fit is .08 or less). The fit of the measurement component of the model is determined by confirmatory factor analysis (CFA), which tests if the measures of the latent variables are good indicators of those latent variables. Significant ($p < .05$) and high factor loadings ($> .3$) for measured variables indicate good identification of the latent variables. The fit of the structural elements of the model is determined by testing each individual path included in the model for significance.

Model modifications may be made when the specified model does not yield good fit to the data. Paths are added or removed from the model in a stepwise manner. Decisions to modify the model are based on modification recommendations provided by Mplus. Modifications with the highest modification index value that also have theoretical support are made first. Modifications are made until the model yields a good fit for the data.

Indirect effects of the proximal antecedents on the relations between the distal antecedents and outcome were also tested. When two regression slopes are multiplied together, as is the case in typical tests of mediation, the product is not normally distributed. This poses a problem in determining the strength of the indirect effect since normality is an assumption for most tests of mediation. To address this problem, asymmetrical confidence intervals can be assessed instead. To determine the indirect effects of each predictor variable on social connectedness, asymmetrical, bias-corrected bootstrapped estimates (Efron & Tibshirani, 1993) based on 1,000 bootstrapped samples are used. Using these estimates is considered a powerful

test of mediation (Fritz & MacKinnon, 2007). Effects are considered significant if 95% bias-corrected bootstrapped confidence intervals do not contain zero.

To ease interpretation of results from a regression that includes latent variables, all measures of a latent variable must have the same directionality. Thus, for the latent variable of Personality, the Neuroticism subscale was reverse scored (to indicate emotional stability) so that higher levels of all five of the personality subscales indicated more adaptive levels of those traits. For the latent variable of Attachment Security, all five subscales were scored such that higher scores indicated more attachment security.

RESULTS

Preliminary Analyses

The data collection initially yielded 1,450 responses. During the initial data screening stages, 64 cases were removed for incomplete data (those that had no measures completed beyond the demographics, or no responses at all) and unlikely response patterns (e.g., answering "5" on every item). The final 1,386 cases were randomly split into two samples in a recursive procedure until t-tests revealed no significant differences on any demographic characteristic (e.g., gender, sexual orientation, age, major, year in school, race, ethnicity, nationality, relationship status, parents' education, disability, years lived in current town, religion, religiosity, political views, and general well-being since beginning college) or any differences in missingness on any variable included in the model (e.g., personality, shame, etc.). One sample served as the testing sample with which to test and modify the hypothesized model, and the second served as the confirmatory sample with which to confirm the finalized model. Missing data analyses indicated that data on the variables of interest were missing completely at random (MCAR; Little, 1988) for both samples (testing sample: $\chi^2=115.450$, $df=124$, $p=.696$; confirmatory sample: $\chi^2=156.258$, $df=146$, $p=.266$) and that there was no significant difference in the amount of missing data between the two samples ($\Delta \chi^2=1.85$; $df=22$).

Descriptive statistics and the correlation matrix for all variables included in the study for each sample are presented in Tables 2 and 3. Descriptive analyses of the data indicated normally distributed variables. Given that the data did not violate assumptions of multivariate normality, the Mplus default of maximum likelihood (ML) estimation was used for the analysis.

Table 2. Descriptive statistics of all variables for testing and confirmatory sample.

Variable	Testing Sample										Confirmatory Sample								
	N	Missing	Mean	Median	Std. Dev.	Min.	Max.	Skew.	Kurt.		N	Missing	Mean	Median	Std. Dev.	Min.	Max.	Skew.	Kurt.
1. Age in Years	684	9	19.4	19.0	1.7	17.5	36.9	4.5	32.11		689	4	19.3	18.9	1.3	17.3	29.5	3.4	16.68
2. Year in School	689	4	1.5	1.0	0.9	1.0	5.0	1.8	2.74		692	1	1.5	1.0	0.8	1.0	5.0	1.9	3.18
3. Major	691	2	43.6	43.0	22.2	1.0	72.0	-0.3	-1.30		692	1	45.9	50.0	22.2	1.0	72.0	-0.5	-1.19
4. Gender	692	1	1.3	1.0	0.5	1.0	3.0	0.8	-1.29		691	2	1.4	1.0	0.5	1.0	4.0	1.1	1.42
5. Kinsey Scale	537	156	6.3	7.0	1.5	1.0	7.0	-2.6	5.82		538	155	6.4	7.0	1.5	1.0	7.0	-2.7	6.19
6. Ethnicity	677	16	1.9	2.0	0.4	1.0	2.0	-2.0	2.17		676	17	1.8	2.0	0.4	1.0	2.0	-1.9	1.47
7. Race	660	33	4.8	5.0	0.8	1.0	6.0	-2.9	8.87		670	23	4.8	5.0	0.8	1.0	6.0	-2.9	9.06
8. Country of Origin	687	6	1.3	1.0	1.4	1.0	8.0	4.4	17.86		687	6	1.3	1.0	1.4	1.0	8.0	4.6	19.71
9. Religious Orientation	642	51	6.2	5.0	4.1	1.0	13.0	0.1	-1.51		644	49	6.2	5.0	4.3	1.0	13.0	0.1	-1.54
10. Religious Devoutness/Religiosity	679	14	2.1	2.0	1.0	1.0	4.0	0.4	-1.17		680	13	2.1	2.0	1.0	1.0	4.0	0.3	-1.15
11. Mother's Education	679	14	4.4	5.0	1.4	1.0	6.0	-0.6	-0.93		679	14	4.3	5.0	1.4	1.0	6.0	-0.6	-1.06
12. Father's Education	665	28	4.3	5.0	1.5	1.0	6.0	-0.6	-1.03		659	34	4.4	5.0	1.5	1.0	6.0	-0.7	-0.90
13. Political Views	618	75	2.9	3.0	0.9	1.0	5.0	0.1	-0.63		606	87	2.8	3.0	0.9	1.0	5.0	0.1	-0.61
14. Disability	683	10	7.2	8.0	1.7	1.0	8.0	-2.2	4.22		680	13	7.3	8.0	1.4	1.0	8.0	-2.4	6.30
15. How Long in Current Area	688	5	1.7	1.0	0.9	1.0	3.0	0.6	-1.47		686	7	1.7	1.0	0.9	1.0	3.0	0.7	-1.37
16. Feeling Since Starting Collage	686	7	2.3	2.0	1.1	1.0	5.0	0.6	-0.47		688	5	2.2	2.0	1.1	1.0	5.0	0.7	-0.50
17. Current Relationship Status	686	7	2.0	2.0	1.2	1.0	9.0	1.5	4.60		686	7	2.1	2.0	1.1	1.0	9.0	1.0	2.78
18. Social Connectedness Scale	693	0	5.2	5.4	1.1	1.5	7.0	-0.5	-0.08		690	3	5.2	5.4	1.1	1.1	7.0	-0.5	-0.51
19. ECR-Others	689	4	8.7	8.5	2.5	2.7	14.0	0.0	-0.60		689	4	8.6	8.5	2.4	2.2	14.0	0.0	-0.47
20. ECR-Mother	687	6	11.8	12.5	2.3	2.2	14.0	-1.2	1.00		684	9	11.6	12.3	2.4	2.0	14.0	-1.3	1.46
21. ECR-Father	686	7	10.9	11.7	2.7	2.0	14.0	-1.0	0.55		678	15	10.8	11.5	2.7	2.0	14.0	-1.0	0.65
22. ECR-Romantic	685	8	10.5	10.7	2.7	2.3	14.0	-0.4	-0.77		676	17	10.3	10.5	2.7	2.0	14.0	-0.3	-0.90
23. ECR-Friend	685	8	11.5	12.0	2.4	3.3	14.0	-0.8	-0.28		674	19	11.4	12.0	2.4	2.0	14.0	-1.0	0.39
24. Shame Aversive Reactions Scale	683	10	3.8	3.9	0.9	1.0	6.7	0.0	0.33		676	17	3.9	3.9	1.0	1.0	6.9	0.2	0.28
25. Shame Inventory	671	22	1.6	1.5	0.7	0.0	3.9	0.2	-0.22		669	24	1.6	1.6	0.7	0.0	4.0	0.2	-0.42
26. Extroversion	671	22	3.1	3.3	1.0	1.0	5.0	-0.2	-0.76		670	23	3.1	3.0	1.0	1.0	5.0	0.0	-0.70
27. Agreeableness	671	22	3.9	4.0	0.8	1.0	5.0	-0.9	0.75		671	22	4.0	4.0	0.8	1.0	5.0	-0.7	0.20
28. Conscientiousness	670	23	3.4	3.5	0.8	1.0	5.0	-0.1	-0.32		671	22	3.4	3.3	0.8	1.0	5.0	0.0	-0.47
29. Emotional Stability	670	23	3.1	3.0	0.8	1.0	5.0	0.0	-0.35		671	22	3.0	3.0	0.9	1.0	5.0	0.0	-0.33
30. Intellect/Imagination	671	22	3.6	3.8	0.7	1.0	5.0	-0.4	0.17		672	21	3.6	3.8	0.7	1.3	5.0	-0.3	-0.28

