Social Anxiety and Emotion Regulation Processes in Romantic Relationships

by

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A Thesis Presented in Partial Fulfillment
Of the Requirements for the Degree
Master of Science

Approved May 2019 by the
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ARIZONA STATE UNIVERSITY

August 2019

ABSTRACT

Intimate relationship functioning and mental well-being are inherently linked; thus, for those with mental illness, such as social anxiety, intimate relationship functioning may be impaired. Research on the intimate relationships of those with social anxiety has often focused on emotion regulation, as emotions play a crucial role in the development and maintenance of interpersonal relationships and are a clear area of deficit among those with social anxiety. The current thesis had three primary aims: 1a) to examine individual emotion expressivity and 1b) interpersonal emotion regulation processes among individuals with varying levels of social anxiety; 2) to examine individual and interpersonal emotion regulation within romantic relationships; and, 3) to examine how individual emotion expressivity and interpersonal emotion regulation influence relationship health and intimacy among those with varying levels of social anxiety. For Aim 1, differences in individual emotion expressivity and interpersonal emotion regulation were analyzed using regression analyses with social anxiety as a continuous predictor. Analyses were also conducted using a dichotomous grouping (i.e., non-socially anxious and socially anxious) and conducting a multivariate analysis of covariance (MANCOVA).

For Aim 2, the impact of individual and interpersonal emotion regulation processes on relationship health was examined using a series of regression analyses. Finally, Aim 3 was tested using structural equation modeling (SEM). Results suggest those with social anxiety show specific, but not general, deficits in individual emotion expressivity and interpersonal emotion regulation, and both individual and interpersonal emotion regulation had positive effects on relationship health. Regarding the primary

analyses, interpersonal emotion regulation fully mediated the association between individual emotion expressivity and relationship health. Further, although the strength of these paths varied between groups, the valence and general pattern of these findings were similar for both those with social anxiety and those without. The study provided novel insights into the role of interpersonal emotion regulation in relationship health, and extended previous findings on emotion regulation and relationship health among those with social anxiety.

ACKNOWLEDGMENTS

There are several individuals whom I would like to acknowledge for their support throughout my time at ASU and beyond…

I would like to express gratitude to my mom, Patti, for her ongoing support and words of encouragement, and for being my biggest cheerleader throughout my academic career. I would also like to thank my brother, David, and my best friend, Marissa, for always helping me to de-stress, being there when I needed to talk, and encouraging me to keep pursuing my goals.

I would like to express utmost gratitude to my advisor, Dr. Kristin Mickelson, for her guidance, constructive feedback, and words of wisdom. Her mentorship has helped me flourish in this program, and I know everything she has taught me along the way will stay with me throughout my academic career. I would also like to thank my thesis committee members, Drs. Mary Burleson and Nicole Roberts, and Dr. Deborah Hall for their helpful feedback, mentorship, and collaboration. Having such a strong group of women to turn to for advice and guidance while in the program has been invaluable to my success.

Last but certainly not least, I'd like to thank my lab mates for their friendship, willingness to offer advice and feedback, and for always being there for me when I needed an extra boost or someone to talk to.

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Introduction

"*Anxiety is love's greatest killer. It makes others feel as you might when a drowning man holds on to you. You want to save him, but you know he will strangle you with his panic.*"
- Anais Nin

Social anxiety disorder (SAD), also referred to as social phobia, is a type of anxiety disorder characterized by a general fear of being evaluated or scrutinized by others and, more broadly, a fear of interpersonal situations (Stein & Stein, 2008). Those with social anxiety may also fear rejection or offending others; together, these fears often lead to distress, avoidance behaviors, and suppression of emotions, feelings, and thoughts by those with SAD (Heimberg et al., 2014; Stein & Stein, 2008). As discussed in Stein and Stein's (2008) review, SAD is the most common anxiety disorder in the U.S., with about 7% of the population suffering from the disorder in the past year and about 12% during their lifetime. The onset of the disorder typically occurs early in life, with half of individuals developing the disorder by age 11 and the majority (80%) by age 20. Despite the early onset of the disorder, they also found that those who seek treatment typically only do so after 15 to 20 years of symptoms, and only about half of those suffering from SAD ever seek treatment. Furthermore, Stein and Stein found that among those who do seek treatment, between 30 and 40% find treatment does not work.

Successful treatment of SAD is not the only problem; those with SAD have an increased risk for other mental and substance abuse disorders (Stein & Stein, 2008). Additionally, social anxiety has been associated with diminished interpersonal relationship functioning (e.g., Davila & Beck, 2002); and, research has consistently shown among those with the disorder a decreased likelihood of being in dating or sexual relationships or being married (e.g., Sparrevohn & Rapee, 2009; Alden & Taylor, 2004;

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Lampe, Slade, Issakidis, & Andrews, 2003). Despite these findings, many individuals with social anxiety are in successful romantic relationships. Although research on the intimate relationships of those with social anxiety is plentiful, it remains unclear what factors might predict relationship health among those with social anxiety (SA). Research on the romantic relationships of those with SA has often focused on emotion regulation, as emotions play a crucial role in the development and maintenance of interpersonal relationships (Keltner & Haidt, 1999) and are a clear area of deficit among those with SA (e.g., Mennin et al., 2009; Turk et al., 2005). The current review will provide an overview of the literature on emotion regulation and romantic relationship functioning among those with SA. Specifically, the role of emotion regulation, at the individual and dyadic levels, will be explored as a key factor in the romantic relationship functioning of those with social anxiety. At the dyadic level, research on interpersonal emotion regulation, emotion coregulation, and interdependence in relationships will be discussed. The review will conclude with a brief discussion and an overview of the current thesis study.

Emotion Regulation in SAD

  A key characteristic of social anxiety disorder is a disruption or difficulty in *emotion regulation*. Emotion regulation can be defined as the process of influencing the duration, occurrence, intensity, and expression of emotions (Butler & Randall, 2013; Gross, 1999). In a study by Turk et al. (2005), differences in areas of emotion dysregulation (e.g., heightened emotional intensity) were evaluated both in individuals with generalized anxiety disorder (GAD) and social anxiety disorder (SAD). Although the worry and fears of those with SAD are limited to situations associated with social interaction, both SAD and GAD are marked by excess worry and feelings of anxiety (in

addition to disruptions in emotion regulation) (see Stein & Sareen, 2015). Based on these similarities, one might assume similar emotion dysregulation would occur between these groups; yet, as observed by Turk and colleagues (2005), the opposite was true. Participants with SAD reported having more difficulty describing their emotions and paid less attention to their emotions, in general, compared to participants with GAD and those in a control group. Participants with SAD also scored significantly higher than controls on fear of anxiety, anger, and even positive emotions. The fear of such emotions among those with SAD may arise from the belief that experiencing and expressing emotions may lead to negative evaluation or lack of validation by others (e.g., emotions will not be reciprocated).

A more recent study found that poor emotional understanding was the greatest predictor of SAD diagnosis, while non-acceptance of emotions predicted comorbidity of SAD and GAD (Mennin, McLaughlin, & Flanagan, 2009). In line with the findings of Turk et al. (2005), social anxiety was associated with difficulty in accessing emotion regulation strategies. In contrast to Turk et al.'s (2005) findings, social anxiety was not associated with diminished awareness or acceptance of emotional experience. Other studies have also failed to find support for a lack of emotional awareness and clarity among those with SAD (e.g., Rusch, Westermann, & Lincoln, 2012). These conflicting results warrant further investigation, as the specific areas of emotion dysregulation among those with social anxiety remain unclear.

Positive versus Negative Emotion in SAD

One potential way to understand these conflicting results is to examine the valence of emotions. Researchers have often focused on specific emotions and areas of

deficit among those with social anxiety. A study by Kashdan and colleagues (2013) examined positive and negative emotions among those with SAD over a two-week period, during which participants with and without SAD reported their daily face-to-face social interactions. During social interactions, individuals with SAD reported more negative emotion and less positive emotion and feelings of belonging than those in the control group. Interestingly, weakened positive emotions among those with SAD remained significant when controlling for constructs like negative emotions and less feelings of belonging as well as comorbid anxiety conditions and depressive disorders. In other words, decreased positive emotions were associated specifically with SAD, rather than arising from other comorbid disorders, like depression or general anxiety. As discussed by Kashdan et al. (2013), these findings further support prior research associating social anxiety with emotion regulation difficulties and diminished positive experiences.

Emotional Expression and Suppression in Social Anxiety

In addition to differences in experienced emotion, those with social anxiety often show different patterns of emotional expression than those without SAD. Early research among those with social anxiety observed a pattern of avoidance of emotional expression (Davila & Beck, 2002). As discussed in a review of social anxiety, researchers have often found that, compared to less anxious people, those high in social anxiety tend to hold more negative beliefs towards, and experience greater ambivalence about, expressing their emotions, due to the belief that it may lead to negative evaluation by others (Heimberg, et al., 2014). Other studies have corroborated these findings, such that individuals with social anxiety were found to suppress their emotions more often and

express greater fear about expressing emotion than those without social anxiety (Spokas, Luterek, Heimberg, 2009). Furthermore, those high in social anxiety reported believing that emotional expression should be kept in control and expressing emotions was a sign of weakness or could result in social rejection. Clearly, these beliefs likely exacerbate the negative social experiences of those with social anxiety, as suppressing emotions has been linked to negative social functioning (Butler et al., 2003). Recent studies have observed a similar reliance on expressive suppression among those high in social anxiety (Kivity & Hupper, 2018; O'Toole et al., 2014). In Kivity and Hupper's (2018) study, those with social anxiety used fewer adaptive emotion regulation strategies (e.g., reappraisal) than controls and tended to rely heavily on expressive suppression. Clearly, it appears individuals with social anxiety often suppress their emotions as openly expressing emotions can lead to negative consequences. In spite of the protective value of suppressing one's emotions, doing so might also exacerbate the difficulties faced by those with social anxiety during social interactions.

Consequences of Emotion Suppression

Emotion suppression, in general, can be problematic during social interactions. Specifically, during a conversation between unacquainted pairs of women, emotion suppression by one conversation partner was associated with disrupted communication and placed physiological strain (e.g., increased blood pressure) on the other conversation partner (Butler et al., 2003). Emotion suppression was also associated with decreased rapport and reduced the conversation partner's motivation to become more acquainted with the suppressor. However, it should be noted that the study only examined social functioning within a single conversation and between strangers. As discussed in a recent

meta-analysis on emotional expression and suppression and interpersonal outcomes, increased emotional suppression was often associated with decreased social well-being, social support, and relationship quality across a variety of relationships (Chervonsky & Hunt, 2017). Based on these findings, we might assume the increased reliance on emotional suppression among those with social anxiety might exacerbate difficulties in their interpersonal relationships. Therefore, it is important to consider how emotion suppression might impact the close relationships of those with social anxiety.

Suppressing emotions appears to also have a lasting impact on the overall emotional well-being of those with social anxiety. Specifically, among those low in social anxiety, less emotional suppression and greater emotional expression, both of positive and negative emotion, was associated with greater increases in positive emotion over time (Kashdan & Breen, 2008). In contrast, among those high in social anxiety, neither negative nor positive emotion expression or suppression predicted significant increases in positive emotion. In other words, those with high levels of social anxiety tended to experience diminished positive emotions over time, whereas those low in social anxiety benefitted from expressing versus suppressing emotions as indicated by increased positive emotions over time. But, as was discussed by the authors, further research is necessary to better understand the function of positive emotions among those with social anxiety. Of particular interest to the current review, the role of emotion expression and suppression within the romantic relationships of those with social anxiety warrants further exploration.

Emotion Expression and Self-Disclosure in Relationships

Of key interest for the current thesis, researchers have examined emotion expression among those with SAD in the context of romantic relationships. Recent research has observed differences in disclosure depending on whom one was speaking to, such that those with social anxiety most often disclosed to their intimate partners (Gee, Antony, & Koerner, 2013). The most often reported reason for disclosure was the hope that the person they were speaking to would provide reassurance or assistance. Nonetheless, they were still significantly less likely to disclose to their intimate partner than were those low in social anxiety. Similarly, other researchers have observed decreased emotional expression and self-disclosure of thoughts, beliefs, and emotions among those with social anxiety in romantic relationships (Sparrevohn & Rapee, 2009). Further research indicated that, in romantic relationships, social anxiety was associated with a reduction in disclosure of information about oneself and of negative emotions (Cuming & Rapee, 2010). However, when controlling for depression, women with social anxiety were just as likely as women without social anxiety to disclose positive emotions. This disclosure of positive emotions by women was only observed in the context of romantic relationships. In close friendships, women with social anxiety were equally likely to refrain from disclosing both positive and negative emotions; but, the lack of disclosure did not appear to impact the quality of the friendship in this study. As discussed by Cuming and Rapee (2010), these findings imply that women with social anxiety might feel more comfortable disclosing their positive emotions to their romantic partners as they are more confident their partner will reciprocate or validate their emotions. Additionally, they found that less disclosure in the romantic relationships of

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women with social anxiety was associated with less social support and, in turn, increased conflict. Thus, it appears that emotion expression and disclosure play key roles in the romantic relationships of women with SA, even more so than in friendships and familial relationships. Furthermore, the amount of self-disclosure and the benefits obtained from self-disclosing seem to differ by gender, as there did not appear to be an association between social anxiety and self-disclosure for men in their study.