Table 3. Correlation matrix of all variables for testing and confirmatory sample

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
1. Age in Years		.675**	-.092*	.236**	-.100*	0.051	0.003	0.011	.148**	-0.041	-0.049	-0.054	-0.027	-0.059	.320**	0.034	.147**	-.096*	-0.033	-0.070	-0.034	0.012	-0.013	-0.032	-0.020	-0.045	-0.066	-0.012	0.016	0.058	
2. Year in School	.723**		-.077*	.145**	-0.077	0.043	0.040	0.035	.116**	-0.064	-0.030	-0.019	-0.044	-0.034	.415**	-0.019	.090*	0.010	0.002	0.005	-0.019	0.007	0.012	-0.019	-0.026	0.055	-0.009	-0.041	0.037	0.027	
3. Major	-0.058	-.159**		-.085**	-.109*	-0.063	0.016	-0.003	.096*	-0.062	-0.069	-.087*	-.114**	-0.067	0.003	-0.018	-0.007	-0.040	-0.069	-0.009	-0.032	-0.072	-0.051	-0.002	0.021	-0.005	0.062	-0.010	-0.074	0.021	
4. Gender	.176**	.100**	-0.038		-0.020	-0.041	-.090*	-0.017	0.061	-.132**	0.057	0.062	.099*	0.042	.080*	-0.005	-.105**	-.088**	0.011	-.091*	0.056	0.012	-.090*	-.173**	-.195**	-.107**	-.218**	-0.053	.194**	0.065	
5. Kinsey Scale	-0.048	-0.005	0.003	0.071		0.009	0.040	-0.054	-.134**	.132**	0.023	-0.036	.159**	.137**	-0.018	0.035	0.002	0.084	.140**	0.063	.116**	.139**	.101*	-0.071	-0.036	-0.020	0.018	.109*	0.071	-0.071	
6. Ethnicity	.082*	.106**	-.091*	-0.002	0.069		-0.026	-.112**	.152**	-.048	.184**	-.211**	.100*	-0.056	.077*	0.035	-0.008	0.038	0.023	-0.011	0.038	-0.006	0.045	0.017	-0.021	-0.005	0.044	-0.019	0.029	-0.015	
7. Race	-0.053	-0.033	0.058	0.012	-0.004	-0.014		-.185**	-0.059	0.076	0.032	0.070	0.024	-0.027	0.033	-0.054	-0.020	.086*	0.037	0.063	0.045	0.022	.108**	0.012	0.051	.106**	.169**	0.031	0.025	.105**	
8. Country of Origin	0.009	0.005	-0.048	0.048	-.095*	-0.063	-.251**		0.028	0.000	-.116**	-0.048	-0.058	0.048	0.005	-0.007	0.058	-0.058	-0.008	-0.024	-0.010	0.017	-0.007	-0.011	0.018	-.088*	-0.073	-0.051	-0.023	-0.045	
9. Religious Orientation	.080*	0.043	0.025	0.026	-.146**	.150**	-0.013	-0.032		-.617**	0.018	-0.055	-.365**	-.119**	0.000	0.058	0.023	-.221**	-.163**	-.193**	-.139**	-0.062	-.155**	0.049	0.035	-.171**	-0.045	-.134**	-0.070	0.077	
10. Religiosity	-0.041	0.009	-0.023	-.097*	.178**	-0.022	-0.027	0.032	-.604**		0.033	.088*	.371**	.092*	0.030	-0.014	-0.005	.155**	.116**	.192**	.139**	0.053	.184**	-0.039	0.022	.154**	.096*	.144**	0.049	0.028	
11. Mother's Education	-0.022	-0.015	-0.067	-0.022	0.017	.310**	0.060	-.085*	0.055	-0.020		-.515**	0.023	-0.016	-0.005	-0.047	-0.072	0.047	-0.002	0.056	.096*	.082*	0.001	-0.008	0.010	-0.003	-0.019	-0.036	0.031	-0.030	
12. Father's Education	-0.016	0.063	-.111**	0.002	0.057	.340**	0.065	-0.041	0.067	-0.011	.496**		0.049	-0.017	-0.003	-.115**	-0.072	.082*	0.026	0.038	.149**	.108**	0.004	-0.021	-0.028	0.044	-0.007	0.044	.084*	0.037	
13. Political Views	0.032	0.021	-0.065	.137**	.217**	.085*	0.017	-0.071	-.366**	.381**		-0.055	-0.004		.162**	0.056	-0.035	-0.039	.133**	.109**	.111**	.112**	0.053	.125**	-.121**	-0.079	0.058	-.098*	.161**	.150**	-.082*
14. Disability	-0.042	-0.045	-0.029	0.017	.094*	-0.057	-0.012	0.017	-.084*	0.040	-0.048	-0.059	0.025		-0.071	-.092*	-0.064	.166**	.141**	0.014	0.036	.124**	.105**	-.105**	-.133**	0.046	-0.016	.122**	.104**	-.128**	
15. How Long in Current Area	.379**	.520**	-0.027	.093*	-0.008	0.075	-0.013	-0.009	0.008	.094*	-0.028	-0.004	0.078	-0.031		0.016	0.057	-0.029	-0.041	0.042	0.041	-0.046	-0.022	0.016	-0.001	-0.010	0.010	-0.030	-0.002	0.024	
16. Feeling Since Starting Collage	-0.048	-.099**	-0.050	-0.056	-0.056	0.031	0.026	0.007	.097*	-0.061	0.025	0.009	0.012	-0.065	-0.029		.115**	-.316**	-.181**	-0.046	-.096*	-0.062	-.106**	.182**	.158**	-.192**	-0.073	-0.071	-.159**	-.084*	
17. Current Relationship Status	.207**	.137**	-0.053	0.000	-.115**	-0.044	0.001	-0.077*	0.053	-0.021	0.032	-0.059	0.031	-0.037	.078*	.081*		-.082*	0.010	-0.014	-0.038	.244**	0.000	0.005	0.010	-0.079*	0.011	0.049	-0.062	-0.034	
18. Social Connectedness Scale	-.080*	-0.008	-0.001	-.088**	.090*	0.065	.104**	0.011	-.139**	.148**	0.045	.096*	0.060	.120**	0.019	-.320**	-0.038		.654**	.329**	.321**	.336**	.538**	-.400**	-.253**	.510**	.362**	.229**	.340**	.143**	
19. ECR-Others	-0.001	0.003	0.012	-0.023	0.065	-0.003	0.055	-0.021	-.095*	.089*	-0.013	.078*	0.048	.178**	0.028	-.275**	0.030	.647**		.302**	.306**	.477**	.442**	-.508**	-.370**	.373**	.186**	.237**	.372**	.085**	
20. ECR-Mother	-0.052	-0.029	0.023	-.105**	.090*	0.034	0.066	-0.071	-.105**	.089*	0.072	-0.002	0.010	0.071	-0.025	-.112**	-0.007	.354**	.440**		.382**	.247**	.339**	-.196**	-.096*	.132**	.208**	.221**	.145**	.104**	
21. ECR-Father	-0.040	-0.028	0.032	-0.037	.132**	.100**	0.018	-0.030	-.108**	.084*	.128**	.165**	0.044	.081*	-.078*	-.125**	-0.045	.336**	.351**	.439**		.247**	.291**	-.222**	-.138**	0.065	.123**	.123**	.251**	0.055	
22. ECR-Romantic	-0.027	-0.018	-0.001	-0.031	0.015	-0.026	.095*	-0.049	-0.052	0.074	0.033	0.073	0.019	0.071	-0.046	-0.070	.231**	.348**	.477**	.373**	.330**		.387**	-.320**	-.217**	.078*	.174**	.262**	.207**	.110**	
23. ECR-Friend	-0.046	-0.049	0.034	-.095**	.087*	0.004	0.073	-0.067	-0.066	0.015	0.057	0.025	-0.023	0.049	-0.055	-.200**	0.020	.535**	.527**	.475**	.357**	.425**		-.338**	-.179**	.307**	.326**	.209**	.175**	.175**	
24. ShARQ	-0.040	-0.026	-0.046	-.159**	-.090*	-0.015	-0.016	0.038	0.027	-0.009	0.011	-0.014	-.096*	-.089*	-0.048	.213**	-0.025	-.433**	-.511**	-.214**	-.210**	-.273**	-.353**		.569**	-.264**	-0.041	-.196**	-.514**	-.148**	
25. Shame Inventory	-.109**	-.088*	-0.017	-.267**	-.094*	-0.008	-0.002	0.062	0.053	0.010	0.067	0.047	-.089*	-0.053	-0.034	.129**	-0.063	-.205**	-.342**	-0.072	-.078*	-.152**	-.143**	.522**		-.162**	.132**	-.130**	-.472**	-0.063	
26. Extroversion	-0.055	-0.023	0.021	-0.060	0.068	0.037	.090*	0.008	-.106**	.099*	0.026	.101*	0.056	0.045	-0.019	-.122**	-0.041	.432**	.325**	.126**	.171**	.139**	.255**	-.257**	-.144**		.286**	0.044	.140**	.160**	
27. Agreeableness	-0.051	-0.008	0.023	-.161**	0.019	0.061	.122**	-0.068	-0.036	.117**	0.043	0.042	-.130**	0.019	-0.012	-0.061	-0.042	.281**	.190**	.237**	.145**	.130**	.216**	-.105**	.121**	.250**		.138**	-0.010	.324**	
28. Conscientiousness	0.054	0.022	-0.017	-0.015	0.025	0.034	.082*	-.098*	-.131**	.100*	-0.017	-0.020	0.079	.134**	0.007	-.129**	0.010	.175**	.228**	.172**	.149**	.165**	.197**	-.136**	-0.063	0.053	.232**		.185**	0.043	
29. Emotional Stability	0.036	0.029	-0.058	.159**	0.040	0.003	0.013	-0.009	-0.054	.082*	0.012	0.010	0.077	.136**	0.004	-.211**	-0.010	.397**	.432**	.171**	.196**	.242**	.302**	-.446**	-.383**	.218**	.083*	.093*		0.061	
30. Intellect/Imagination	0.037	0.063	0.021	.086*	-0.081	.117**	0.029	-0.049	.156**	-0.024	.111**	.078*	-.127**	-0.072	0.024	-0.036	-0.014	0.031	0.029	.092*	0.032	0.012	0.064	-.167**	-0.026	0.040	.343**	0.064	.116**		

Note. ** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed). Values below the diagonal are from the testing sample. Values above the diagonal are from the confirmatory sample.

Study 1 Results – Testing the Hypothesized Model

The purpose of study 1 was to test the hypothesized structural equation model to determine if it fit the model present in the data. The model was specified in Mplus such that the latent variables of Attachment Security and Personality predicted scores on the ShARQ and SI, which in turn predicted scores on the SC-15. The latent variable of Attachment Security was hypothesized to predict SC-15 scores such that those who have more secure attachment (higher Attachment Security scores) would have higher scores on the SC-15. Additionally, SI scores would negatively relate to SC-15 scores, positively relate to ShARQ scores, and negatively relate to Attachment Security scores. ShARQ scores were predicted to positively relate to SI scores and negatively relate to Attachment Security and SC-15 scores. Finally, Personality was hypothesized to positively correlate with Attachment Security (Figure 1).

The initial model did not yield good fit (Table 4; $\chi^2(60) = 760.87$, $p < .001$; CFI=.71; RMSEA=.13; SRMR=.10). The standardized results of the measurement component of the model indicated that several of the measured variables for Personality – although statistically significant ($p < .05$) – did not have adequate factor loadings ($< .3$) on that latent variable. The low factor loadings for the Personality latent variable and the poor model fit indicated model misspecification. Thus, for the modified model, the five measured personality variables were specified as separate measured variables rather than as a single latent variable. Modification indices also suggested that adding direct paths regressing Social Connectedness on to the personality variables and Attachment Security would substantially improve the fit of the structural model. Since these additional paths also made theoretical sense, they were added to the model.

Table 4. Standardized Estimates (Standard Errors in Parentheses) and Significance Levels for Hypothesized Model on Testing Sample; $n=693$

	Std. Parameter Estimate (S.E.)	Sig. p
PERSONALITY by:		
Extraversion	0.40 (0.04)	<.001
Agreeableness	0.27 (0.05)	<.001
Conscientiousness	0.26 (0.04)	<.001
Emotional Stability	0.59 (0.04)	<.001
Intellect/Imagination	0.18 (0.05)	<.001
ATTACHMENT by:		
General	0.79 (.02)	<.001
Mother	0.60 (.03)	<.001
Father	0.51 (.03)	<.001
Romantic	0.60 (.03)	<.001
Friend	0.70 (.03)	<.001
Shame Aversion on:		
PERSONALITY	-0.78 (0.20)	<.001
ATTACHMENT	0.12 (0.20)	=0.56
Shame Proneness on:		
PERSONALITY	-0.64 (0.20)	<.001
ATTACHMENT	0.24 (0.20)	=0.23
Social Connectedness on:		
Shame Aversion	-0.45 (0.04)	<.001
Shame Proneness	0.03 (0.04)	=0.48

Note: $\chi^2(60) = 760.87, p < .001$; CFI=.71; RMSEA=.13; SRMR=.10

Path Analysis of Structural Model on Testing Sample

When the personality variables were modeled as independent measured variables and the paths from the personality variables and Attachment Security to Social Connectedness were added, the model fit substantially improved ($\chi^2(37) = 170.91, p < .001$; CFI=.94; RMSEA=.07 (90% CI=.062 -.083; SRMR=.04). Results of the modified model with the testing sample are reported in Table 5 and Figure 2.

Table 5. Standardized Estimates (Standard Errors in Parentheses) and Significance Levels for Modified Model on Testing Sample; $n=693$

	Standardized Parameter Estimate (S.E.)	Sig. p
ATTACHMENT by:		
General	0.83 (.02)	<.001
Mother	0.57 (.03)	<.001
Father	0.49 (.03)	<.001
Romantic	0.57 (.03)	<.001
Friend	0.69 (.02)	<.001
Shame Aversion on:		
ATTACHMENT	-0.43 (0.04)	<.001
Extraversion	-0.07 (0.04)	=0.04
Agreeableness	0.10 (0.04)	=0.01
Conscientiousness	-0.01 (0.03)	=0.89
Emotional Stability	-0.22 (0.04)	<.001
Intellect/Imagination	-0.15 (0.03)	<.001
Shame Proneness on:		
ATTACHMENT	-0.21 (0.05)	<.001
Extraversion	-0.07 (0.04)	=0.08
Agreeableness	0.24 (0.04)	<.001
Conscientiousness	-0.03 (0.04)	=0.44
Emotional Stability	-0.28 (0.04)	<.001
Intellect/Imagination	-0.06 (0.04)	=0.09
Social Connectedness on:		
ATTACHMENT	0.62 (0.04)	<.001
Shame Aversion	-0.06 (0.04)	=0.14
Shame Proneness	0.05 (0.03)	=0.11
Extraversion	0.18 (0.03)	<.001
Agreeableness	0.08 (0.03)	=0.02
Conscientiousness	-0.03 (0.03)	=0.25
Emotional Stability	0.07 (0.03)	=0.04
Intellect/Imagination	-0.05 (0.03)	=0.07
ATTACHMENT with:		
Extraversion	0.35 (0.04)	<.001
Agreeableness	0.27 (0.04)	<.001
Conscientiousness	0.28 (0.04)	<.001
Emotional Stability	0.46 (0.04)	<.001
Intellect/Imagination	0.06 (0.04)	=0.16
Shame Proneness with:		
Shame Aversion	0.40 (0.03)	<.001

Note: $\chi^2(37) = 170.91$ $p < .001$; CFI=.94; RMSEA=.07; SRMR=.04.

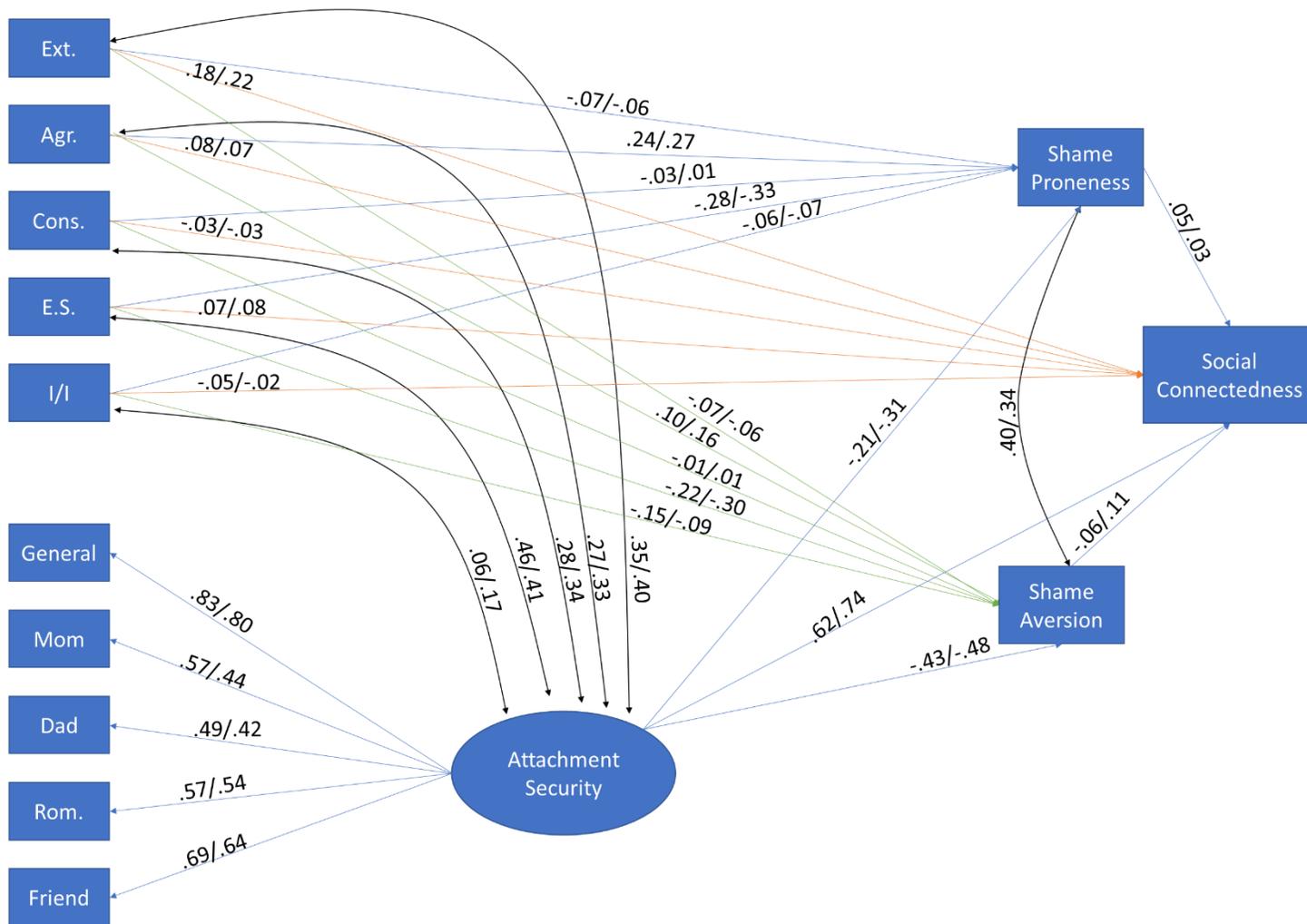


Figure 2. *Modified Structural Equation Model with both Testing and Confirmatory Sample Coefficients* (Standardized Solution; testing sample $n=693$; confirmatory sample $n=693$).