Emotion expression also appears to play a role in feelings of closeness and connectedness within the relationships of those with social anxiety. In one study, researchers observed that, among those low in social anxiety, openly expressing negative emotions fostered feelings of closeness within the relationship (Kashdan, Volkmann, Breen, & Han, 2007). In contrast, among those high in social anxiety, feelings of closeness were intensified only when negative emotions were withheld from one's partner. Interestingly, no effects were found for positive emotion expression. These findings run counter to recent research which observed an opposite pattern. In a study by Taylor, Pearlstein, and Stein (2017), unacquainted individuals with social anxiety engaged in a relationship formation task during which positive emotion, connectedness, and anxiety were measured. In their study, positive emotions were more predictive of increased connectedness during the interaction than were reductions in feelings of anxiety. Although many researchers have examined negative versus positive emotion expression in the relationships of those with social anxiety, it remains unclear how exactly the expression of these emotions impacts romantic relationship functioning.

Intimacy and Social Anxiety

One possible area of deficit resulting from decreased emotional expression is intimacy. Intimacy is often considered synonymous with closeness (see Aron et al., 1991), and can be measured in a variety of areas, such as emotional intimacy and sexual intimacy. In Sparrevohn and Rapee's (2009) study, intimacy was examined in addition to emotional expression and self-disclosure. Overall, those with social anxiety reported less intimacy compared to controls. More specifically, those with social anxiety reported significantly less social and intellectual intimacy and marginally less emotional, recreational, and sexual intimacy. However, these findings seemingly conflict with their observation that those with social anxiety most often self-disclose to their intimate partners, which might in turn lead to increased intimacy. Therefore, additional research is necessary to understand the interplay between social anxiety, emotion, and intimacy.

Other research has further examined intimacy within the romantic relationships of those with social anxiety. One study found that increased social anxiety was associated with increased fear of intimacy, lower satisfaction with open sexual communication, and lower sexual satisfaction overall (Montesi, Conner, Gordon, Fauber, Kim, & Heimberg, 2013). As discussed by the authors, those higher in social anxiety appeared to fear intimacy with their partners and, in turn, experienced greater dissatisfaction with their ability to communicate openly with their partners about sex. Another study observed similar findings, such that those with social anxiety perceived intimacy as riskier and experienced less emotional intimacy in their relationships compared to those without social anxiety (Porter & Chambless, 2014). Gender differences were also observed, such that for women only, social anxiety was associated with decreased relationship

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satisfaction. In line with prior research, women also reported decreased self-disclosure. The partners of women with social anxiety also reported diminished intimacy; specifically, they tended to describe the relationship as less emotionally intimate.

To conclude, it is clear that social anxiety affects the emotional expression, self-disclosure and intimacy of those with social anxiety. Less clear is whether inhibited emotional expression and self-disclosure within the romantic relationships of those with social anxiety leads to decreased intimacy and feelings of closeness. Therefore, one aim of the current thesis is to examine the emotion expression patterns of those with social anxiety in romantic relationships (*Aim 1*). Within this realm, emotional expressivity is examined as a possible mechanism linking social anxiety to diminished relationship functioning.

Interpersonal Emotion Regulation and Interdependence in Relationships

Research on emotion has focused primarily on *intra*personal emotion regulation. However, emotions are rarely experienced alone, and some have suggested a greater emphasis on *inter*personal models of emotion regulation (e.g., Zaki & Williams, 2013). Emotion exchange and interpersonal emotion regulation within relationships have been areas of focus in recent research, with specific attention on *emotional coregulation*. Emotional coregulation refers to the process of emotion regulation within a dyadic relationship, marked by patterns of affective arousal and dampening, which allow for the maintenance of a stable emotional state (Butler & Randall, 2013). Within a romantic relationship, each partner's emotional experience has the opportunity to influence the other's, and in turn, the opportunity to regulate each other's emotional experiences also arises. As discussed by Butler and Randall (2013), a better understanding of how and

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when couples coregulate can provide us with important information about the impact of interpersonal emotion regulation on health and well-being.

In a review of emotional dynamics within intimate relationships, Schoebi and Randall (2015) describe prior studies which have observed that a partner's affective changes might signal his/her need for support, thereby eliciting such behaviors from the non-stressed partner. A common theme was observed in these prior studies: based on prior relationship experiences across the life-span, individuals develop cognitive schemas that influence their emotional and behavioral reactions to events in current relationships. When these experiences are positive and coordinated, individuals tend to develop schemas that act as relationship resources (e.g., intimacy, perceived social support, relationship satisfaction); these, in turn, protect against negative emotional responses and encourage positive emotion exchange.

In contrast, when these experiences are negative, individuals tend to develop vulnerabilities (e.g., relationship distress), which can disrupt the exchange of positive emotions and intensify negative emotional responding. Based on these findings, it appears emotional dynamics play an important role in romantic relationships. Yet, other findings show the opposite. In a study by Sels, Ceulemans, Bulteel, and Kuppens (2016), emotional interdependence (i.e., linkage of emotions between partners over time) was examined within romantic relationships. Interestingly, most couples in their study did not appear to show emotional interdependence. Among those who did show strong emotional interdependence, patterns of interdependence greatly varied; the primary pattern observed was unidirectional interdependence (i.e., one partner influenced the other across time). Unexpectedly, decreased empathic concern (e.g., feelings of sympathy and concern for

others) was associated with more emotional interdependence primarily for positive but not negative emotions. One limitation was that empathic concern was only measured in general, rather than by measuring empathic concern specifically for one's partner. Because of the divergent findings on emotional coregulation and interdependence, further research is necessary.

Interpersonal Emotion Regulation and Mental Health

Researchers have also considered the role of interpersonal emotion regulation among those with mental illness. Hofmann (2014) suggested an interpersonal model of emotion regulation to better understand the social factors influencing the regulation and maintenance of mood disorders like anxiety and depression. Specifically, Hofmann discussed how interpersonal emotion regulation strategies can be both adaptive and maladaptive depending on the context in which they are used. For instance, these strategies can serve as a buffer from emotional distress; on the other hand, they can lead to an over-reliance on the other individual by the mentally ill individual. Since the proposal of this model, other researchers have further supported the use of an interpersonal model of emotional regulation for understanding mental illness. In Horn and Maercker's (2016) study, increased co-reappraisal (i.e., attempts to cognitively reframe a stressful situation with one's partner) was associated with decreased depressive symptoms. However, this finding was only observed among women and not men. Finally, a recent study by Levy-Gigi and Shamay-Tsoory (2017) found that using interpersonal versus intrapersonal emotion regulation was advantageous in reducing distress. Although these studies support the importance of examining interpersonal emotion regulation among those with mental illness, no studies to date have examined interpersonal emotion

regulation patterns in the romantic relationships of those with social anxiety. Because those with social anxiety often face difficulties in their interpersonal relationships, they may develop more negative cognitive schemas which could, in turn, prevent adaptive interpersonal emotion regulation in current relationships. Alternatively, successful interpersonal emotion regulation in one's romantic relationship might buffer some of the negative effects of social anxiety on each partner and on the relationship. The current thesis explores these questions by examining aspects of interpersonal emotion regulation within the romantic relationships of those with social anxiety (*Aim 1b*).

Emotion Interpretation and Empathy

An important aspect of interpersonal emotion regulation is the ability to accurately interpret and respond to the emotions of others. Although those with social anxiety often have difficulties regulating their own emotions, some research suggests they may not be as deficient in interpreting the emotions of others. A study by Schofield, Coles, and Gibb (2007) found that although those with social anxiety had difficulties distinguishing emotions from ambiguous happy facial expressions, this was not true for identifying negative emotional expressions. In another study, those with social anxiety most often misinterpreted disgust as contempt, possibly due to the fear of negative evaluations (Heuer et al., 2010). Yet, they did not appear to experience deficiencies in interpreting other emotions, such as happiness or anger. Moreover, deficiencies among those with social anxiety only arose during a time-restricted viewing task, not during a free (i.e., no time limit) viewing task. In other words, deficiencies in emotional understanding among those with social anxiety only seemed to be impacted when there was a time pressure rather than prolonged exposures. Other research suggests individuals

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with social anxiety experience more generalized, rather than specific, difficulties in interpreting emotional expressions. In Button et al.'s (2013) study, socially anxious individuals primarily showed interpretation deficiencies for ambiguous facial expressions. Specifically, they tended to incorrectly attribute emotions to low intensity facial expressions. Further, socially anxious individuals generally attributed greater social costs to negative emotions compared to controls.

Along with emotion interpretation, empathy (i.e., ability to share and understand the emotions of others) has been examined among those with social anxiety. In Morrison and colleagues (2016) study, differences in affective empathy (i.e., sharing other's emotions) and cognitive empathy (i.e., perceiving and recognizing other's emotions) were examined. In line with prior findings, individuals with social anxiety experienced greater negative affect, decreased positive affect, and a lack of clarity of emotions compared to controls. Despite these findings, those with social anxiety did not display difficulties perceiving either the positive or negative emotions of targets. Regarding affective empathy, individuals with social anxiety were found to experience difficulties in sharing the positive, but not negative, emotions of targets. In other words, individuals with social anxiety appeared to have intact cognitive empathy, but did display deficiencies in affective empathy, such that only negative emotions were vicariously shared. These findings align with prior research indicating suppression of positive emotions specifically among those with social anxiety (e.g., Turk, Heimberg, & Luterek, 2005). Other studies have also found that those with social anxiety have intact empathy; specifically, those with social anxiety showed increased empathic accuracy for the social pain (e.g., exclusion) of others when under social threat. Finally, a recent study by Bui et

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al. (2017) observed no differences in emotion detection ability between controls and those with social anxiety. The lack of consistent findings regarding the ability of those with social anxiety to interpret the emotions of others calls for further attention; being able to accurately interpret and respond to the emotions of others may encourage increased coregulation and, in turn, lead to better relationship outcomes.

Emotional dynamics and interpersonal emotion regulation appear to play an important role in intimate relationships. Even so, researchers have only recently begun to delve deeper into this topic, and some have argued against the notion of interpersonal emotion regulation and interdependence. Moreover, no research to date has examined the concept of emotional dynamics in the intimate relationships of those with anxiety disorders, such as social anxiety. Therefore, the current thesis examines how emotion regulation, both at the individual and dyadic levels, influences relationship health and functioning, in general *(Aim 2),* and among socially anxious individuals (*Aim 3*).

Romantic Relationship Functioning and Social Anxiety

Intimate relationships contribute to our overall well-being in a variety of ways, for better or for worse. Early research suggests romantic relationships can provide a sense of companionship, intimacy, and exclusivity, increase our feelings of happiness and self-esteem, and promote self-growth and self-understanding (Sedikides, Oliver, & Campbell, 1994). In spite of these benefits, Sedikides and colleagues also observed that romantic relationships can lead to stress and worry, a need to make social and non-social sacrifices, increased dependency on one's partner, and feeling worse about oneself when relationships are in conflict. In the context of social anxiety, romantic relationships might provide the socially anxious partner with a sense of security and support; in contrast, a

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non-supportive relationship might exacerbate the difficulties of the socially anxious partner. Further, the difficulties faced by the socially anxious individual might put strain on their partner's well-being and the relationship overall. Research on the impact of romantic relationships on the overall health and well-being of those involved is extensive; thus, for the purpose of the current review, the literature on the association between relationship functioning and mental health will be of primary focus.

Interdependence Theory

The strong impact of intimate relationships on well-being may be attributed to interdependence and closeness within these relationships. Interdependence theory emphasizes the importance of the relations between individuals as being equally important as the individuals themselves (Rusbult et al., 2005). Essentially, when in a close relationship, one will often consider some or all aspects of their partner to be their own (see Aron, Ketay, Riela, & Aron, 2013; Aron, Aron, Tudor, & Nelson, 1999). Three key categories of the self which are often shared when in close relationships have been identified: *resources, perspectives,* and *characteristics* (Aron & Aron, 1986, as cited in Aron, Aron, Tudor, & Nelson, 1999). The amount to which partners experience a shared sense of self varies; an abundance of research has been dedicated to examining how various measures of interdependence impact each partner and the relationship overall. For the purpose of the current review, the literature on interpersonal emotion regulation within romantic relationships and its impact mental health and relationship health will be the primary focus. Specifically, closeness and perceived partner support among those with social anxiety will be explored.

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Closeness and Mental Health

One of the ways interdependence has been studied is through measures of closeness in relationships. In a study examining the relationship between closeness and mental health, closeness was found to have different impacts depending on the type of relationship and gender (Cramer & Donachie, 1999). For women, decreased closeness in romantic relationships was associated with poorer mental health, whereas poorer mental health was associated with both-initiated decreased closeness (e.g., belief that both self and other were responsible for decreased closeness). However, these results were not observed for men, which indicates closeness might play a more important role in the romantic relationships of women than men. Additionally, decreased closeness seemed to have a stronger association with mental health than did increased closeness. Notably, the study was only correlational among a small sample and only examined the relationship between closeness and mental health, not closeness and relationship health. Thus, further examination of the impact of closeness on mental health and romantic relationships is necessary.

Researchers have also examined the impact of closeness within the relationships of those with social anxiety. In one study, closeness was measured during interactions between either two highly socially anxious individuals, one non-socially anxious and one highly socially anxious individual, or two non-socially anxious individuals (Kashdan & Wenzel, 2005). Dyads in which both partners were either highly socially anxious or non-socially anxious experienced the greatest amount of closeness, whereas mixed-dyads reported the lowest amount of closeness. These findings imply that, among socially anxious individuals, being around similar others in terms of social anxiety may encourage

increased closeness. A more recent study further examined closeness in the relationships

of those with social anxiety. In their study, Boucher, Jacobson, and Cummings (2015)

examined closeness in friend pairs across a 6-week period. At the start of the study, dyads

with similar levels of social anxiety did not report more closeness compared to dyads

with contrasting levels of social anxiety. In contrast, at time 2 (i.e., 6 weeks later), dyads

with similar levels of social anxiety reported an increase in closeness compared to those

with contrasting levels. These findings imply that, over the course of a relationship,

similar versus dissimilar levels of social anxiety between two individuals may impact

feelings of closeness in the relationship. If this is indeed the case, then how might similar

versus dissimilar levels of social anxiety impact feelings of closeness and relationship

quality in romantic relationships? Also, what factors might be influencing the relationship

between social anxiety and closeness in romantic relationships?