Note: The first value presented on each regression path is the coefficient for the testing sample and the second number is the coefficient for the confirmatory sample. Circles are latent variables, double-headed curved arrows are correlations, and straight arrows are regression paths.

Study 1 Discussion

Results for Hypothesis 1

Hypothesis 1 specified that, “Personality would significantly and positively predict Social Connectedness through Shame Proneness and Shame Aversion”. This hypothesis was not supported. The initial hypotheses were created with Personality modeled as a latent variable. The final model, however, separated the five personality trait scales so the relations of each of these variables to the other variables in the model will be discussed. Results of the structural model indicated that Extraversion, Agreeableness, and Emotional Stability all significantly positively predicted Social Connectedness. The Conscientiousness and Intellect/Imagine variables did not significantly directly predict Social Connectedness. In addition, the 95% bias-corrected bootstrapped confidence intervals for the indirect effect estimates of Shame Proneness and Shame Aversion contained zeros, making them non-significant. Thus, this hypothesis was not supported.

Results for Hypothesis 2

Hypothesis 2 specified that, “Personality would negatively predict Shame Proneness and Shame Aversion”. This hypothesis was partially supported. In the final model, Agreeableness significantly positively predicted Shame Proneness and Emotional Stability significantly negatively predicted Shame Proneness. The other traits did not have significant effects on Shame Proneness. Shame Aversion was also significantly positively predicted by Agreeableness, and significantly negatively predicted by Extraversion, Emotional Stability, and Intellect/Imagination.

Results for Hypothesis 3

Hypothesis 3 specified that, “Attachment Security would significantly and positively predict Social Connectedness through Shame Proneness and Shame Aversion”. This hypothesis was not supported. Attachment Security significantly positively predicted Social Connectedness. The part of the hypothesis that Shame Proneness and Shame Aversion would significantly indirectly affect this relation was not, however, supported since the 95% bias-corrected bootstrapped confidence intervals for these indirect effect estimates contained zeros.

Results for Hypothesis 4

Hypothesis 4 specified that, “Attachment security would significantly and negatively predict Shame Proneness and Shame Aversion”. This hypothesis was supported in that both Shame Proneness and Shame Aversion were significantly negatively predicted by Attachment Security.

Results for Hypothesis 5

Hypothesis 5 specified that, “Shame Proneness would significantly and negatively predict Social Connectedness”. This hypothesis was not supported, as Shame Proneness did not significantly negatively predict Social Connectedness.

Results for Hypothesis 6

Hypothesis 6 specified that, “Shame Aversion would significantly negatively predict Social Connectedness”. Like Shame Proneness, Shame Aversion also did not significantly negatively predict Social Connectedness, as hypothesized.

Results for Hypothesis 7

Hypothesis 7 specified that, “Attachment Security and Personality would significantly and positively correlate”. This hypothesis was generally supported in that all personality

variables, except Intellect/Imagination significantly and positively correlated with Attachment Security.

Results for Hypothesis 8

Hypothesis 8 stated that, “Shame Proneness and Shame Aversion would significantly positively correlate.” This hypothesis was supported in that the two variables were significantly positively correlated.

Study 2 – Results for the Modified Model on Confirmatory Sample

The modified model was tested next on the confirmatory sample. Results yielded good fit of the model to the data from the confirmatory sample (Table 6; χ^2 (df=37) =214.56, $p<.001$; CFI=.92; RMSEA=.083 (90% C.I. =.073-.094); SRMR=.042). A χ^2 difference test, however, indicated that the model fit significantly differed between the testing and the confirmatory sample ($\Delta \chi^2=43.65$; df=1, $p<.01$).

Modification indices suggested that the model fit for the confirmatory sample would substantially improve by adding a path correlating the error terms from Attachment to Mother with Attachment to Father. It is certainly possible to add this extra path to the model as it could be theoretically justifiable that attachment to one parent would uniquely relate to attachment with another parent. However, doing this might have been over-fitting the model to the sample. Keeping the model as it is without the addition still yields a good-fitting model for each sample. Thus, the results reported are based on the model without this path added. As an exploratory measure, when this path was added to the model, the model fit improved to excellent fit for the testing sample (χ^2 (df=36) =129.271, $p<.001$; CFI=.958; RMSEA=.061 (90% C.I.=.050-.073); SRMR=.033), and improved (but still indicated good) fit for the confirmatory sample (χ^2 (df=36) =171.293, $p<.001$; CFI=.940; RMSEA=.074 (90% C.I.=.063-.085); SRMR=.038).

Table 6. Standardized Estimates (Standard Errors in Parentheses) and Significance Levels for Modified Model on Confirmatory Sample; $n=693$

	Standardized Parameter Estimate (S.E.)	Sig. p
ATTACHMENT by:		
General	0.80 (.02)	<.001
Mother	0.44 (.04)	<.001
Father	0.42 (.04)	<.001
Romantic	0.54 (.03)	<.001
Friend	0.64 (.03)	<.001
Shame Aversion on:		
ATTACHMENT	-0.48 (0.05)	<.001
Extraversion	-0.06 (0.04)	=0.08
Agreeableness	0.16 (0.04)	<.001
Conscientiousness	0.01 (0.03)	=0.80
Emotional Stability	-0.30 (0.04)	<.001
Intellect/Imagination	-0.09 (0.03)	<.001
Shame Proneness on:		
ATTACHMENT	-0.31 (0.05)	<.001
Extraversion	-0.06 (0.04)	=0.12
Agreeableness	0.27 (0.04)	<.001
Conscientiousness	0.01 (0.04)	=0.88
Emotional Stability	-0.33 (0.04)	<.001
Intellect/Imagination	-0.07 (0.03)	=0.05
Social Connectedness on:		
ATTACHMENT	0.74 (0.05)	<.001
Shame Aversion	0.11 (0.04)	=0.01
Shame Proneness	0.03 (0.04)	=0.35
Extraversion	0.22 (0.03)	<.001
Agreeableness	0.07 (0.03)	=0.04
Conscientiousness	-0.03 (0.03)	=0.28
Emotional Stability	0.08 (0.03)	=0.01
Intellect/Imagination	-0.02 (0.03)	=0.43
ATTACHMENT with:		
Extraversion	0.40 (0.04)	<.001
Agreeableness	0.33 (0.04)	<.001
Conscientiousness	0.34 (0.04)	<.001
Emotional Stability	0.41 (0.04)	<.001
Intellect/Imagination	0.17 (0.04)	<.001
Shame Proneness with:		
Shame Aversion	0.34 (0.04)	<.001

Note: χ^2 (df=37) =214.56, $p<.001$; CFI=.92; RMSEA=.083 (90% C.I.=.073-.094); SRMR=.042

Path Analysis of Structural Model on Confirmatory Sample

The factor loadings and regression coefficients were equivalent for the confirmatory sample as they were with the testing sample, with a few exceptions. In the confirmatory analysis, Extraversion was not significantly predictive of Shame Aversion ($p=.08$) but was in the testing sample. Shame Aversion was significantly positively predictive of Social Connectedness in the confirmatory sample, which was different than the testing sample and contrary to the hypothesized direction of the relation ($0.11, p=.01$). Additionally, all personality variables, including Intellect/Imagination, significantly and positively correlated with Attachment Security in the confirmatory sample.

Study 2 Discussion

Cross validation of the model failed, as shown by the results of the χ^2 difference test. This may be because of measurement issues or insufficient power. In general, the 10 people per parameter rule assumes there are medium to large effect sizes. The effects in the current study were small to medium. At those sizes, many more participants are needed to detect significant differences. Due to the failure of the cross validation and to address power issues, the model fitting processes was repeated with the full sample of 1,386. Results for this model fitting processes are outlined in Study 3.

Study 3 – Results with the Full Sample

The model fitting process for this study was conducted with the full sample of 1,386 participants. The hypothesized model was run first. Initial results indicated poor fit (χ^2 (df=60) =1626.754, $p<.001$; CFI=.63; RMSEA=.137 (90% C.I. =.132-.143); SRMR=.106). Again, the lack of fit and modification indices suggested that the personality traits should be modeled independently. After this step, model fit was still poor (χ^2 (df=43) =1163.645, $p<.001$; CFI=.746; RMSEA=.137 (90% C.I. =.132-.143); SRMR=.092). Modification indices again suggested

adding an additional direct path from Attachment Security to Social Connectedness. After this step, model fit improved yielding generally good fit (χ^2 (df=42) =441.65, $p<.001$; CFI=.91; RMSEA=.083 (90% C.I. =.076-.090); SRMR=.042). At this step, model modification indices suggested adding a direct path from Extraversion to Social Connectedness. Adding this path again improved model fit (χ^2 (df=41) =350.663, $p<.001$; CFI=.930; RMSEA=.074 (90% C.I. =.067 -.081); SRMR=.038). At this point the only modification indices that remained were ones that correlated error terms or that were either redundant with hypothesized paths or were not theoretically plausible. The results of the final model with the full sample are reported in Table 7 and displayed in Figure 3.

Results for Hypothesis 1

Hypothesis 1 specified that, “Personality would significantly and positively predict Social Connectedness through Shame Proneness and Shame Aversion”. As in the previous two studies, this hypothesis was not supported with the full sample. Results of the structural model indicated that Extraversion significantly positively predicted Social Connectedness. This was the only personality variable used in this hypothesis, based on modification indices. However, the 95% bias-corrected bootstrapped confidence intervals for the indirect effect estimates of Shame Proneness and Shame Aversion contained zeros, making them non-significant. Thus, this hypothesis was not supported.

Results for Hypothesis 2

Hypothesis 2 specified that, “Personality would negatively predict Shame Proneness and Shame Aversion”. This hypothesis was largely supported. In the final model, Agreeableness significantly positively predicted both Shame Proneness and Shame Aversion and Extraversion, Emotional Stability, and Intellect/Imagination significantly negatively predicted both Shame

Proneness and Shame Aversion. The only trait that did not have a significant effect on Shame Proneness or Shame Aversion was Conscientiousness.

Results for Hypothesis 3

Hypothesis 3 specified that, “Attachment Security would significantly and positively predict Social Connectedness through Shame Proneness and Shame Aversion”. This hypothesis was not supported. Attachment Security significantly positively predicted Social Connectedness. The part of the hypothesis that Shame Proneness and Shame Aversion would significantly indirectly affect this relation was not, however, supported since the 95% bias-corrected bootstrapped confidence intervals for these indirect effect estimates contained zeros.

Results for Hypothesis 4

Hypothesis 4 specified that, “Attachment security would significantly and negatively predict Shame Proneness and Shame Aversion”. This hypothesis was supported in that both Shame Proneness and Shame Aversion were significantly negatively predicted by Attachment Security.

Results for Hypothesis 5

Hypothesis 5 specified that, “Shame Proneness would significantly and negatively predict Social Connectedness”. This hypothesis was not supported, as Shame Proneness did not significantly negatively predict Social Connectedness.

Results for Hypothesis 6

Hypothesis 6 specified that, “Shame Aversion would significantly and negatively predict Social Connectedness”. Like Shame Proneness, Shame Aversion also did not significantly negatively predict Social Connectedness, as hypothesized.

Results for Hypothesis 7

Hypothesis 7 specified that, “Attachment Security and Personality would significantly positively correlate”. This hypothesis was supported in that all personality variables significantly positively correlated with Attachment Security.

Results for Hypothesis 8

Hypothesis 8 stated that, “Shame Proneness and Shame Aversion would significantly positively correlate.” This hypothesis was supported in that the two variables were significantly positively correlated.

Table 7. Standardized Estimates (Standard Errors in Parentheses) and Significance Levels for Modified Model on Full Sample; $n=1, 386$

	Standardized Parameter Estimate (S.E.)	Sig. p
ATTACHMENT by:		
General	0.81 (.01)	<.001
Mother	0.50 (.02)	<.001
Father	0.46 (.02)	<.001
Romantic	0.55 (.02)	<.001
Friend	0.66 (.02)	<.001
Shame Aversion on:		
ATTACHMENT	-0.45 (0.03)	<.001
Extraversion	-0.07 (0.03)	=0.01
Agreeableness	0.14 (0.03)	<.001
Conscientiousness	-0.01 (0.02)	=0.66
Emotional Stability	-0.26 (0.03)	<.001
Intellect/Imagination	-0.13 (0.02)	<.001
Shame Proneness on:		
ATTACHMENT	-0.26 (0.04)	<.001
Extraversion	-0.07 (0.03)	=0.01
Agreeableness	0.26 (0.03)	<.001
Conscientiousness	-0.02 (0.03)	=0.45
Emotional Stability	-0.30 (0.03)	<.001
Intellect/Imagination	-0.07 (0.03)	<.001
Social Connectedness on:		
ATTACHMENT	0.72 (0.03)	<.001
Shame Aversion	0.03 (0.03)	=0.37
Shame Proneness	0.04 (0.02)	=0.08
Extraversion	0.21 (0.02)	<.001
ATTACHMENT with:		
Extraversion	0.38 (0.03)	<.001
Agreeableness	0.32 (0.03)	<.001
Conscientiousness	0.31 (0.03)	<.001
Emotional Stability	0.46 (0.02)	<.001
Intellect/Imagination	0.11 (0.03)	<.001
Shame Proneness with:		
Shame Aversion	0.37 (0.03)	<.001

Note: χ^2 (df=41) =350.663, $p<.001$; CFI=.930; RMSEA=.074 (90% C.I.=.067 -.081); SRMR=.038

GENERAL DISCUSSION

Overall, the hypotheses of the current study were partially supported. Attachment Security and Extroversion were meaningful predictors of Social Connectedness. The hypotheses regarding the role of Shame Proneness and Shame Aversion were not supported. The modified model yielded a good-fitting model for the testing sample in study 1. The modified model also yielded a good fit with the confirmatory sample in sample 2 with no additional model modifications required. However, there was a significant decrement in fit between the testing sample and the confirmatory sample, and there were significant paths in the testing sample that were not present in the confirmatory sample and vice versa. Thus, the model replication failed. This may be due to measurement issues or to a lack of power, given small to medium effect sizes. To address this issue, a third study was conducted wherein the hypothesized model was tested and modified with the full sample. These results indicated that, with modification, a model with good fit could be identified when using the full sample.

The Roles of Shame Proneness and Shame Aversion

In all three studies, those who indicated having had more experiences of shame (Shame Proneness) tended to report more aversion to shame. This finding was consistent with previous results from validation studies of the ShARQ that suggested that Shame Proneness and Shame Aversion are related constructs. The rest of the hypotheses related to Shame Proneness and Shame-Aversion's role in Social Connectedness, however, were not supported by any of the three studies. Although the literature suggests that shame (Lutwak et al., 2003) and responses to shame (ACT; Hayes & Wilson, 1994) might influence social outcomes, in the current model the paths from Shame Proneness and Shame Aversion to Social Connectedness were not significant.

Thus, it appears from the current results that those who experience more shame or more aversion to shame do not necessarily feel less socially connected. It is noteworthy, however, that since Social Connectedness was the only outcome measure included in the model that the shame variables may still have predicted other social outcomes.

Although Social Connectedness was not predicted by either Shame Proneness or Shame Aversion in the complete model, it was highly related to Shame Aversion when only Shame Aversion, Shame Proneness, and Social Connectedness were included in a regression analysis. When paths from Attachment Security and personality variables to Social Connectedness were added, however, relations between Shame Aversion and Social Connectedness were no longer significant. This finding suggests that Shame Aversion is a proximal manifestation of the distal antecedents of Attachment Security and personality. In other words, Shame Aversion may be a by-product of the attachment relationship and personality development. This interpretation is consistent with several studies that have shown a connection between attachment and shame (e.g., Andrews, 1998; Muris et al., 2014; Wei et al., 2005), as well as theory that suggests that shame is first developed through the infant-caregiver attachment relationship (Lewis, 1971, 1987).

Shame Aversion and Shame Proneness were also significantly predicted by Emotional Stability and Agreeableness in all three studies. The link between Emotional Stability and the shame variables was expected, given that Emotional instability (i.e., neuroticism) tends to be related to stronger negative emotionality (McNiel & Fleeson, 2006; Robinson, Ode, Moeller, & Goetz, 2007) and difficulty with regulating emotion. Thus, it makes sense that if individuals struggle to regulate an emotion such as shame, they would want to avoid experiencing those feelings in the first place.

Interestingly, the relation between these shame variables and Agreeableness was positive. This was contrary to the hypothesis that more adaptive or positive levels of personality traits would predict more adaptive behavior. This result is, however, consistent with some studies that have shown evidence of shame being linked to motivation to self-improve, cooperate with others, and engage in other prosocial behavior (Gausel & Leach, 2011; Gilbert, 1997; 1998; Leeming & Boyle, 2013). It is possible that those who feel more shame or are particularly averse to feelings of shame try to be more cooperative with others to avoid feelings of shame. On the other hand, those who are highly agreeable may be less comfortable with seeing themselves in a negative light.

Another unexpected finding was that Intellect/Imagination significantly negatively predicted both Shame Proneness and Shame Aversion – but not Social Connectedness– in study 3. In studies 1 and 2, this trait only significantly predicted Shame Aversion. Thus, the trait that measures one’s openness to abstract and imaginative thinking showed a relation with how one responds to shame, in addition to amount of shame experienced. This finding might indicate that those who are more comfortable with abstract ideas and creativity may find intense emotion less frightening. On the other hand, those who experience less shame or who were nurtured to have less shame may also develop more openness to creativity, imagination, and abstract concepts. This interpretation is consistent with some findings that suggest that being able to tolerate shame and embrace one’s imperfections may lead to more creativity and exploration of one’s unique ideas (e.g., Brown, 2006; González-Gómez & Richter, 2015). Additionally, it is possible that those who are more interested in abstract thinking are more able and willing to engage in higher order coping skills required for managing shame. One such skill might be self-compassion, which involves broadening one’s perspective to see suffering as part of the human condition. If

one has more confidence in their ability to handle intense emotions (higher emotional stability) and is able to and interested in engaging in perspective-taking, tolerance of ambiguity, and other more abstract practices, then perhaps they are less threatened by their experiences of shame.

Finally, a significant, yet smaller effect existed for Extraversion negatively predicting both Shame Aversion and Shame Proneness in study 3 only. This finding was as predicted. It suggests that those who are warm, affectionate, sociable, talkative, energetic, and passionate might experience less shame or aversion to their shame. Again, it is important to reiterate that the shame variables did not significantly affect the relation between Extraversion and Social Connectedness. These results suggest that there may be a relation between shame and social experiences that is not accounted for by the Social Connectedness measure in the current study.

Attachment, Personality, and Social Connectedness

The results show that those who had more secure attachment experienced less shame and had less aversion to their shame experiences. This finding is consistent with the literature that demonstrates that relationship experiences, particularly with attachment figures, impact emotional development (Simpson, 1990; Burnette et al., 2009; Mikulincer & Shaver, 2007; Grossmann et al., 2006), including shame (Wei et al., 2005).