Affective Interdependence

Another measure of interdependence in relationships is *affective interdependence.*

Synonymous with emotion coregulation and interpersonal emotion regulation, affective

interdependence can be defined as the extent to which emotions and self-regulation of

emotions are influenced by the emotions and behaviors of partners (Reis, 2014).

According to Reis (2014), a key component of affective interdependence is *perceived*

partner responsiveness. Among existing models on the influence of one partner's

behavior on the other's affect, Reis observed a common theme, such that emotional well-

being and self-regulation are enhanced when one feels their partner is responding

supportively to their needs, values, and goals. In contrast, emotional well-being and self-

regulation are negatively impacted when one feels their partner is responding critically or

in a controlling way. Reis refers to each of these occurrences as perceived partner responsiveness and perceived partner unresponsiveness, respectively. Three important qualities of responsiveness are understanding (e.g., belief that partner has accurately interpreted oneself), validation (e.g., belief that partner values and appreciates the traits, etc. of the other partner), and caring (e.g., belief that partner will provide support when needed; concern for the other's well-being). Along with these qualities, disclosure by each partner plays a crucial role in the abilities of each partner to effectively respond to the other's needs.

Perceived partner responsiveness appears to play an important role in romantic relationship functioning; specifically, perceived responsiveness has been found to impact intimacy. In one study, partner responsiveness, self-disclosure, and partner disclosure were examined as predictors of intimacy (Laurenceau, Feldman Barrett, & Pietromonaco, 1998). Both self-disclosure and partner disclosure predicted intimacy, while perceived partner responsiveness partially mediated the relationship between partner disclosure and intimacy. Of interest to the current study, self-disclosure of emotion specifically was a stronger predictor of intimacy than was general disclosure (e.g., of facts or information). A more recent study observed a similar relationship between perceived partner responsiveness and intimacy. In Debrot et al.'s (2012) study, both perceived and enacted responsiveness predicted increases in one's own and their partner's feelings of intimacy. Further, perceived partner responsiveness partially mediated the association between enacted responsiveness and intimacy. These findings, along with those of Laurenceau and colleagues, emphasize the importance of partner responsiveness in close relationships.

Partner responsiveness also appears to play a role in emotion expression. Forest and Wood (2011) found that partner responsiveness predicted increased emotion expression among those with low self-esteem. As discussed by the authors, those with low self-esteem are particularly aware of cues that convey the risk of rejection. Thus, when a conversation partner appears responsive, they are encouraged to open up. However, it should be noted the study only examined individuals communicating with strangers via email. Due to the impact of partner responsiveness in romantic relationships, it is also important to consider how these findings might play out among romantic partners. Further, because of the overlap in qualities between those with social anxiety and those with low self-esteem (e.g., fear of rejection, hyper-awareness of social cues), the role of partner responsiveness in the romantic relationships of those with social anxiety should also be considered.

Perceived Partner Support and Responsiveness in Social Anxiety

In general, perceived support from one's partner can be a potent factor for the health of the relationship and each individual's well-being. However, the relationship between partner support and relationship satisfaction among those with social anxiety is less clear. One study found that, among women in relationships, social anxiety was not only associated with lower relationship satisfaction but also diminished received, provided, and desired social support (Porter & Chambless, 2014). Specifically, women with greater social anxiety reported desiring less social support than women with less social anxiety. This decreased desire was in spite of experiencing greater unhappiness resulting from deficits in received support. Notably, these results were only observed among women and not for men, which suggests women experience greater difficulties in

social support as a result of social anxiety than do men. Other researchers have observed similar decreases in relationship satisfaction both among those with social anxiety and their partners (Bar-Kalifa, Hen-Weissberg, & Rafaeli, 2015). In this study, the role of partner responsiveness between social anxiety and relationship satisfaction was examined. For those with social anxiety, poor partner responsiveness fully mediated the association between social anxiety and negative relationship satisfaction. However, this mediation was only observed for those with social anxiety and not for partners, which suggests that perceived partner responsiveness has an important impact on the relationship satisfaction of those with social anxiety in particular.

In a more recent set of studies by Porter and Chambless (2017), the role of partner support on relationship dissolution was further explored. In Study 1, they found that social anxiety did not seem to have a negative impact on relationship maintenance for women, but it did for men. When examining provided support, they found that when men reported providing more support at Time 1, they were more likely to remain with their partner at Time 2 (i.e., one year later). In contrast, provided support at Time 1 was not predictive of relationship status at Time 2 for women. Although perceived support did not always predict relationship status, it did predict both men's and women's relationship satisfaction. Specifically, men and women were more likely to remain in their current relationship 1 year later (Time 2) when they perceived greater social support from their partners at Time 1. In Study 2, Porter and Chambless (2017) further explored perceived partner support during a social support task and used ratings from the socially anxious individual and their partner, as well as an outside observer. They found that observers reported no significant differences between those with high versus low social anxiety in

regard to the amount of support provided by partners. However, both those with social anxiety and their partners reported that the socially anxious partner received less support from their partners. In other words, socially anxious individuals appear to receive less support from their partners, although this difference is only apparent to the individual and their partner and not to observers. These findings, along with those on closeness, suggest that interdependence plays an important role in the romantic relationships of those with SAD. Although having a similar partner, in terms of social anxiety diagnosis, appears to have a positive influence on the relationship, it may also be that having a non-anxious but supportive and responsive partner might serve the same function. Further research is necessary to better understand how interdependence influences the romantic relationships of those with SAD. Because those with social anxiety often face difficulties in social interactions and in interpreting emotion, they may not accurately perceive their partner's provided support. To determine whether this is the case, the current study will also examine whether perceived partner support varies among those with SA and, in turn, impacts their relationship functioning.

Romantic Relationships and Mental Health

Research on romantic relationships and mental health has generally demonstrated a strong bidirectional relationship between the two. In one study, romantic relationship quality overall was positively correlated with men and women's' well-being (e.g., happiness, life satisfaction, and positive affect), although the association was stronger for females (Love & Holder, 2016). In a review of the impact of couples' relationships on overall health, a bidirectional relationship was observed between distressed marriages and major depressive disorder (Kiecolt-Glaser & Wilson, 2017). In other words,

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distressed marriages were associated with increased depressive symptoms, while depression itself tended to promote reduced marital quality. Importantly, this finding was observed for both men and women. Additionally, in line with interdependence theory, married couples' behavior patterns and individual partner's functioning was found to influence both the spouse's and partner's functioning, respectively. Specifically, increased depressive symptoms in one partner were associated with increased depressive symptoms in his or her partner both in the moment and longitudinally. This "contagion" effect of depression in romantic relationships has also been observed by others, such that one partner's depression appeared to influence or induce the other's own depressive feelings and symptoms (Sharabi, Delaney, & Knobloch, 2015). Depression was also found to take an emotional toll on the relationship, inhibit intimacy, and decrease communication. Interestingly, when both partners were depressed, they tended to report enhanced intimacy. However, the underlying reasons for this enhanced intimacy when depression was comorbid remains unclear. The contagion observations of Sharabi, Delaney, and Knobloch (2015), along with those described by Kiecolt-Glaser and Wilson (2017) support the notion of interdependence within romantic relationships.

Another review on mental health and relationships observed similar findings and support for interdependence; however, key differences were also observed. In their review, Braithwaite and Holt-Lunstad (2017) discussed findings emphasizing the importance of the type of relationship, such that more committed relationships (e.g., marriage) were associated with greater benefits to mental health than less committed relationships (e.g., cohabitation). They also observed a bidirectional relationship between relationships and mental health; but, the strength of the relationship was stronger when

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mental health was the outcome. Additionally, some studies found that improving mental health did not reliably improve relationships, whereas improving one's relationship did improve mental health. In other words, romantic relationships actually appear to have a stronger influence on mental health than vice versa. Of particular interest to the current study, relationship distress was found to be associated with an increased occurrence of anxiety disorders as well as depressive disorders. Considering these findings, how might one's romantic relationship influence the experience of social anxiety?

Romantic Relationships and Anxiety

Despite the wealth of research on mental health and romantic relationships, research has only recently begun to examine anxiety disorders and romantic relationships. Early research on anxiety disorders and marital quality found marital quality suffered more when husbands had a phobic disorder than when wives had a phobic disorder (McLeod, 1994). Further, the marital quality of husbands was negatively affected by both their own and their partner's phobias, whereas the marital quality of wives was only negatively affected by their husbands' phobias and not their own. This study only examined generalized anxiety disorder and general phobia disorders, not social anxiety or phobia specifically. In a more recent study of the day-to-day experiences of married couples in which the wife had anxiety, Zaider, Heimberg, and Lida (2010) found husbands were more likely to report decreased positive qualities (e.g., partner showed concern) of the relationship on days when their wives experienced increased anxiety. Yet, the decrease in positive qualities did not correspond with an increase in negative qualities (e.g., partner was demanding). Additionally, on days when wives experienced high anxiety, they reported their husbands as contributing to their anxiety; overall, though,

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wives reported that their husbands helped to alleviate their anxiety. Husbands' increased distress on a given day also predicted their wives' subsequent anxiety. Although these findings provide further support for interdependence among those with anxiety, additional research is necessary to better understand these effects, especially as they relate to romantic relationship health among those with social anxiety. Thus, factors related to interdependence which might influence the relationship health of those with social anxiety will be explored in the third aim of the current study.

Current Thesis Study

Despite increased research on social anxiety and emotion regulation in recent years, there are areas in which further exploration and empirical research is necessary. Specifically, there is a lack of convergent research on emotion regulation within the romantic relationships of those with social anxiety, both at the individual and dyadic levels. The current thesis study's aims are threefold: 1a) to examine individual emotion expressivity and 1b) interpersonal emotion regulation processes among individuals with varying levels of social anxiety; 2) to examine individual emotion expressivity and interpersonal emotion regulation within romantic relationships; and, 3) to examine how individual emotion expressivity and interpersonal emotion regulation processes influence relationship health and intimacy among those with varying levels of social anxiety.

Aim 1a seeks to replicate previous findings on emotion regulation processes in the romantic relationships of those with social anxiety, while Aim 1b examines interpersonal emotion regulation with one's current partner. In line with prior findings (e.g., Sparrevohn & Rapee, 2008), I predict those high in social anxiety will report showing less emotion expressivity in general and in their romantic relationships compared to those

with low social anxiety (*Hypothesis 1*). I also predict those high in social anxiety will report exhibiting lower levels of interpersonal emotion regulation than those low in social anxiety (*Hypothesis 2*). However, in line with the findings of Morrison et al. (2016), I do not expect those with high social anxiety to differ from those low in social anxiety with respect to recognizing and sharing their partner's emotions (i.e., cognitive versus emotional empathy). The second aim will examine the association between individual emotion expressivity and interpersonal emotion regulation on romantic relationships. I predict increased levels of each of the factors will be associated with better relationship health and increased intimacy (*Hypothesis 3*). Finally, the third aim will examine whether interpersonal emotion regulation mediates the relationship between individual emotion expressivity and relationship health. Further, a moderated mediation model will be tested, which will examine whether the mediational model varies depending on social anxiety level. I predict those who show increased individual emotion expressivity, regardless of social anxiety, will display greater interpersonal emotion regulation and, in turn, will experience better relationship health outcomes (*Hypothesis 4*). Regarding the moderated-mediation model, I predict those with high levels of social anxiety will display a weaker or negative relationship between individual emotion expressivity and interpersonal emotion regulation which, in turn, will lead to decreased relationship health and intimacy (*Hypothesis 5*).

Method

Participants

The target sample size for the current study was based on two separate power analyses. The first power analysis was run using G*Power (Faul, Erdfelder, Buchner, & Lang, 2008) and yielded a target sample size of 485. The analysis was based on the proposed moderation analysis for the study, with an estimated effect size (f^2) of .02, an alpha of .05, power of .80, and two tested predictors. A second Monte Carlo power analysis was conducted using Schoemann, Boulton, and Short's (2017) application in R, and yielded a target sample size of 330. Power was calculated for a simple mediation analysis, with power set to .80 and confidence level to 95%. To ensure adequate powering, a larger than needed sample was collected. Individuals who indicated being single, in their current relationship less than three months, or failed more than one attention check were excluded from the data analyses, resulting in a final sample size of 591. The sample was roughly equal in terms of gender (51.6% female) and most participants (63.6%) had been with their partner for at least a year ($M = 3.37$, $SD = .90$). The sample was predominantly heterosexual (86.2%). The mean age of participants was 28 years old, and the majority of the sample was white (60.2%) and employed full-time (48.9%), but diverse in regard to income and education (see Table 1 for additional sample characteristics).

Table 1.