Although not specifically hypothesized, Attachment Security and Extroversion were significantly predictive of Social Connectedness. Furthermore, as was the case in previous studies (Nofle & Shaver, 2006), Attachment Security and each personality trait were significantly and positively correlated in all three studies, apart from Intellect/Imagination in study 1. Each of these findings is consistent with the existing literature base and further heightens the importance of caregivers providing a secure attachment for their child, which consists of responding to their child and meeting their needs.

Additionally, several personality traits – Agreeableness, Emotional Stability, Extroversion, and Intellect/Imagination showed important implications for how individuals are able to handle intense and painful emotions and Extraversion showed important implications for how connected they feel to society. Specifically, Extroversion significantly positively predicted Social Connectedness in all three studies. Agreeableness and Emotional Stability significantly predicted both Shame Proneness and Shame Aversion in all three studies and Extraversion and Intellect/Imagination significantly predicted these variables in the full sample. It has been theorized that personality is shaped partly by genetics and partly by the environment, such that genetics provide a propensity for personality and experiences in the environment shape that potential based on rewards and punishment for behavior. Thus, early childhood experiences are again shown to be crucial in later life needs being met.

These findings largely support the importance of attachment security perceptions for feelings of connectedness with others. However, a portion of the population does not have secure attachment (Mickelson, Kessler, & Shaver, 1997) or high levels of the personality traits (Paris, 2010; Widiger & Weissman, 1991) shown to be important for social connection. Thus, an aim of this study was to determine proximal antecedents in the relations between these early-in-life predictors and social connection that may be more amenable to change than personality or attachment style. Given previous findings from empirical and Grounded Theory studies (e.g., Brown, 2006; Gausel & Leach, 2011; Teroni & Bruun, 2011; Van Vliet, 2008), the current study looked at shame and aversion to shame as potential mediators in this relation. The findings from the current study did not, however, support shame proneness or shame aversion as strong predictors of this social connectedness. Interestingly, Shame Aversion initially showed a significant correlation with Social Connectedness in all three studies before the direct paths from

Attachment Security and personality traits to Social Connectedness was added. Once these paths were added, the path from Shame Aversion to Social Connectedness was no longer significant. However, Attachment Security remained significantly predictive of Shame Aversion. Thus, rather than being a mediator in the relations between the distal antecedents and the outcome, it appears that Shame Aversion might be a proximal effect of Attachment Security. Another possibility is that individuals' feelings of attachment security might mediate the effect of shame proneness and shame aversion on social connection. It is also possible that past relationships and socialization experiences affect shame development, which affects perceptions of relationships (attachment security). Therefore, it is strongly recommended that future studies consider the directionality of these relations and continue to assess for potential proximal antecedents, including assessing for the role of shame with alternative methods.

Limitations

There are several limitations of the current study. One is that it is cross-sectional in design. It is impossible to determine empirically from this study whether personality traits and Attachment Security cause changes in Social Connectedness. The study relies on theory and previous literature to suggest that these two variables would come before Social Connectedness temporally, which enables discussion of the relations as predictive, instead of associative.

Another limitation is the characteristics of the sample. The data were convenience sampled from undergraduate college students, most of whom were White, female, young, and from the United States. Thus, it is unknown whether the results generalize to populations outside this group.

The size of the sample ultimately may have been a limitation as well. Although the sample should have had sufficient power to detect significant relations in terms of the 10 people

per parameter rule, when the sample was split to test and then confirm the model, the model estimates became unstable. This may have been due to small to medium effect sizes.

There are additional limitations associated with measuring these constructs. One issue is that the personality measure chosen for the current study has worse psychometric properties compared to longer personality measures such as the NEO (Costa & McCrae, 1992) or MMPI (Graham, 1990). Additionally, measuring constructs such as shame poses several difficulties, particularly with desirability effects and the difficulty of succinctly capturing a complex emotional experience. Another difficulty in measuring shame is due to its multi-faceted nature. Facets of shame include – but are not limited to – inferiority, unworthiness, inadequacy; shame where there is more comparison to others, shame in relation to self-expectations. It is also difficult to measure shame because the very nature of shame often makes people want to hide themselves. Thus, there is risk for social desirability effects in self-reported data (Rizvi, 2010). Participants themselves must also be able to distinguish shame from other constructs when responding to items. Finally, it is difficult, but potentially necessary, to distinguish shame from similar constructs such as embarrassment, guilt, and low self-esteem, that make it difficult to ascertain whether only shame is being measured (Rizvi, 2010; Tangney & Dearing, 2002).

Future Directions

Future studies might look at specific profiles of personality that would more precisely predict social outcomes. For example, the current findings revealed that those with high Agreeableness also had higher levels of Shame Proneness and Shame Aversion, but those with higher Emotional Stability had lower levels of these traits. It is possible that Agreeableness is only predictive of these shame variables for those who are on the extreme ends of the spectrum, or potentially for those who also have low Emotional Stability. It may be that the traits are

predictive at various levels. Thus, class analyses of social outcomes would be able to better differentiate when and to what extent these traits are predictive.

Attachment patterns have been well studied in the literature and are commonly associated with many relationship and life outcomes (e.g. Haggerty, Hilsenroth, & Vala-Stewart, 2009; Hainlen et al., 2016; Bartholomew & Horowitz, 1991; Horowitz et al., 1993; Lopez et al., 2002; McDermott et al., 2015). The current findings further support this literature base. Attachment tendencies can be difficult, however, to change in adulthood (Bowlby, 1988), especially within the confines of time-limited psychotherapy. Very little is known about how and if attachment can change throughout life. Thus, more research is required to understand what – if any – factors might change a person’s attachment style.

The current findings suggest that those who experience more shame or more aversion to shame do not necessarily feel less socially connected. This result is contrary to previous findings that have linked shame with adverse social outcomes, and theory that has suggested that aversion to emotional experiences leads to adverse outcomes. It is noteworthy, however, that since Social Connectedness was the only outcome measure included in the model, the shame variables may still have predicted other negative social outcomes. Future studies should include other measures of social connection such as social support, loneliness, and belongingness.

Given the challenges with measuring responses to shame, diverse methods should be considered in future studies. One such method would be to address the temporal component of responding to shame experiences. Such measures would be able to more closely assess the applications of Shame Resilience Theory (Brown, 2006) and experiential/behavioral avoidance from ACT theory (Hayes & Wilson, 1994). These theories suggest that how a person reacts to their shame experiences is more important in predicting outcomes, than the mere presence of

shame, arguing that the struggle over trying to eliminate uncomfortable emotion is what causes a person to suffer. Thus, focusing on the response a person has when they experience shame may provide more insight. For example, a measure might present a shame-inducing scenario to participants and measure not only their emotional reactions to the scenario, but also their responses to their emotional reactions. Scenario-based scales such as the TOSCA (Tangney et al., 2000) utilize the scenario approach to measure whether someone responds to a scenario with guilt or shame. To measure shame resilience, however, a measure would need to go beyond measuring the emotional reaction and assess how that person responds to their emotional reaction (e.g., how willing are they to feel their shame or guilt, do they want to avoid or eliminate this response in some way, how do they choose to respond, etc.). The ShARQ begins to get at this construct but lacks a situational component and requires further validation (Schoenleber & Berenbaum, 2010). Future studies might use a similar model as presented in the current study with different measures of shame. Additionally, there has been little research on the role of others in the repair and management of shame (Leeming & Boyle, 2005; Gilbert, 1997; Van Vliet, 2008). Future measures of shame might benefit from including components that assess others' roles in how an individual responds to shame. This may consist of having others complete measures regarding the participant or having the participant respond to items regarding others' reactions.

Additionally, it may be important for future studies to differentiate shame aversion from other similar constructs such as defensiveness, experiential avoidance, emotion regulation, and self-esteem. On the ShARQ, many items appear to be very similar to items that might measure these constructs. The ShARQ also predicted scores on measures of similar constructs such as

experiential avoidance (Acceptance and Action Questionnaire ($r=.64$; Hayes et al., 2004)) and distress tolerance (Affective Control Scale ($r=.55$; Williams et al., 1997)).

Another potential proximal antecedent to social connection not included in the current study is compassion. There is a burgeoning literature base addressing the effects of compassion on multiple similar health and well-being outcomes (see for example Seppala et al., 2013). Moreover, Klink (2015) found a small negative correlation between shame aversion and social support, and a strong negative correlation between shame aversion and self-compassion. It is possible that the connection found between Intellect/Imagination and Shame Aversion and Shame Proneness in the current study is due to people being able to engage in more complex coping strategies such as self-compassion. Future research should include other potentially mediating variables such as self-compassion in models of attachment, personality, and social connectedness to determine whether amenable skills can affect these relations.

One last potential proximal antecedent of interest might be a sense of worthiness (Brown, 2010). Through her grounded theory work, Brown defined having a sense of worthiness as a critical determinant in whether a person experienced deep connection with others. Currently, no quantitative measures of this sense of worthiness exist. Self-esteem measures might seem like a good option; however, they tend to measure constructs closer to self-efficacy rather than worthiness for love and belonging. Attachment seems to have underlying messages about worthiness and may be closest to this construct. However, measures designed specifically to assess a sense of worthiness are still lacking. Thus, developing measures for the construct of worthiness may provide important insight into the relation between people's views of themselves and how they relate to and connect with others.

Conclusion

Understanding predictors of social connectedness has important clinical implications for cognitive behavioral therapies, attachment-based therapies, and family therapy, as well as treatment of depression, social anxiety, substance use disorders, relationships issues, self-injurious behavior, and a variety of behavioral health concerns (Kucukarslan, 2012; Browne et al., 2013). Results from the current study add to the existing literature that suggests that those with poor attachment may be at greater risk for poorer social connectedness – an important attribute for overall health and well-being. Personality also tends to be a strong predictor of social connectedness, particularly the trait of extroversion. The effect of shame on social outcomes remains less clear and warrants further research. Brown's (2006) grounded theory study on shame resilience theory still requires further validation, particularly in quantitative studies.