Complete Participant Demographics ($N = 591$)

	M	SD	Range
Age	28.13	10.81	18 - 74
Relationship Length			
3 to 6 months		22.2%	
7 months to 1 year		13.0%	
1 year or longer		64.8%	
Relationship Status			
Dating		7.3%	
In a relationship		54.1%	
Cohabiting/Living with partner		11.0%	
Married/engaged		27.6%	
Sexual Orientation			
Heterosexual		86.0%	
Bisexual		8.5%	
Homosexual		4.2%	
Other/Prefer not to say		1.2%	
Race			
White		60.4%	
Hispanic		21.0%	
Black/African American		7.4%	
Asian		1.7%	
American Indian/Alaska Native		5.2%	
Native Hawaiian/Pacific Islander		1.0%	
Other		3.2%	
Education			
Less than high school		0.3%	
High school graduate		18.8%	
Some college		28.6%	
2-year degree		23.4%	
4-year degree		22.5%	
Professional degree		5.8%	
Doctorate		0.7%	
Employment Status			
Full-time		48.7%	
Part-time		25.0%	
Unemployed (looking for work)		4.1%	
Uemployed (not looking for work)		1.9%	
Retired		1.0%	
Student		18.6%	
Disabled		0.7%	
Household Income			
Less than $25,000		26.6%	
$25,001 - 34,999		14.2%	
$35,000 - 49,999		12.2%	
$50000 - 74,999		19.5%	
$75,000 - 99,000		14.2%	
$100,000 - 149,999		8.6%	
$150,000 - 199,000		2.9%	
$200,000 or more		1.2%	

Procedure

Participants were recruited through Amazon's Mechanical Turk (MTurk) and

ASU's undergraduate psychology participant system (i.e., SONA) for a study seeking to

better understand romantic relationship functioning and emotion regulation. To

participate, participants were required to be at least 18 years old and in their current

relationship for at least 3 months. Eligible participants then completed a 30-40 minute

online survey about their experiences within their current romantic relationship, as well

as their perceptions of their partner's experiences. Participants recruited from ASU's

undergraduate participant pool (SONA) were compensated with course credit while those

recruited from MTurk received monetary compensation for completing the survey. All

parts of the study were approved by ASU's Institutional Review Board (IRB) prior to

data collection.

Measures

Sociodemographics. Demographic characteristics believed to be associated to

with one or more of the study variables were assessed, including biological sex (of both

participant and their partner), relationship status, age, education, household income,

employment status, race/ethnicity, and sexual orientation (of both participant and their

partner). *Relationship status* was categorized as single, dating, in a relationship,

cohabiting, or engaged/married. Participants were also asked to indicate how long they

had been in a relationship with their current partner. Participants who indicated being

single or having been in the relationship less than 3 months at the time of the survey were

not included in analyses. *Education* consisted of five categories: some high school, high

school, some college, college, or an advanced degree. *Income* represented total household

income at the time of the survey and was categorized as less than $25,000, $25,001 -
$34,999, $35,000 - $49,999, $50,000- $74,999, $75,000 - $99,999, $100,000 - $149,999,
$150,000-$199,999, or more than $200,000. *Employment status* was categorized as full-
time, part-time, self-employed, student, or currently not working. *Race/ethnicity* was a
self-report of non-Hispanic White, African American, Hispanic, Asian, or other. *Sexual
orientation* was a self-report of heterosexual or straight, homosexual, bisexual, other, or
prefer not to answer.

 Mental Health Measures.

 Social anxiety was measured using the Social Interaction Anxiety Scale (SIAS;
Mattick & Clarke, 1998). The SIAS includes 20 items which ask participants to indicate
the degree to which each statement (e.g., I worry about expressing myself in case I appear
awkward) applies to them on a 5-point Likert scale ranging from "*does not describe me*"
to "*describes me extremely well*". Responses on items were summed (items 5, 9, and 11
are reverse-coded) and analyzed based on predetermined cutoffs. As described by
Mattick and Clarke (1998), scores of 34 or more indicate social phobia (i.e., irrational
social fears with avoidance/impairment in specific social situations) and scores of 43 or
more indicate social anxiety (i.e., generalized irrational fears with avoidance/impairment
across many social situations). The scale demonstrated good internal consistency (α =
.92).

 Potential Covariates.

 Depression was measured using the Center for Epidemiologic Studies –
Depression Inventory (CES-D). The inventory is a well-validated and reliable measure
(Radloff, 1977). Participants were asked to answer 20 questions assessing their mood

over the past week. Example items included "*how often have you felt depressed in the past 7 days*," and "*how often did you feel that your life was hopeless over the past 7 days*". Responses ranged from 0 = none/rarely (<1 day) to 3 = most (5-7 days), and a total depression score was created by summing scores from the individual items. The scale demonstrated good internal consistency (α = .93).

General anxiety was measured using the Symptom Checklist-90-R (SCL-90R) anxiety subscale (Derogatis, 1994). Participants answered 10 items assessing their anxiety over the past week. Example items included "*how often have you felt nervous or shaky*" and "*how often have you felt so restless you couldn't sit still*". Responses range from 0 = *none/rarely (<1 day)* to 3 = *most (5-7 days).* A total general anxiety score was created by summing scores from the individual items. The scale demonstrated good internal consistency (α = .93).

Individual Emotion Expressivity Measures.

Emotion expressivity. Both the original version and a modified version of the Berkeley Expressivity Questionnaire (Gross & John, 1997) were used to assess emotion expressivity in general and within the romantic relationship of participants, respectively. Each scale includes 16 items which can be separated into three facets: negative expressivity, positive expressivity, and impulse strength. The questionnaire includes statements like, "*When I'm happy, my feelings show*" and "*It is difficult for me to hide my fear*". The modified version of the questionnaire was reworded to examine emotional expressivity in the participant's current relationship, and included statements like, "*When I'm happy around my partner, my feelings show*" and "*Whenever I feel positive emotions, my partner can easily see exactly what I am feeling*". Participants rated their agreement

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or disagreement to each statement on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A total score was created for emotional expressivity overall and for negative and positive emotionality by summing scores from the individual items and on items pertaining to each facet, respectively. Items 3, 8, and 9 were reverse scored. Both the original ($\alpha = .87$) and modified ($\alpha = .87$) scales demonstrated adequate internal consistency. For the original version, positive emotional expression ($\alpha = .74$) and impulse strength ($\alpha = .85$) demonstrated adequate internal consistency, while negative emotional expression ($\alpha = .66$) demonstrated lower internal consistency. For the modified version, positive emotional expression ($\alpha = .81$) and impulse strength ($\alpha = .81$) also demonstrated adequate internal consistency, while negative emotional expression ($\alpha = .65$) demonstrated lower internal consistency.

Expressive suppression was measured using the expressive suppression subscale of the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). The ERQ is a 10-item measure used to assess two facets of emotion regulation: *cognitive reappraisal* and *expressive suppression*. The four items measuring cognitive reappraisal include questions such as, "*When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.*" and "*I control my emotions by changing the way I think about the situation I'm in.*" The six items measuring expressive suppression included questions such as, "*I keep my emotions to myself*" and *"When I am feeling positive emotions, I am careful not to express them".* Participants answered each question on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Items 1, 3, 5, 7, 8, and 10 were summed to create a score for the cognitive reappraisal facet, while items 2, 4, 6, and 9 were summed to create a score for the expressive suppression facet. The scale overall

demonstrated adequate internal consistency ($\alpha = .74$), as did both the cognitive

reappraisal ($\alpha = .80$) and expressive suppression ($\alpha = .76$) subscales.

Interpersonal Emotion Regulation Measures.

Perceived partner responsiveness was measured using the Perceived Partner

Responsiveness Scale (PPRS; Reis and Carmichael, 2006). The PPRS is a well-validated

and reliable 12-item measure assessing two dimensions of responsiveness: *validation*

(i.e., degree to which one's partner is perceived as appreciating and valuing oneself) and

understanding (i.e., degree to which one's partner "gets things right" about oneself). The

validation dimension includes questions like, "*My partner expresses liking and*

encouragement for me", while the understanding dimension includes questions like, "*My*

partner is aware of what I am thinking and feeling". Participants responded to each

question using a scale ranging from 1 = *not true at all* to 7 = *completely true.* A total

responsiveness score was created by summing responses to all 18 items. Subscale scores

for validation and understanding were also created by summing scores on the questions

pertaining to each dimension. The scale overall demonstrated good internal consistency

($\alpha = .95$), as did both the validation ($\alpha = .92$) and understanding ($\alpha = .91$) subscales.

Empathy in relationships was assessed using the Interpersonal Reactivity Index

for Couples (IRIC; Peloquin & Lafotaine, 2010). The IRIC measures both *cognitive* (i.e.,

perspective taking; ability to understand one's partners point of view or put oneself in the

other's place) and *affective* empathy (i.e., one's emotional reactions resulting from their

partner's emotional experience). The 13-item scale has been shown to have good validity

and reliability. Items include questions like "*Sometimes I don't feel very sorry for my*

partner when he/she is having problems" and "*I sometimes try to understand my partner*

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better by imagining how things look from his/her perspective". Participants indicated how well each question describes them on a 5-point Likert scale ranging from 0 (does not describe me well) to 4 (describes me very well). Items from each scale were summed to yield separate total scores for each. Overall, the scale demonstrated adequate internal consistency ($\alpha = .84$). The cognitive and affective subscales each demonstrated adequate internal consistency ($\alpha = .82$ and $\alpha = .77$, respectively).

   Interpersonal emotion regulation was assessed using a modified version of the Interpersonal Emotion Regulation Questionnaire (IERQ; Hofmann, Carpenter, & Curtiss, 2016). The IERQ includes 20 items addressing the extent to which one uses interpersonal emotion regulation strategies. Questions were reworded to examine interpersonal emotion regulation within the participant's current relationship rather than in general (e.g., "*It makes me feel better to learn how my partner has dealt with his/her* emotions"). Responses are rated on a 5-point Likert scale ranging from 1 = *not true for me at all* to 5 = extremely true for me. A total score was calculated by summing responses on all items. The scale has been shown to have excellent psychometric properties, and the scale overall demonstrated good internal consistency ($\alpha = .93$) in the current study.

   Relationship Health Measures.

   Intimacy within the relationships of participants was assessed via the Personal Assessment of Intimacy in Relationships questionnaire (PAIR; Schaefer & Olsen, 1981). The scale includes 36 items which encompass five different facets of intimacy: *emotional, social, sexual, intellectual,* and *recreational*. Participants rated the extent to which each statement describes their current relationship on a 5-point Likert scale ranging from 1 = *does not describe me/my relationship at all* to 5 = *describes me/my*

relationship very well. Example items include, "*my partner listens to me when I need someone to talk to*" and "*my partner and I understand each other completely*". A total score and subscores for each scale were calculated by summing responses to the respective items. The scale overall demonstrated good internal consistency ($\alpha = .90$). The emotional ($\alpha = .85$), sexual ($\alpha = .77$), intellectual ($\alpha = .81$), and recreational ($\alpha = .71$) subscales demonstrated adequate internal consistency, while the social subscales did not demonstrate acceptable internal consistency ($\alpha = .61$). For the current thesis study, only the total score was used in analyses.

    Relationship satisfaction was assessed using the Relationship Assessment Scale (RAS; Hendrick, 1988). The RAS has demonstrated considerable validity and reliability in prior research (Vaughn & Baier, 1999). Participants were asked to rate their relationship on 7 items (e.g., "*In general, how satisfied are you with your relationship?*") on a scale ranging from 1 = *low satisfaction/not at all* to 5 = *high satisfaction/very often*. Response choices vary slightly for each question. Items were summed and averaged to yield a total score; items 4 and 7 are reverse-scored. The scale demonstrated adequate internal consistency ($\alpha = .87$).

    Closeness within the relationships of participants was assessed using the Inclusion of Other in Self Scale (IOS; Aron, Aron, & Smollan, 1992). The scale includes a single-item which shows a series of 7 pictures displaying 2 circles with varying levels of overlap. Participants were asked to indicate which set of circles best reflects their current relationship with their partner.

For Aim 1, differences in individual emotion expressivity and interpersonal emotion regulation processes were analyzed using regression analyses with social anxiety as a continuous predictor. Analyses were also conducted using a dichotomous grouping, such that participants were partitioned into two groups based on SIAS score. Hypotheses 1 and 2 were tested by examining group differences in individual emotion expressivity and interpersonal emotion regulation processes using both methods (i.e., regression and MANCOVA). Covariates were determined in preliminary analyses using multiple linear regression regressing all potential covariates simultaneously on all major study variables. Significant covariates were controlled for in all analyses using the respective study variable(s).

For Aim 2, the association of individual emotion expressivity and interpersonal emotion regulation on relationship health (Hypothesis 3) was examined using a series of regression analyses. Each individual and interpersonal emotion regulation measure was included as a continuous predictor of relationship health (i.e., relationship satisfaction, intimacy, closeness). Significant covariates were controlled for in all analyses using the respective study variable(s).

Aim 3 was tested using structural equation modeling (SEM) in EQS (EQS 6.1, Bentler, 2006). Specifically, I tested whether the latent factor of interpersonal emotion regulation (i.e., cognitive empathy, emotional empathy, and relationship-specific interpersonal emotion regulation) mediated the association between the latent factor of individual emotion expressivity (i.e., general emotion expressivity, relationship-specific emotion expressivity, expressive suppression) and the latent factor of relationship health

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(i.e., relationship satisfaction, intimacy, closeness) (Hypotheses 4). A moderated

mediation model (Hypothesis 5) was also tested in SEM by conducting a multi-sample

analysis between two groups: a non-socially anxious group (NSA group; i.e., SIAS scores

at or below 33) and a socially anxious group (SA group; i.e., SIAS scores at or above 34).

SEM is ideal for testing complex models as it allows us to test all components of our

model simultaneously while also modeling measurement error. Preliminary examination

of the data revealed that all assumptions of SEM (e.g., multivariate normality, no

skewness or kurtosis) were met in the current dataset. Further, there were no issues with

multicollinearity, as can be seen in the bivariate correlation matrix (see Table 3). Because

very few participants were missing data on each item (i.e., between .3 and 9.3%), mean

imputation of missing cases was used to handle missing data. Thus, use of the maximum

likelihood (ML) estimation method was validated. As the current study only collected

data at one time point, all analyses were cross-sectional.

Results

Descriptive statistics for all major study variables are provided in Table 2. Of the

591 participants included in the final sample, 262 (44.3%) of participants scored 34 or

greater on the SIAS, which is indicative of social phobia. Of those 262 participants, 158

(26.7%) scored at or above the clinical cut-off for SA (i.e., 43 or greater) on the SIAS.

Bivariate correlations between all major study variables were conducted and are

summarized in Table 3. Higher scores on the SIAS were associated with increased

depression and anxiety, as well as decreased perceived partner understanding (but not

validation), relationship satisfaction, cognitive and affective empathy, and intimacy, and

increased expressive suppression. In contrast to prior findings, individuals scoring higher

on the SIAS did not differ from NSA individuals in both general and relationship specific

emotion expressivity as well as interpersonal emotion regulation with their partner.

However, higher scores on the SIAS were associated with greater negative emotion

expressivity in general, and less positive emotion expressivity, both in general and in

one's relationship.

Table 2.
Descriptive Statistics of Major Study Variables

	Non-Socially Anxious (< 33)		Socially Anxious (34+)	
	M	*SD*	*M*	*SD*
SIAS	18.63 [b]	8.36	47.56 [a]	10.07
CESD	33.24 [b]	10.49	43.51 [a]	10.70
Anxiety	4.36 [b]	5.41	10.70 [a]	7.96
BEQ (general)	73.34	15.36	74.56	14.65
Positive Expressivity	22.27 [a]	3.99	20.95 [b]	4.26
Negative Expressivity	22.27 [b]	6.25	23.51 [a]	5.60
BEQ (relationship)	80.63	14.77	80.13	14.15
Positive Expressivity	24.05 [a]	3.55	22.89 [b]	4.17
Negative Expressivity	27.45	6.39	27.05	5.70
ERQ (exp. supp.)	17.65 [a]	5.09	14.96 [b]	4.88
PPR (validation)	28.74	6.12	28.07	6.29
PPR (understanding)	28.36 [a]	5.81	27.40 [b]	5.88
PPR (total)	67.86	13.54	65.95	13.76
IERQ	78.48	14.31	77.40	13.34
RAS	4.15 [a]	0.68	3.95 [b]	0.74
IRIC (affective)	23.62 [a]	3.99	21.55 [b]	5.45
IRIC (cognitive)	17.01 [a]	4.81	16.17 [b]	4.41
PAIR	118.02 [a]	16.66	107.68 [b]	18.77

Note. [a] and [b] indicate a signficant difference between SA and NSA individuals at the
  $p < .05$ level, with [a] indicating the higher mean.

Table 3.

Bivariate Correlations between Major Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 SIAS	-	.53 ***	.51 ***	.08	.04	-.30 ***	-.07	-.05	-.09 *	-.001	-.16 ***	-.22 ***	-.13 ***	-.31 ***
2 CESD	.53 ***	-	.80 ***	.18 ***	.09 *	-.22 ***	-.26 ***	-.25 ***	-.26 ***	-.15 ***	-.37 ***	-.29 ***	-.21 ***	-.44 ***
3 Anxiety	.51 ***	.80 ***	-	.18 ***	.13 ***	-.20 ***	-.16 ***	-.15 ***	-.18 ***	-.07	-.29 ***	-.29 ***	-.13 ***	-.34 ***
4 BEQ (general)	.08	.18 ***	.18 ***	-	.74 ***	.45 ***	.16 ***	.14 ***	.16 ***	.33 ***	.07	.18 ***	.04	.12 **
5 BEQ (relationship)	.04	.09 *	.13 ***	.74 ***	-	.42 ***	.42 ***	.37 ***	.41 ***	.49 ***	.32 ***	.39 ***	.19 ***	.36 ***
6 ERQ (express supp)$^{+}$	-.30 ***	-.22 ***	-.20 ***	.45 ***	.42 ***	-	.11 **	.10 *	.12 **	.15 ***	.17 ***	.31 ***	.06	.29 ***
7 PPR (total)	-.07	-.26 ***	-.16 ***	.16 ***	.42 ***	.11 **	-	.95 ***	.95 ***	.56 ***	.72 ***	.44 ***	.42 ***	.69 ***
8 PPR (validation)	-.05	-.25 ***	-.15 ***	.14 ***	.37 ***	.10 *	.95 ***	-	.82 ***	.53 ***	.68 ***	.44 ***	.39 ***	.67 ***
9 PPR (understanding)	-.09 *	-.26 ***	-.18 ***	.16 ***	.41 ***	.12 **	.95 ***	.82 ***	-	.55 ***	.69 ***	.41 ***	.41 ***	.65 ***
10 IERQ	-.001	-.15 ***	-.07	.33 ***	.49 ***	.15 ***	.57 ***	.53 ***	.55 ***	-	.46 ***	.50 ***	.42 ***	.51 ***
11 RAS	-.16 ***	-.37 ***	-.29 ***	.07	.32 ***	.17 ***	.72 ***	.68 ***	.69 ***	.46 ***	-	.52 ***	.39 ***	.78 ***
12 IRIC (affective)	-.22 ***	-.29 ***	-.29 ***	.18 ***	.39 ***	.31 ***	.44 ***	.44 ***	.41 ***	.50 ***	.52 ***	-	.48 ***	.59 ***
13 IRIC (cognitive)	-.13 ***	-.21 ***	-.13 ***	.04	.19 ***	.06	.42 ***	.39 ***	.41 ***	.42 ***	.39 ***	.48 ***	-	.47 ***
14 PAIR	-.31 ***	-.44 ***	-.34 ***	.12 **	.36 ***	.29 ***	.69 ***	.67 ***	.65 ***	.51 ***	.78 ***	.59 ***	.47 ***	-

Note. *$p \leq .05$; **$p \leq .01$; ***$p \leq .001$; $^{+}$Reverse-coded

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Emotion Regulation and Social Anxiety

To examine the relation of social anxiety to individual emotion expressivity (Aim 1a) and interpersonal emotion regulation (Aim 1b), a series of regression analyses were conducted. Based on preliminary analyses, *relationship status* (0 = dating/in a relationship, 1 = married/engaged/ cohabiting), *relationship length* (0 = less than 1 year, 1 = greater than 1 year), and *sex* (0 = male, 1 = female) were entered at Step 1 as covariates. Although depression and anxiety were not significant covariates in the current analyses, I chose to include them as covariates based on the overlapping aspects of the disorders (e.g., rumination) and comorbidity among the disorders (e.g., Kessler et al., 2005; Lydiard, 2001). SIAS score was entered at Step 2 as a continuous predictor of each individual emotion regulation strategy and interpersonal emotion regulation measure.

Individual Emotion Expressivity

Consistent with Hypothesis 1 and prior research findings, social anxiety significantly predicted expressive suppression, $b = -0.08$, $SE = 0.01$, $t(590) = -5.99$, $p < .001$, such that greater social anxiety was associated with greater self-reported levels of expressive suppression. Contrary to Hypothesis 1, social anxiety was unrelated to both general, $b = -0.07$, $SE = 0.04$, $t(590) = -1.66$, $p = .10$, and relationship specific emotion expressivity, $b = -0.07$, $SE = .04$, $t(590) = 1.71$, $p = .09$ (see Table 4 for full results). However, when examining general and relationship-specific emotion expressivity for differences in positive and negative emotion expressivity, a different pattern emerged. While social anxiety was unrelated to negative emotion expressivity, both general and relationship-specific, it significantly predicted positive emotion expressivity, both general, $b = -0.05$, $SE = 0.01$, $t(590) = -4.57$, $p < .001$, and relationship-specific, $b = -$

0.03, *SE* = 0.01, *t*(590) = -3.20, *p* = .001. Specifically, greater social anxiety was associated with lower levels of general and relationship-specific positive emotion expressivity.

Interpersonal Emotion Regulation

In support of Hypothesis 2, social anxiety was unrelated to cognitive empathy within one's relationship, *b* = -0.02, *SE* = 0.02, *t*(590) = -1.12, *p* = .26. Social anxiety was also unrelated to overall perceived partner responsiveness, *b* = 0.05, *SE* = 0.04, *t*(590) = 1.36, *p* = .17, as well as perceived partner validation, *b* = 0.03, *SE* = 0.02, *t*(590) = 1.76, *p* = .08, and perceived partner understanding, *b* = 0.02, *SE* = 0.02, *t*(590) = 0.94, *p* = .35. Contrary to Hypothesis 2, social anxiety was associated with deficits in affective empathy within one's romantic relationship, *b* = -0.03, *SE* = 0.01, *t*(590) = -1.98, *p* = .05, and was associated with increased interpersonal emotion regulation with one's partner, *b* = 0.06, *SE* = 0.04, *t*(590) = 1.61, *p* = .11, (see Table 4 for full results).

Table 4.

Effects of SA on Individual Emotion Expression and Interpersonal Emotion Regulation

Variable	b	SE	β	R^2	$\triangle R2$
Emotion Expressivity (General)					
Step 1				0.17 ***	-
Relationship Status[a]	-2.65 *	1.31	-.09		
Relationship Length[b]	2.35 +	1.32	.07		
Sex[c]	10.04 ***	1.13	.35		
Depression	0.07	0.08	.06		
Anxiety	0.17	0.13	.09		
Step 2				0.17 ***	0.004
Relationship Status[a]	-2.60 *	1.31	-.08		
Relationship Length[b]	2.39 +	1.32	.08		
Sex[c]	10.2 ***	1.13	.35		
Depression	0.10	0.08	.08		
Anxiety	0.21	0.13	.10		
Social Anxiety	-0.07 +	0.04	-.08		
Emotion Expressivity (General - Negative)					
Step 1				0.07 ***	-
Relationship Status[a]	-0.66	0.55	-.05		
Relationship Length[b]	0.96 +	0.55	.08		
Sex[c]	2.35 ***	0.47	.20		
Depression	0.01	0.03	.02		
Anxiety	0.08	0.05	.10		
Step 2				0.07 ***	0.00
Relationship Status[a]	-0.66	0.55	-.05		
Relationship Length[b]	0.96 +	0.56	.08		
Sex[c]	2.33 ***	0.48	.20		
Depression	0.01	0.03	.01		
Anxiety	0.08	0.06	.10		
Social Anxiety	0.01	0.02	.03		
Emotion Expressivity (General - Positive)					
Step 1				0.01 ***	-
Relationship Status[a]	-0.75 *	0.38	-.09		
Relationship Length[b]	0.45	0.38	.05		
Sex[c]	2.35 ***	0.32	.29		
Depression	-0.05 *	0.02	-.14		
Anxiety	0.01	0.04	.01		
Step 2				0.13 ***	0.03 ***
Relationship Status[a]	-0.71 +	0.37	-.08		
Relationship Length[b]	0.48	0.37	.06		
Sex[c]	2.48 ***	0.32	.31		
Depression	-0.02	0.02	-.07		
Anxiety	0.04	0.04	.06		
Social Anxiety	-0.05 ***	0.01	-.21		

Emotion Expressivity (Relationship)					
Step 1				0.18 ***	-
Relationship Status[a]	-1.91	1.26	-.06		
Relationship Length[b]	2.52 *	1.26	.08		
Sex[c]	10.91 ***	1.08	.39		
Depression	-0.10	0.07	-.09		
Anxiety	0.30 *	0.12	.15		
Step 2				0.18 ***	0.004
Relationship Status[a]	-1.87	1.26	-.06		
Relationship Length[b]	2.56 *	1.26	.08		
Sex[c]	11.07 ***	1.08	.40		
Depression	-0.07	0.08	-.06		
Anxiety	0.33 **	0.13	.17		
Social Anxiety	-0.07 +	0.04	-.08		
Emotion Expressivity (Relationship - Negative)					
Step 1				0.12 ***	-
Relationship Status[a]	0.02	0.55	.00		
Relationship Length[b]	0.40	0.55	.03		
Sex[c]	3.95 ***	0.47	.34		
Depression	-0.08 *	0.03	-.17		
Anxiety	0.11 *	0.05	.13		
Step 2				0.12 ***	0.02
Relationship Status[a]	0.02	0.55	.00		
Relationship Length[b]	0.42	0.55	.03		
Sex[c]	4.00 ***	0.47	.34		
Depression	-0.07 *	0.03	-.15		
Anxiety	0.12 *	0.05	.14		
Social Anxiety	-0.02	0.02	-.06		
Emotion Expressivity (Relationship - Positive)					
Step 1				0.13 ***	-
Relationship Status[a]	-0.98 **	0.35	-.12		
Relationship Length[b]	0.12	0.35	.02		
Sex[c]	2.37 ***	0.30	.32		
Depression	-0.06 **	0.02	-.19		
Anxiety	0.02	0.03	.03		
Step 2				0.15 ***	0.02
Relationship Status[a]	-0.95 **	0.34	-.12		
Relationship Length[b]	0.14	0.34	.02		
Sex[c]	2.46 ***	0.30	.33		
Depression	-0.04 *	0.02	-.14		
Anxiety	0.04	0.03	.07		
Social Anxiety	-0.03 ***	0.01	-.15		