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APPENDIX A: MEASURES

Demographic Questions

- What is your date of birth? (mm/dd/yyyy)
- Year in school:
 - First year
 - Second year
 - Third year
 - Fourth year
 - Fifth year +
 - Graduate student
 - Other _____
- Major
 - Agricultural Business
 - Agricultural Economics
 - Agricultural Education
 - Animal Science
 - Anthropology
 - Apparel and Merchandising
 - Applied Computing Technology
 - Art BA
 - Art BFA
 - Biochemistry
 - Biology
 - Biomedical Engineering
 - Biomedical Sciences
 - Business Administration
 - Chemistry
 - Chemical and Biological Engineering
 - Civil Engineering
 - Communication Studies
 - Computer Engineering
 - Computer Science
 - Construction Management
 - Dance
 - Early Childhood Education
 - Economics
 - Ecosystem Science and Sustainability

- Electrical Engineering
- Engineering Science
- English
- Environmental Engineering
- Environmental Health
- Environmental Horticulture
- Equine Science
- Ethnic Studies
- Family and Consumer Sciences
- Fermentation Science and Technology
- Fish, Wildlife and Conservation Biology
- Forestry
- Geology
- Health and Exercise Science
- History
- Horticulture
- Hospitality Management
- Human Development and Family Studies
- Interior Design
- International Studies
- Journalism and Media Communication
- Landscape Architecture
- Languages, Literatures, and Culture
- Liberal Arts
- Mathematics
- Mechanical Engineering
- Microbiology
- Music BA
- Music BM
- Natural Resource Recreation and Tourism
- Natural Resources Management
- Natural Sciences
- Neuroscience
- Nutrition and Food Science
- Philosophy
- Physics
- Political Science
- Psychology
- Rangeland Ecology
- Social Work

- Sociology
- Soil and Crop Sciences
- Statistics
- Theatre
- Watershed Science
- Zoology
- With what gender do you currently identify?
 - Female
 - Male
 - Gender Queer
 - Other_____
- Sexual Orientation
 - Gay
 - Lesbian
 - Asexual
 - Straight/Heterosexual
 - Other_____
- What is your race? {Choose all that apply}
 - American Indian or Alaska Native
 - Asian
 - Black or African American
 - Native Hawaiian or Other Pacific Islander
 - White
 - Do not wish to respond
- What is your ethnicity? {Choose one}
 - Hispanic or Latino
 - Not Hispanic or Latino
 - Do not wish to respond
- What is your country of origin?
 - United States
 - China
 - India
 - Saudi Arabia
 - Oman
 - Vietnam
 - South Korea
 - Other: _____
- What is your religious orientation? {Choose one}
 - Catholic
 - LDS (Mormon)

- Evangelical Christian
- Protestant
- Other Christian: _____
- Jewish
- Muslim
- Buddhist
- Hindu
- Non-religious
- Atheist
- Agnostic
- Choose not to respond
- Other _____
- Religious Devoutness/Religiosity
 - Not Religious
 - A Little Religious
 - Moderately Religious
 - Very Religious
- Biological Mother's Education Level (Highest Level Completed)
 - Elementary
 - High School
 - Some College
 - Technical school
 - College Degree
 - Graduate/Professional School
 - Unknown
- Biological Father's Education Level (Highest Level Completed)
 - Elementary
 - High School
 - Some College
 - Technical school
 - College Degree
 - Graduate/Professional School
 - Unknown
- How would you characterize your political views? (Mark one)
 - Far left
 - Liberal
 - Middle-of-the-road
 - Conservative
 - Far right

- Do you have any of the following disabilities or medical conditions? (Mark Yes or No for each item)
 - Learning disability (dyslexia, etc.)
 - Autism spectrum/Asperger's syndrome
 - Attention deficit hyperactivity disorder (ADHD)
 - Physical disability (speech, sight, mobility, hearing, etc.)
 - Chronic illness (cancer, diabetes, autoimmune disorders, etc.)
 - Psychological disorder (depression, etc.)
 - Other
- How long have you lived in your current town/city or surrounding area?
 - Less than 6 months
 - 6 months – a year
 - If more than a year, specify number of years_____
- Since beginning college at CSU, how do you feel in general compared to how you felt before beginning college at CSU:
 - A lot better
 - Slightly better
 - Neither better nor worse
 - Slightly worse
 - Slightly better
- Relationship Status (Are You Currently):
 - Single – But have Previous Relationship History
 - Single – But have No Previous Relationship History
 - In A Non-Cohabiting Dating Relationship
 - In A Cohabiting Dating Relationship
 - Married
 - Separated
 - Divorced
 - Widowed
 - Other_____

Social Connectedness Scale-Revised, 15 Item Version (SC-15)

Directions: Following are a number of statements that reflect various ways in which we view ourselves. Rate the degree to which you agree or disagree with each statement using the following scale (1=Strongly Disagree and 6=Strongly Agree). There is no right or wrong answer. Do not spend too much time with any one statement and do not leave any unanswered.

1. Even among my friends, there is no sense of brother/sisterhood
2. I feel close to people
3. I feel disconnected from the world around me
4. Even around people I know, I don't feel that I really belong
5. I feel like an outsider
6. I feel understood by the people I know
7. I feel distant from people
8. I am able to relate to my peers
9. I have little sense of togetherness with my peers
10. I find myself actively involved in people's lives
11. I catch myself losing a sense of connectedness with society
12. I see myself as a loner
13. I don't feel related to most people
14. My friends feel like family
15. I don't feel I participate with anyone or any group

The Relationship Structures (ECR-RS) questionnaire

This questionnaire is designed to assess the way in which you mentally represent important people in your life. You'll be asked to answer questions about your parents, your romantic partners, and your friends. Please indicate the extent to which you agree or disagree with each statement by circling a number for each item.

Please read each of the following statements and rate the extent to which you believe each statement best describes your feelings about close relationships *in general*

1. It helps to turn to others in times of need.
strongly disagree 1 2 3 4 5 6 7 strongly agree
2. I usually discuss my problems and concerns with others.
strongly disagree 1 2 3 4 5 6 7 strongly agree
3. I talk things over with others.
strongly disagree 1 2 3 4 5 6 7 strongly agree
4. I find it easy to depend on others.
strongly disagree 1 2 3 4 5 6 7 strongly agree
5. I don't feel comfortable opening up to others.
strongly disagree 1 2 3 4 5 6 7 strongly agree
6. I prefer not to show others how I feel deep down.
strongly disagree 1 2 3 4 5 6 7 strongly agree
7. I often worry that other people don't really care for me.
strongly disagree 1 2 3 4 5 6 7 strongly agree
8. I'm afraid that other people may abandon me.
strongly disagree 1 2 3 4 5 6 7 strongly agree
9. I worry that others won't care about me as much as I care about them.
strongly disagree 1 2 3 4 5 6 7 strongly agree

Please answer the following questions about your mother or a mother-like figure

1. It helps to turn to this person in times of need.

strongly disagree 1 2 3 4 5 6 7 strongly agree

2. I usually discuss my problems and concerns with this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

3. I talk things over with this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

4. I find it easy to depend on this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

5. I don't feel comfortable opening up to this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

6. I prefer not to show this person how I feel deep down.

strongly disagree 1 2 3 4 5 6 7 strongly agree

7. I often worry that this person doesn't really care for me.

strongly disagree 1 2 3 4 5 6 7 strongly agree

8. I'm afraid that this person may abandon me.

strongly disagree 1 2 3 4 5 6 7 strongly agree

9. I worry that this person won't care about me as much as I care about him or her.

strongly disagree 1 2 3 4 5 6 7 strongly agree

Please answer the following questions about your father or a father-like figure

1. It helps to turn to this person in times of need.

strongly disagree 1 2 3 4 5 6 7 strongly agree

2. I usually discuss my problems and concerns with this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

3. I talk things over with this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

4. I find it easy to depend on this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

5. I don't feel comfortable opening up to this person.

strongly disagree 1 2 3 4 5 6 7 strongly agree

6. I prefer not to show this person how I feel deep down.

strongly disagree 1 2 3 4 5 6 7 strongly agree

7. I often worry that this person doesn't really care for me.
strongly disagree 1 2 3 4 5 6 7 strongly agree

8. I'm afraid that this person may abandon me.
strongly disagree 1 2 3 4 5 6 7 strongly agree

9. I worry that this person won't care about me as much as I care about him or her.
strongly disagree 1 2 3 4 5 6 7 strongly agree

Please answer the following questions about your dating or marital partner.

Note: If you are not currently in a dating or marital relationship with someone, answer these questions with respect to a former partner or a relationship that you would like to have with someone.