	B	SE	β	R^2	ΔR^2
Affective Empathy					
Step 1				0.13 ***	-
Relationship Status[a]	0.03	0.43	.00		
Relationship Length[b]	0.51	0.43	.05		
Sex[c]	1.82 ***	0.37	.20		
Depression	-0.07 **	0.03	-.17		
Anxiety	-0.11 **	0.04	-.17		
Step 2				0.14 ***	0.01 *
Relationship Status[a]	0.05	0.43	.01		
Relationship Length[b]	0.53	0.43	.05		
Sex[c]	1.88 ***	0.37	.20		
Depression	-0.06 *	0.03	-.14		
Anxiety	-0.10 *	0.04	-.15		
Social Anxiety	-0.03 *	0.01	-.09		
Cognitive Empathy					
Step 1				0.05 ***	-
Relationship Status[a]	0.52	0.43	.05		
Relationship Length[b]	-0.35	0.44	-.04		
Sex[c]	0.51	0.37	.06		
Depression	-0.11 **	0.03	-.29		
Anxiety	0.06	0.04	.09		
Step 2				0.05 ***	0.002
Relationship Status[a]	0.53	0.43	.06		
Relationship Length[b]	-0.35	0.44	-.04		
Sex[c]	0.54	0.37	.06		
Depression	-0.10 ***	0.03	-.27		
Anxiety	0.01	0.04	.11		
Social Anxiety	-0.01	0.01	-.05		
Expressive Suppression					
Step 1				0.1 ***	-
Relationship Status[a]	-0.56	0.47	-.05		
Relationship Length[b]	1.23 **	0.47	.11		
Sex[c]	2.02 ***	0.4	.20		
Depression	-0.08 **	0.03	-.19		
Anxiety	-0.04	0.05	-.06		
Step 2				0.15 ***	0.05 ***
Relationship Status[a]	-0.5	0.46	-.05		
Relationship Length[b]	1.28 **	0.46	.12		
Sex[c]	2.23 ***	0.39	.22		
Depression	-0.04	0.03	-.10		
Anxiety	0.004	0.05	.01		
Social Anxiety	-0.08 ***	0.01	-.27		

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IERQ - Relationship					
Step 1				0.08 ***	-
Relationship Status[a]	-0.38	1.27	-.01		
Relationship Length[b]	-1.03	1.28	-.04		
Sex[c]	5.87 ***	1.09	.22		
Depression	-0.35 **	0.07	-.31		
Anxiety	0.27 *	0.13	.14		
Step 2				0.09 ***	0.004 ***
Relationship Status[a]	-0.42	1.27	-.02		
Relationship Length[b]	-1.07	1.27	-.04		
Sex[c]	5.72 ***	1.09	.21		
Depression	-0.37 ***	0.08	-.34		
Anxiety	0.23 +	0.13	.12		
Social Anxiety	0.06	0.04	.08		

Notes. [+]$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$; [a]0 = male, 1 = female;

[b]0 = in a relationship/dating, 1 = engaged/married/cohabiting;

[c]0 = less than 1 year, 1= 1 year or longer

I also examined the impact of social anxiety on individual emotion expressivity and interpersonal emotion regulation processes using cut-off scores and MANCOVA. This analysis allows for a more diagnostic examination of the relationship between SA and emotion regulation processes. A dichotomous variable was created for social anxiety, such that individuals scoring 33 or lower on the SIAS were included in the non-socially anxious group ($N = 272$) and those scoring greater than 43 on the SIAS were included in the socially anxious group ($N = 132$). The cut-off for the socially anxious group was based on the clinical cut-off for the SIAS scale, rather than the more conservative social phobia cut-off[1]. Relationship status and length, sex, depression, and anxiety were included as covariates.

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[1] Analyses using the social phobia (SP) cut-off yielded the same results.

In partial support of Hypothesis 1, significant group mean differences were found for expressive suppression, $F(1, 480) = 21.18$, $p < .001$, $n^2 = .04$, affective empathy, $F(1, 480) = 8.63$, $p = .003$, $n^2 = .02$, general positive emotion expressivity, $F(1, 480) = 13.32$, $p < .001$, $n^2 = .03$, and relationship-specific positive emotion expressivity, $F(1, 480) = 8.38$, $p = .004$, $n^2 = .02$. Specifically, those above the clinical cut-off for SA reported significantly greater expressive suppression and lower affective empathy, general positive emotion expressivity, and relationship-specific positive emotion expressivity than those below the clinical cut-off (i.e., NSA). Additionally, there was a marginal group mean difference for relationship-specific individual emotion expressivity, $F(1, 480) = 2.91$, $p = .09$, $n^2 = .01$. Specifically, those above the clinical cut-off for SA reported less relationship-specific individual emotion expressivity than those below the clinical cut-off. There were no significant group mean differences for general individual emotion expressivity, negative emotion expressivity (both general and relationship-specific), perceived partner responsiveness (both total score and each facet separately), cognitive empathy, or interpersonal emotion regulation.

Emotion Regulation and Relationship Health

To examine the association between individual emotion expressivity and interpersonal emotion regulation processes on relationship health, a series of regression analyses were conducted. Each individual and interpersonal emotion regulation measure was entered as a continuous predictor of each relationship health measure (i.e., relationship satisfaction, intimacy, closeness). Relationship status, relationship length, gender, depression, and anxiety were identified as covariates in preliminary analyses and thus were included in all analyses.

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Relationship Satisfaction

In partial support of Hypothesis 3, perceived partner responsiveness ($b = 0.27$, *SE* = 0.09, $t(590) = 2.97$, $p = .003$) and affective empathy ($b = 0.22$, *SE* = 0.04, $t(590) = 5.86$, $p < .001$), significantly predicted relationship satisfaction, such that higher levels of each was associated with greater relationship satisfaction. Interestingly, general emotion expressivity (but not relationship specific expressivity) predicted relationship satisfaction, $b = -0.03$, *SE* = 0.01, $t(590) = -2.21$, $p = .03$, such that greater general emotion expressivity was associated with lower relationship satisfaction. Expressive suppression, relationship-specific interpersonal emotion regulation, and cognitive empathy did not predict relationship satisfaction (see Table 5 for full results). Although total perceived partner responsiveness was predictive of relationship satisfaction, the separate facets of perceived partner responsiveness (i.e., validation and understanding) were not significant predictors of relationship satisfaction.

Intimacy

In contrast to relationship satisfaction, several individual and interpersonal emotion regulation factors arose as significant predictors of intimacy. General ($b = -0.16$, *SE* = 0.05, $t(590) = -3.24$, $p = .001$) and relationship-specific emotion expressivity ($b = 0.13$, *SE* = 0.06, $t(590) = 2.29$, $p = .02$, expressive suppression ($b = 0.46$, *SE* = 0.11, $t(590) = 4.22$, $p < .001$), affective empathy ($b = 0.76$, *SE* = 0.13, $t(590) = 5.96$, $p < .001$), and cognitive empathy ($b = 0.42$, *SE* = 0.12, $t(590) = 3.58$, $p < .001$) all significantly predicted intimacy. Consistent with Hypothesis 3, higher levels of affective and cognitive empathy, and relationship specific emotion expressivity, and lower levels of expressive suppression were associated with more intimacy. However, in contrast to Hypothesis 3,

greater general emotion expressivity was associated with less intimacy. Perceived partner responsiveness (both total and each facet separately) and relationship-specific interpersonal emotion regulation did not significantly predict intimacy.

Closeness

In further support of Hypothesis 3, total perceived partner responsiveness ($b = 0.08$, $SE = 0.04$, $t(590) = 2.38$, $p = .02$) and relationship-specific interpersonal emotion regulation ($b = 0.01$, $SE = 0.01$, $t(590) = 2.42$, $p = .02$) significantly predicted closeness, such that greater levels of each were associated with greater relationship closeness. No other individual or interpersonal emotion regulation measure predicted closeness. Also, although total perceived partner responsiveness was predictive of intimacy, neither facet of perceived partner responsiveness (i.e., validation and understanding) separately predicted relationship satisfaction.

Table 5.

Effects of Individual Emotion Expression and Interpersonal Emotion Regulation on Relationship Health Variables

Variable	b	SE	β	R²	ΔR2	b	SE	β	R²	ΔR2	b	SE	β	R²	ΔR2
	Intimacy					*Relationship Satisfaction*					*Closeness*				
Step 1				0.24 ***	-				0.15 ***	-				0.09 ***	-
Relationship Status[a]	-2.29	1.53	-.06			-0.12	0.44	-.01			0.35 **	0.13	.12		
Relationship Length[b]	-2.33	1.53	-.06			-0.12	0.44	-.01			-0.02	0.13	-.01		
Sex[c]	6.22 ***	1.31	.18			1.043 **	0.38	.12			-0.35 *	0.11	-.13		
Depression	-0.75 ***	0.09	-.51			-0.16 ***	0.03	-.41			-0.04 ***	0.01	-.33		
Anxiety	0.06	0.15	.02			0.01	0.04	.02			0.04 **	0.01	.19		
Step 2				0.66 ***	0.42 ***				0.60 ***	0.45 ***				0.31 ***	0.22 ***
Relationship Status[a]	-2.71 **	1.04	-.07			-0.35	0.31	-.03			0.30 **	0.12	.10		
Relationship Length[b]	-2.15 *	1.05	-.06			0.08	0.31	0.01			0.06	0.12	.02		
Sex[c]	1.53	0.97	.04			0.04	0.29	-.001			-0.54 ***	0.11	-.19		
Depression	-0.33 ***	0.06	-.22			-0.06 **	0.02	-.14			-0.02 *	0.01	-.15		
Anxiety	-0.01	0.11	-.005			-0.01	0.03	-.01			0.03 *	0.01	.13		
Emotion Expressivity (General)	-0.16 *	0.05	-.13			-0.03 *	0.01	-.10			-0.004	0.01	-.04		
Emotion Expressivity (Relationship)	0.13 *	0.06	.10			0.02	0.02	.07			0.002	0.01	.02		
PPR (total)	0.19	0.31	.14			0.27 **	0.09	.75			0.08 *	0.04	.79		
PPR (understanding)	0.31	0.40	.10			-0.06	0.12	-.06			-0.04	0.05	-.14		
PPR (validation)	0.62	0.37	.21			-0.09	0.11	-.12			-0.06	0.04	-.26		
Affective Empathy	0.76 ***	0.13	.20			0.22 ***	0.04	.21			0.01	0.01	.04		
Cognitive Empathy	0.42 ***	0.12	.11			0.01	0.03	.01			-0.01	0.01	-.04		
Expressive Suppression	0.46 ***	0.11	.13			0.02	0.03	.02			-0.01	0.01	-.02		
Interpersonal ER (Relationship)	0.08	0.05	.06			0.00	0.01	-.01			0.01 *	0.01	.12		

Notes. *$p < .05$, **$p < .01$, ***$p < .001$; [a]0 = male, 1 = female; [b]0 = in a relationship/dating, 1 = engaged/married/cohabiting; [c]0 = less than 1 year, 1= 1 year or longer

Mediational Model – Total Sample

Prior to testing the moderated-mediation model, a mediation model was tested using the total sample ($N = 591$). Based on measurement model identification rules, the measurement model tested was properly identified. Each of the latent variables had at least three indicators with uncorrelated error terms, which meets the suggested minimum of three indicators per latent variable. For each factor, one item loading was fixed at 1.0 in order to allow estimation of factor loadings. Fixed indicators were chosen based on the preliminary factor analyses for each of the latent variables. For each of the indicators, there was at least one other indicator with which it did not share correlated measurement error. Items were only allowed to load onto one factor each; thus, there were no issues with significant cross-loadings. Finally, all factors were correlated with each other in the model. For both the measurement and structural models, there were 55 knowns and 23 unknowns; thus, the models were properly overidentified. Finally, based on the sample size recommendations by Bentler (2006), sample size was calculated using an *N:q* ratio of 10:1, where *q* represents the number of free parameter estimates. The calculated minimum sample size for the current study was 230 based on the 10:1 *N:q* ratio. The final sample used was 591, with an *N:q* ratio of 25:1; thus, the current sample was sufficient to test the proposed model.

Measurement Model

Prior to testing the structural model, a measurement model was tested to ensure the factor structure of all latent variables in the model. The initial measurement model was not a good fit for the data, $\chi^2(24, N = 591) = 280.89$, $p < .001$, *CFI* $= .89$, *RMSEA* $= .14$ (*CI* $= 0.12, 0.15$), *SRMR* $= .08$. The LaGrange Multiplier test suggested several

parameters be added. Based on theory and residual values, the error terms between

general emotion expressivity and *expressive suppression*, and between *closeness* and

relationship satisfaction and *closeness* were correlated. Adding these correlations

significantly improved the fit of the measurement model, $\triangle\chi^2 = 81.57$, $p < .001$, $\chi^2(22,$

$N = 591) = 199.32$, $p < .001$, *CFI* $= .93$, *RMSEA* $= .12$ (*CI* $= 0.10, 0.13$), *SRMR* $= .07$. The

reliability coefficient Rho was .91 (indicating good reliability of the factors) and there

were no Heywood cases (i.e., negative variances).