1. It helps to turn to this person in times of need.
strongly disagree 1 2 3 4 5 6 7 strongly agree

2. I usually discuss my problems and concerns with this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

3. I talk things over with this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

4. I find it easy to depend on this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

5. I don't feel comfortable opening up to this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

6. I prefer not to show this person how I feel deep down.
strongly disagree 1 2 3 4 5 6 7 strongly agree

7. I often worry that this person doesn't really care for me.
strongly disagree 1 2 3 4 5 6 7 strongly agree

8. I'm afraid that this person may abandon me.
strongly disagree 1 2 3 4 5 6 7 strongly agree

9. I worry that this person won't care about me as much as I care about him or her.
strongly disagree 1 2 3 4 5 6 7 strongly agree

Please answer the following questions about your best friend

1. It helps to turn to this person in times of need.
strongly disagree 1 2 3 4 5 6 7 strongly agree

2. I usually discuss my problems and concerns with this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

3. I talk things over with this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

4. I find it easy to depend on this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

5. I don't feel comfortable opening up to this person.
strongly disagree 1 2 3 4 5 6 7 strongly agree

6. I prefer not to show this person how I feel deep down.
strongly disagree 1 2 3 4 5 6 7 strongly agree

7. I often worry that this person doesn't really care for me.
strongly disagree 1 2 3 4 5 6 7 strongly agree

8. I'm afraid that this person may abandon me.
strongly disagree 1 2 3 4 5 6 7 strongly agree

9. I worry that this person won't care about me as much as I care about him or her.
strongly disagree 1 2 3 4 5 6 7 strongly agree

The Shame Inventory (SI; Rizvi, 2009)

Part I

Directions: Shame is a negative and painful feeling in which the entire self is viewed as bad and/or worthless. It may be accompanied by urges to withdraw or conceal some behavior or aspect of yourself. Shame is different from just generally being upset or distressed, because it relates to how you feel about yourself. Some people experience shame on a regular basis; others hardly experience shame at all.

The questions below are about overall shame feelings that you may experience.

1. Circle the number which indicates *how often* you typically experience shame.

Never	Seldom	Occasionally	Often	Always
0	1	2	3	4

2. Circle the number which indicates the intensity or severity of shame that you typically experience.

None	Slight	Moderate	Considerable	Extreme
0	1	2	3	4

3. To what extent does shame negatively affect the quality of your life?

No Effect	Slight Effect	Moderate Effect	Considerable Effect	Extreme Effect
0	1	2	3	4

Part II

This is a list of situations and behaviors that may be related to the experience of shame for you. Please write a number (between 0-4) beside each statement which indicates the intensity of your shame about that event. If the statement does not apply to you, write an "X" beside the statement.

Didn't Happen/Does Not Apply to Me X	No Shame 0	Slight Shame 1	Moderate Shame 2	Considerable Shame 3	Extreme Shame 4
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A time when I...

- 1) Was laughed at in front of others
- 2) Was criticized in front of others
- 3) Cried in front of others
- 4) Made a scene in public
- 5) Lost something important
- 6) Had sex with someone when I didn't want to
- 7) Forced/coerced someone to have sex with me
- 8) Had an affair/was unfaithful/was sexually promiscuous
- 9) Was sexually harassed
- 10) Made a suicide attempt/threat or harmed myself on purpose
- 11) Didn't know the answer to a question I felt I should know
- 12) Was caught saying negative things about others
- 13) Overate or ate unhealthy/high fat food
- 14) Missed an important appointment
- 15) Was praised for something I didn't do
- 16) Didn't live up to a really important standard of mine
- 17) Didn't live up to others' standards
- 18) Told a lie
- 19) Broke a promise
- 20) Committed a crime
- 21) Knew someone talked badly about me behind my back
- 22) Received a compliment
- 23) Found out someone I cared for didn't feel the same way
- 24) Was turned down for a date/request to spend time with someone
- 25) Could not afford something
- 26) Was slow to learn something
- 27) Hurt someone emotionally

- 28) Hurt someone physically
- 29) Hurt an animal
- 30) Was physically or sexually abused
- 31) Saw a picture of myself/saw myself in mirror
- 32) Was afraid to do something
- 33) Failed at work
- 34) Lost a friendship
- 35) Had fantasies of violence or death
- 36) Had sexual/kinky fantasies
- 37) Betrayed a friend
- 38) Was betrayed by someone I care about
- 39) Hated a family member
- 40) Had an abortion
- 41) Had a private aspect of myself exposed
- 42) Not being in an intimate relationship
- 43) Not having children
- 44) Being gay/lesbian/bisexual
- 45) Feeling unattractive/ugly
- 46) Having a mental disorder
- 47) Being a certain race/ethnicity
- 48) Not having a good career
- 49) Being adopted
- 50) Other, describe:

The Mini IPIP

Directions: You will see 20 statements, and you will be asked to evaluate the extent to which you think the statements describe you. Please answer honestly with regard to how you see yourself in the present moment, not how you would like to be in the future. There are no incorrect answers nor any descriptions that are inherently more desirable than another.

|1=strongly agree |2=somewhat agree |3=neither agree nor disagree

|4=somewhat disagree |5=strongly disagree

- 1 Am the life of the party.
- 2 Sympathize with others' feelings
- 3 Get chores done right away.
- 4 Have frequent mood swings.
- 5 Have a vivid imagination.
- 6 Don't talk a lot.
- 7 Am not interested in other people's problems.
- 8 Often forget to put things back in their proper place.
- 9 Am relaxed most of the time.
- 10 Am not interested in abstract ideas.
- 11 Talk to a lot of different people at parties.
- 12 Feel others' emotions.
- 13 Like order.
- 14 Get upset easily.
- 15 Have difficulty understanding abstract ideas.
- 16 Keep in the background.
- 17 Am not really interested in others.
- 18 Make a mess of things.
- 19 Seldom feel blue.
- 20 Do not have a good imagination.

APPENDIX B: RESEARCH CONSENT AND DEBRIEFING FORMS

Consent to Participate in a Research Study

Colorado State University

TITLE OF STUDY: Personality and Social Connection Study

Principal Investigator: Bradley T. Conner, Ph.D., Department of Psychology, (970) 491-6197, brad.conner@colostate.edu.

WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in this research because you are currently enrolled in a course in the Psychology Department at Colorado State University that is participating in the department research pool. As part of the undergraduate population participating in this pool, we are interested in your preferences and experiences as they relate to personality and health risk behaviors.

WHO IS DOING THE STUDY?

The Conner Lab is conducting this research, which consists of Bradley T. Conner, Ph.D. and Rachel E. Eby, M.S.

WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to gain a better understanding of the relations among personality, emotion, and social connection.

WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?

This study will take approximately 1 hour to complete and will be completed online.

WHAT WILL I BE ASKED TO DO?

You will be asked to complete a number of surveys that inquire about your personality, emotions, and social experiences.

ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?

No.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?

The possible risks and discomforts from participating in this study are those similar to normal computer viewing and usage. You will be asked to complete a number of surveys as part of this study, and thus there is a risk of becoming fatigued from reading and answering all of the questions. In addition, you will be asked to think about and report potentially sensitive information regarding your previous behaviors; this may cause you some psychological discomfort. You are free to leave any question blank that you do not feel comfortable answering. It is not possible to identify all potential risks in research procedures, but the researchers have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?

There is no known benefit for participating in this study, but you may learn more about yourself by observing your answers to the questionnaires. You may also learn about the research process, which you may find interesting. Knowing that you are participating in research that will benefit the identification and understanding of social connection, which will benefit the overall welfare of society, may also provide you with some beneficial feelings.

DO I HAVE TO TAKE PART IN THE STUDY?

Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

WHO WILL SEE THE INFORMATION THAT I GIVE?

This study is anonymous, we are not obtaining your name or other identifiable data from you, so nobody (not even the research team) will be able to identify you or your data. We may be asked to share the research files for audit purposes with the CSU Institutional Review Board ethics committee, if necessary. Your identity/record of receiving compensation (NOT your data) may be made available to CSU officials for financial audits.

WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY?

You will receive 1 hour of research credit for taking part in this study.

WHAT IF I HAVE QUESTIONS?

Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Bradley T. Conner, Ph.D. at brad.conner@colostate.edu or 970-491-6197. If you have any questions about your rights as a volunteer in this research, contact the CSU IRB at: RICRO_IRB@mail.colostate.edu or 970-491-1553. We will provide this information to you on a webpage that you can save or print out when you finish participating in the study.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on September 2016.

Clicking Continue below acknowledges that you have read the information stated and willingly consent to participate in this research.

If you do **NOT** wish to continue please close your browser.

Debriefing Form



Bradley T. Conner, Ph.D.
Department of Psychology
214 Behavioral Services Building
brad.conner@colostate.edu
970-491-6197

Thank you for your participation today. By participating, you are helping to expand our scientific knowledge of personality, emotion, and social connection. Specifically, through this research we are working to develop a better understanding of the role of shame and aversion to shame and how it relates to social connection. By participating in this research you are helping us achieve these goals. To learn more about this area of psychology, you can refer to Module 39: Contemporary Perspectives on Personality in your Introductory Psychology Textbook, Exploring Psychology, Tenth Edition, In Modules. You can learn more about this type of research by referring to Module 39: Contemporary Perspectives on Personality in your Introductory Psychology Textbook, Exploring Psychology, Tenth Edition, In Modules.

It is very common for people to struggle with circumstances in their lives and to need someone to talk to about problems they may be having. On the back of this letter, you will find a list of referrals that we provide to everyone participating in the study. We encourage you to keep this list in the event that you, or anyone you know, would like additional support.

If at any time you should have any questions about the study, you may contact the Principle Investigator of this study, Brad Conner, Ph.D. at 970-491-6197 or at brad.conner@colostate.edu. If you have any questions about your rights as a volunteer in this research, contact the CSU IRB at: RICRO_IRB@mail.colostate.edu; 970-491-1553.

Sincerely,

Bradley T. Conner, Ph.D.

Referral Sources

24-Hour Services

Mental Health Connections 970-221-5551
SummitStone Health Partners

Colorado State University Mental Health Crisis Intervention, 970-491-7111
CSU Health Network

Colorado State University Campus Police 970-491-6425

National Hopeline Network Suicide Hotline 800-784-2433

National Drug Helpline 866-643-6144

Colorado State University Health Network Services

Drugs, Alcohol & You (DAY) Program 970-491-4693

Counseling Services 970-491-6053

Other Services

Online resources to find a therapist in your local area:

www.abct.org/members/Directory/Find_A_Therapist.cfm