Structural Model

For the structural model, the correlated error terms from the measurement model

were retained. Sex, relationship status and length, depression, and anxiety were included

as exogenous variables and initially left free to affect all other variables. Relationship

status and length were not significantly associated with any of the study variables and

were removed from the model. Although initially suggested as a covariate, anxiety was

not significantly associated with any of the study variables in the final model and was

thus removed. In the final model, significant paths were retained for 1) sex with

individual emotion expression, 2) depression and interpersonal emotion regulation, and 3)

depression and relationship health. Including these variables ensured that any initial

inequalities among participants were accounted for by the model, which allowed us to

assess unique effects of the main study variables. Although sex and depression were

retained as covariates in the final model, for ease of presentation, they are not shown in

Figure 1. The initial structural model was an adequate fit for the data, $\chi^2(46, N = 591) =$

357.94, $p < .001$, *CFI* $= .91$, *RMSEA* $= .11$ (*CI* $= 0.10, 0.12$), *SRMR* $= .09$. All factor

loadings were significant. The paths between individual emotion expression and

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interpersonal emotion regulation, and between interpersonal emotion regulation and relationship health were significant, while the direct path from individual emotion expression to relationship health was not significant, which indicates full mediation. Further, the Wald test for dropping parameters suggested dropping the direct path between individual emotion expression and relationship health. The Wald test also suggested dropping anxiety from the model. Dropping this path and anxiety from the model significantly improved the model chi-square (see Figure 1), $\triangle\chi^2 = 40.12$, $p < .001$, $\chi^2(39, N = 591) = 317.82$, $p < .001$, $CFI = .90$, $RMSEA = .11$ ($CI = 0.10, 0.12$), $SRMR = .09$, although the model fit indices remained nearly identical. The final model suggests that individual emotion expression has an indirect effect on relationship health via interpersonal emotion regulation, regardless of level of social anxiety. Specifically, greater levels of individual emotion expression were associated with greater levels of interpersonal emotion regulation which, in turn, was associated with better relationship health.

Figure 1.

Final Mediational Model for Total Sample

Notes. In accordance with identification procedures, the pathways between *individual emotion expression* and *relationship-specific emotion expressivity*, *interpersonal emotion regulation* and *affective empathy*, and *relationship health* and *relationship satisfaction* were fixed, as each accounted for the most variance in the respective latent factor. The error terms between *general emotion expressivity* and *expressive suppression*, and *relationship satisfaction* and *closeness* were allowed to correlate. The error term arrows pointing to *interpersonal emotion regulation* and *relationship health* represent the disturbance term for each latent factor. Unstandardized parameter estimates are presented in the model.
* *p < .05   ** p < .01   *** p < .001*

Moderated-Mediation Model

A dichotomous variable was created for social anxiety (SA) based on the SIAS cut-off score of 34 for social anxiety. Based on the pre-determined SIAS cut-offs for social phobia, individuals scoring 33 or lower were included in the non-socially anxious group ($N = 329$), while individuals scoring 34 or greater were included in the socially anxious group ($N = 262$). The decision to create groups based on the lower cut-off for the SIAS (rather than the social anxiety cut-off of 43) was due to 1) ensuring an adequate sample size for multi-sample analyses in SEM, and 2) to examine differences more broadly between sub-clinical SA and NSA individuals, rather than only examining those with very high, potentially clinically levels of SA.

As discussed above, the measurement model tested was properly identified. Based on the sample size recommendations by Bentler (2006), sample size was calculated using an *N:q* ratio of 10:1, where *q* represents the number of free parameter estimates. The calculated minimum sample size for each group was 260 based on this calculation. The final sample used for the NSA group was 329 with an *N:q* ratio of 12:1, while the final sample used for the SA group was 262 with an *N:q* ratio of 10:1. Thus, the current samples for each group were sufficient to test the proposed model.

Measurement Model

Prior to testing the structural model, a constrained and unconstrained measurement model were tested to ensure there was measurement invariance between the SA and NSA groups. In the constrained model, each of the three factors were allowed to correlate freely while all factor loadings were constrained. In the unconstrained model, factor loading constraints were released.

For the measurement model, the unconstrained model was a significantly better fit for the data than the constrained model, $\Delta\chi^2 = 21.85$, $p = .001$, however, the fit indices were nearly identical between both models; thus, the constrained model was used in primary analysis as it is more parsimonious. For the constrained model, all factor loadings were significant, and the reliability coefficient Rho was .90 (indicating good reliability of the factors) and there were no Heywood cases (i.e., negative variances). The constrained measurement model did not fit the data well $\chi^2(54, N = 591) = 307.02$, $p < .001$, $CFI = .89$, $RMSEA = .13$ $(CI = 0.11, 0.14)$, $SRMR = .09$; however, a modified measurement model adding correlated error terms between *expressive suppression* and *general emotion expressivity,* and between *relationship satisfaction* and *closeness* significantly improved the fit, $\chi^2(50, N = 591) = 219.79$, $p < .001$, $CFI = .93$, $RMSEA = .11$ $(CI = .09, .12)$, $SRMR = .08$, $\Delta\chi^2 = 87.23$, $p < .001$.

Structural Model

For the structural model, the correlated error terms from the measurement model were retained. For the constrained structural model, all factor loadings and paths between latent variables were constrained between groups. For the unconstrained structural model, factor loadings remained constrained and the paths between factors were released. The unconstrained model was a significantly better fit than the constrained model, $\Delta\chi^2 = 405.16$, $p < .001$, $CFI = .93$, $RMSEA = .108$ $(CI = .09, .12)$, $SRMR = .08$. Thus, there is evidence of a moderated mediation between the NSA and SA groups. This allows for further analysis of the mediation models separately by group.

Structural Model – NSA

As with the total sample model, *sex* and *depression* were included as covariates in the final model. For ease of presentation, they are not shown in Figure 2. The initial model for the NSA group fit the data adequately, χ^2 (46, $N = 329$) $= 187.28$, $p < .001$, *CFI* $= .92$, *RMSEA* $= .097$ (*CI* $= .08$, .11), *SRMR* $= .10$. The paths between *individual emotion expression* and *interpersonal emotion regulation*, and between *interpersonal emotion regulation* and *relationship health* were significant. The direct path between *individual emotion expression* and *relationship health* was not significant, when accounting for the mediational pathway, which indicates full mediation. Further, the Wald test suggested dropping the direct path from individual emotion expression to relationship health. The LaGrange multiplier test suggested several parameters be added. Based on these suggestions, the highest residuals, and theory, *sex* and *depression* were correlated as well as the error term between *cognitive empathy* and *affective empathy*. Although adding this error term and the correlation between covariates significantly improved the model chi-square, the fit indices remained nearly identical, $\chi^2(37, N = 329)$ $= 158.46$, $p < .001$, *CFI* $= .92$, *RMSEA* $= .10$ (*CI* $= .08$, .12), *SRMR* $= .09$, $\triangle\chi^2 = 28.82$, $p < .001$.

Overall, the model supports the hypothesis that individual emotion expression has an indirect effect on relationship health through interpersonal emotion regulation for those without social anxiety. The mediational pathways are positive, such that increased individual emotion expression was associated with increased levels of interpersonal emotion regulation within one's relationship which, in turn, was associated with increased relationship health (see Figure 2).

Figure 2.

Final Modified Model for NSA group

Notes. In accordance with identification procedures, the pathways between *individual emotion expression* and *relationship-specific emotion expressivity*, *interpersonal emotion regulation* and *affective empathy*, and *relationship health* and *relationship satisfaction* were fixed, as each accounted for the most variance in the respective latent factor. The error terms between *general emotion expressivity* and *expressive suppression*, *affective* and *cognitive empathy*, and *relationship satisfaction* and *closeness* were allowed to correlate. The error term arrows pointing to *interpersonal emotion regulation* and *relationship health* represent the disturbance term for each latent factor. Unstandardized parameter estimates are presented in the model.
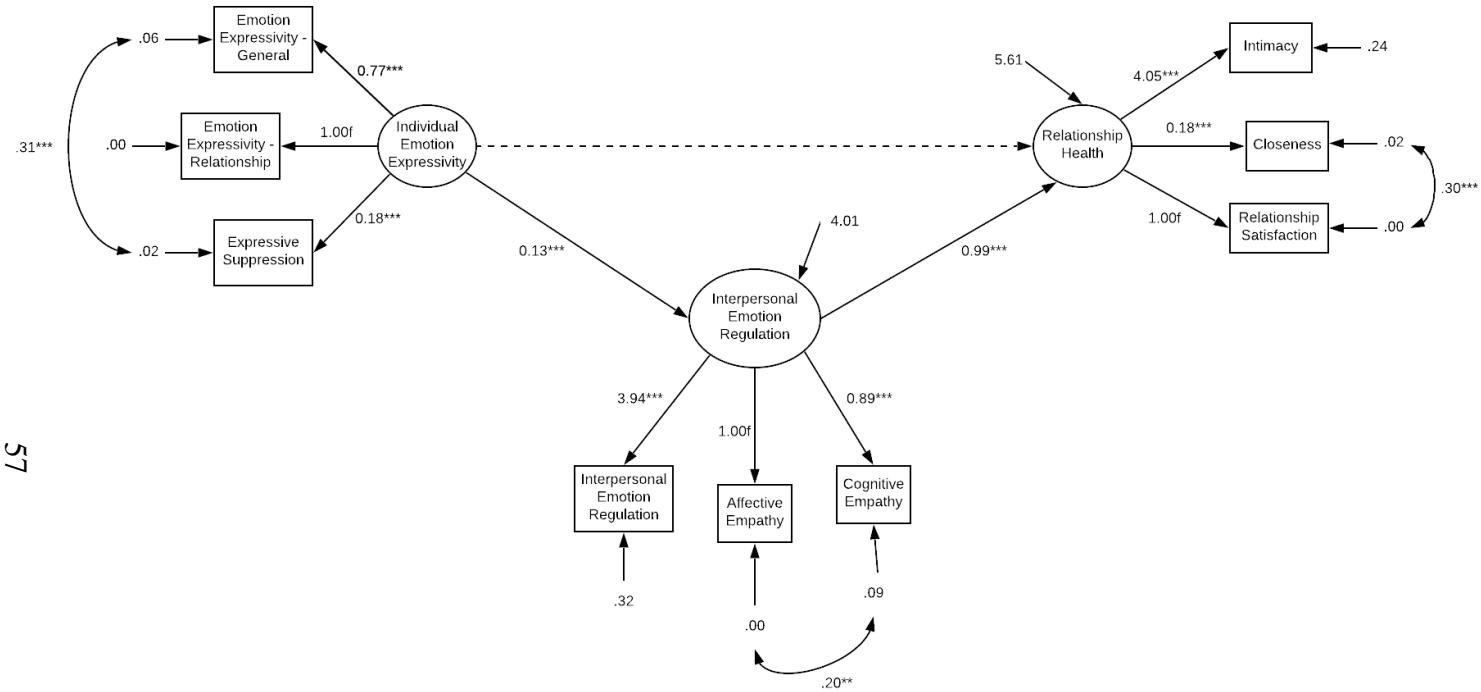** p < .05   ** p < .01   *** p < .001*

Structural Model – SA

As with the NSA group, *sex* and *depression* were included as covariates in the

final model but, for ease of presentation, are not shown in Figure 3. The initial model for

the SA group was an adequate fit for the data, χ^2 (46, $N = 262$) = 179.87, $p < .001$, *CFI* =

.91, *RMSEA* = .106 (*CI* = .09, .12), *SRMR* = .08. The paths between *individual emotion*

expression and *interpersonal emotion regulation*, and between *interpersonal emotion*

regulation and *relationship health* were significant. The direct path between *individual*

emotion expression and *relationship health* was not significant, when accounting for the

mediational pathway, which indicates full mediation. Again, *anxiety* was not significantly

associated with any of the study variables, despite initially being suggested as a covariate,

and thus was dropped. Dropping anxiety from the model significantly improved the

model fit, $\triangle\chi^2$ = 35.22, $p < .001$, χ^2 = 144.65, $p < .001$ *CFI* = .91, *RMSEA* = .104 (*CI* =

.09, .12), *SRMR* = .07. However, dropping the direct path between individual emotion

expression and relationship health did not improve the model fit; thus, this pathway was

retained in the final model (see Figure 3).

Overall, the model supports the hypothesis that individual emotion expression has

an indirect effect on relationship health via interpersonal emotion regulation for those

with social anxiety. The mediational pathways revealed that increased individual emotion

expression was associated with increased interpersonal emotion regulation in one's

relationship which, in turn, was associated with more positive relationship health (see

Figure 3). As with the NSA group, the direct path between individual emotion expression

and relationship health was not significant for the SA group, when taking the indirect

path through interpersonal emotion regulation into account. Also, in contrast to my

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hypothesis, although the strength of pathways differed between those with and without

SA, the valence of the pathways remained the same across groups. For those with social

anxiety, the indirect pathway from individual emotion expression to relationship health

was weaker than for those without social anxiety. Thus, it appears individuals with social

anxiety displayed less individual emotion expression and interpersonal emotion

regulation compared to those without; however, these differences were not significant

enough to have a negative impact on the relationship health of those with social anxiety.

Figure 3.

Final Modified Model for SA group

Notes. In accordance with identification procedures, the pathways between *individual emotion expression* and *relationship-specific emotion expressivity*, *interpersonal emotion regulation* and *affective empathy*, and *relationship health* and *relationship satisfaction* were fixed, as each accounted for the most variance in the respective latent factor. The error terms between *general emotion expressivity* and *expressive suppression*, *affective* and *cognitive empathy*, and *relationship satisfaction* and *closeness* were allowed to correlate. The error term arrows pointing to *interpersonal emotion regulation* and *relationship health* represent the disturbance term for each latent factor. Unstandardized parameter estimates are presented in the model.
*p < .05   ** p < .01   *** p < .001

Discussion

The current thesis study examined the role of individual and interpersonal emotion processes in relationship functioning, and how social anxiety might influence these processes. Three specific aims were examined: 1a) whether individual emotion expressivity and, 1b) interpersonal emotion regulation vary as a function of social anxiety; 2) whether and how individual emotion expressivity and interpersonal emotion regulation influence relationship health; and, 3) how individual emotion expressivity and interpersonal emotion regulation influence relationship health among those with varying levels of social anxiety. The study found partial support for my hypotheses. The main findings and implications will be discussed.

Social Anxiety: Emotion Expressivity and Interpersonal Emotion Regulation

Regarding Aims 1a and 1b, my findings partially supported my first hypothesis that those high in social anxiety would report less general and relationship-specific emotion expressivity as compared to those low in social anxiety. Social anxiety was associated with greater self-reported levels of expressive suppression; however, it was not associated with general or relationship-specific expressivity. Regarding expressive suppression, the current findings are in line with prior research showing increased expressive suppression among those with social anxiety (O'Toole et al., 2014), even in the context of their romantic relationship (Sparrevohn & Rapee, 2009). The current findings also support recent research findings which suggest expressive suppression and emotion expressivity are distinct constructs (Cameron & Overall, 2018). Thus, it might not be surprising that those with social anxiety were found to display more expressive suppression, but not decreased emotion expressivity, in the current study. Although

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general and relationship-specific emotion expression were not predicted by social anxiety, different results arose when examining positive and negative emotion expressivity separately. In line with prior research findings (e.g., Kashdan et al., 2013), greater social anxiety was associated with diminished positive emotion expressivity, both in general and within one's romantic relationship. However, social anxiety was not associated with negative emotion expressivity. This finding highlights the importance of examining positive emotion among those with social anxiety as a particular area of deficit and one which might be targeted during treatment. Although some research has examined the utility of positive emotion upregulation interventions among those with generalized anxiety disorder and depression (Taylor, Lyubomirsky, & Stein, 2016), no studies to date have examined such interventions among those with social anxiety, or within the context of romantic relationships. Thus, an important focus of future research might be to examine such interventions among these groups.

My second hypothesis, that social anxiety would be associated with lower levels of interpersonal emotion regulation in one's relationship but would not necessarily impact one's ability to recognize and share their partner's emotions (i.e., cognitive versus affective empathy), was also partially supported. In line with prior research findings (Morrison et al., 2016) and in support of my hypothesis, social anxiety was not associated with cognitive empathy and was weakly associated with deficits in affective empathy within one's relationship. In other words, increased levels of social anxiety appeared to influence one's ability to *share* the emotions of their partner (i.e., affective empathy) but not their ability to take their partner's perspective or understand their partner's emotions (i.e., cognitive empathy). However, in contrast to my hypothesis, social anxiety was

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associated with *increased* interpersonal emotion regulation with one's partner. While this finding may initially seem to contradict the notion that individuals with SA display dysregulation, it might be understood in light of my finding that SA was not associated with diminished emotion expressivity. If those with SA are not necessarily expressing less emotion, then interpersonal emotion regulation may not be negatively impacted. It may also be that those with SA may rely *more* on their partners for help in regulating their emotions as compared to those low in SA. Indeed, prior research does suggest individuals with social anxiety display more dependence with their romantic partners (Darcy, Davila, & Beck, 2005). One area in which socially anxious individuals may rely on their partners is for emotional support, possibly in the form of interpersonal emotion regulation. However, further research is necessary to examine whether this is the case. In sum, although some of the current findings support prior research, the findings that individuals with social anxiety do not express less emotion, both in general and in their romantic relationship, and even show increased interpersonal emotion regulation with their partner, as compared to those without social anxiety, conflict with prior research. While patterns of emotion expressivity and interpersonal emotion regulation in romantic relationships were examined in more depth in my primary aim, further research is necessary to delineate the contexts in which those with social anxiety do display emotion dysregulation.

Emotion Expressivity and Interpersonal Emotion Regulation on Relationship Satisfaction

The second aim of the current study sought to examine how individual emotion expression and interpersonal emotion regulation affect relationship health. In support of my hypotheses, I found that perceived partner responsiveness and affective empathy were

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associated with greater relationship satisfaction, while relationship-specific emotion expressivity, affective empathy, and cognitive empathy were associated with greater intimacy, and perceived partner responsiveness and relationship-specific interpersonal emotion regulation were associated with greater relationship closeness. I also found that general emotion expressivity (but not relationship-specific expressivity) was associated with lower relationship satisfaction and intimacy. Why might general emotion expressivity be associated with lower relationship satisfaction and intimacy, while relationship-specific expressivity is associated with greater intimacy? In one sense, it is understandable how expressing one's emotions to their partner could benefit intimacy. However, this does not explain why general expressivity (i.e., in non-relationship contexts) was detrimental. One explanation might be that expressing too much emotion, in general, can have a negative impact on one's relationship. Future research should examine the possible curvilinear relationship between emotion expression and relationship health, both for general and relationship-specific expression. It may also be that having a mismatch in the amount of general expression compared to expression in the relationship may have a negative impact on relationship satisfaction. For instance, if one feels their partner is not expressing their emotions to them as much as they do to others, they may feel less close to their partner or be less satisfied in the relationship. In sum, the current study found support for the notion that both individual emotion expression and interpersonal emotion regulation play important roles in relationship health. While measures of individual emotion expression were more strongly related to relationship satisfaction, it appears that interpersonal emotion regulation plays a more important role in feelings of intimacy and closeness within one's relationship. These

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findings have important implications for how individual versus interpersonal emotion regulation strategies differentially impact relationship health.

Mediational Model of Emotion Expressivity, Interpersonal Emotion Regulation, and Relationship Health with Social Anxiety as Moderator

The mediational model findings support my hypothesis, such that increased levels of individual emotion expressivity were associated with increased interpersonal emotion regulation in one's relationship which, in turn, was associated with better relationship health outcomes. Further, there was evidence of full mediation when examining the mediational model using the full sample (i.e., regardless of SA). Regarding the moderated-mediation model, I found that, in contrast to my hypothesis, there did not appear to be significant differences in the mediational model pathways between those with and without social anxiety. Specifically, the indirect effect of individual emotion expressivity on relationship health via interpersonal emotion regulation was significant and in the same direction for both groups. That is, there was not a negative relationship between individual emotion expressivity and interpersonal emotion regulation among those with SA, nor did these factors negatively impact the relationship functioning of those with SA as was hypothesized. In other words, although those with social anxiety did show weaker associations between individual emotion expressivity and interpersonal emotion regulation, and between interpersonal emotion regulation and relationship health as compared to those without SA, lower levels of individual emotion expressivity and interpersonal emotion regulation did not appear to have a negative impact on relationship health.

What might be accounting for this pattern of findings? One explanation may be that the valence of emotions expressed has a differential effect on relationship functioning. Another possible explanation is that there is a "sweet spot" of emotion expressivity within relationships. In other words, moderate levels of emotion expressivity may be beneficial for relationships whereas very low (e.g., expressive suppression) or very high levels of emotion expressivity can be detrimental. Although I did not find support for this type of curvilinear relationship in the current study, further examination is necessary to determine whether this might be the case.

While the overall model findings were the same across groups, there were differences in the strength of the main study pathways and the factor loadings for each latent variable across groups. Specifically, the SA showed weaker associations between individual emotion expressivity and interpersonal emotion regulation, and between interpersonal emotion regulation and relationship health compared to the NSA group. Additionally, and in line with findings from Aims 1a and 1b, those in the SA group had lower factor loadings for several individual emotion expressivity and interpersonal emotion regulation measures used in the model.

These findings have several implications. First, although those with social anxiety displayed lower levels of individual emotion expressivity and interpersonal emotion regulation, neither appeared to have a negative impact on the relationship health of those with social anxiety. In other words, those with social anxiety appear to benefit from interpersonal emotion regulation within their romantic relationships in a similar way as those without social anxiety, despite their displaying less emotion expressivity and lower levels of interpersonal emotion regulation with their partner. Second, those with social

anxiety may not be as deficient in their individual and interpersonal emotion regulation abilities as some research has suggested, at least in the context of their romantic relationships. So, what might be explaining diminished relationship health among those with SA, if emotion regulation processes do not? Future research may seek to address this question in order to better understand the causes of diminished relationship health among those with social anxiety and other mental illness. Finally, the current findings have important implications for couples therapy practices, particularly those aimed at developing emotion regulation strategies. Such interventions may prove to be beneficial for couples in general, and also for those coping with mental illnesses such as social anxiety.

Limitations

Although the current thesis had many strengths, including a large sample size and the use of SEM to examine the primary aim, there were several limitations which should be addressed. First, the current study only collected data from one partner within the couple relationship. While self-report is reliable in many instances, it may not be as reliable among those SA or when reporting information on one's partner. Further, because information on interpersonal emotion regulation was only collected from one individual, the current findings may not be accurate. These issues could be addressed by conducting a similar study in which both individuals in the relationship complete the survey. This would allow for 1) a better understanding of individual and interpersonal emotion regulation patterns within relationships, 2) examination of how one partner's affect and expression impacts the other's, and 3) examination of how accurate one's

perceptions of their partner's emotions and interpersonal emotion regulation within the relationship are as compared to their partner's reports.

A second limitation was the reliance on cross-sectional data, which only allows us to draw conclusions based on correlations. Longitudinal or experimental studies are necessary to examine the causal aspects of individual and interpersonal emotion regulation on relationship health and outcomes.

A final limitation are the measures of social anxiety used in the current study. Perhaps the Social Interaction Anxiety Scale does not fully capture SA as well as other popular scales, such as the Liebowitz Social Phobia Scale (LSPS; Mennin et al., 2002). While the self-report version of the Liebowitz Social Phobia Scale has been shown to be as valid as the clinician-administered version (Rytwinski et al., 2009), a comparable study does not exist for the SIAS. Also, because the current study relied on groups created by cut-off scores, rather than a clinical diagnosis of social anxiety, the findings may not extend to clinical populations. Thus, further research is needed in which these patterns are compared in a clinical and non-clinical population.

Conclusion

The current study examined how individual emotion expressivity and interpersonal emotion regulation processes impact relationship health, and how social anxiety might influence these processes. There are three key takeaways from the current findings. First, those with social anxiety showed specific, but not general, deficits in emotion regulation abilities. Specifically, they displayed increased expressive suppression, but not diminished expressivity, both in general and in their relationships. When examining positive versus negative emotion expressivity, however, those with

social anxiety displayed diminished positive emotion expressivity both in general and within their romantic relationship. These findings suggest a need to further delineate the contexts in which emotion expressivity is diminished among those with social anxiety, while also further examining how treatments might target positive emotion among those with social anxiety. Second, both individual emotion expressivity and interpersonal emotion regulation processes played an important role in relationship health, regardless of social anxiety. Finally, the NSA and SA groups showed similar patterns of individual emotion expressivity and interpersonal emotion regulation within their relationships which, in turn, resulted in better relationship satisfaction for both groups. Some of the current findings, such as those with SA displaying more interpersonal emotion regulation within their romantic relationship, seem to suggest that interpersonal emotion regulation may play a greater role in the relationship health of those with SA. In other words, those with SA may not be as deficient in their emotion regulation abilities as previous research has shown, particularly in the context of romantic relationships. In conclusion, the current study showed initial evidence of the importance of interpersonal emotion regulation in relationship health, even among those with social anxiety. The current findings have important implications for future research examining the role of individual and interpersonal emotion regulation processes in mental disorders and relationships, and for couple's therapy focused on emotion regulation processes.

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APPENDIX A

MEASURES USED IN STUDY

Demographic Questions

1. What is your age?

2. What is your sex? (*Check one*) ☐ Female ☐ Male ☐ Other

3. What is your current relationship status? (*Check one*) ☐ Single ☐ In a relationship ☐ Cohabiting ☐ Married

4. How long have you and your current partner been in a relationship? (*Check one*) ☐ Less than 3 months ☐ 3 to 6 months ☐ 7 months to 1 year ☐ 1 year or longer

5. What is your partner's sex? (*Check one*) ☐ Female ☐ Male ☐ Other

6. Does your partner consider themself to be (*Check one*): ☐ Heterosexual or straight ☐ Homosexual ☐ Bisexual ☐ Other ☐ Prefer not to answer

7. What is your total household income? (*Check one*) ☐ Less than $25,000 ☐ $25,001-34,999 ☐ $35,000-49,999 ☐ $50,000-74,999 ☐ $75,000-99,000 ☐ $100,000-149,999 ☐ $150,000-199,000 ☐ $200,000 or more

8. What is the highest degree or level of school you have completed? (If you're currently enrolled in school, please indicate the highest degree you have *received.*) (*Check one*) ☐ Some high school ☐ High school ☐ Some college ☐ College degree ☐ Advanced degree

9. What is your current employment status? (*Check one*) ☐ Full-time ☐ Part-time ☐ Self-employed ☐ Student ☐ Currently not working

10. How would you describe yourself? (*Check all that apply*) ☐ non-Hispanic White ☐ African American ☐ Hispanic ☐ Asian ☐ Other

11. Do you consider yourself to be (*Check one*): ☐ Heterosexual or straight ☐ Homosexual ☐ Bisexual ☐ Other ☐ Prefer not to answer

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998)

<u>Instructions</u>: For each item, please circle the number to indicate the degree to which you feel the statement is characteristic of *you*.

The rating scale is as follows:
0 = does not describe me   1 = slightly describes me   2 = moderately describes me
3 = very much describes me   4 = extremely describes me

CHARACTERISTIC	NOT AT ALL	SLIGHTLY	MODERATELY	VERY	EXTREMELY
1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).	0	1	2	3	4
2. I have difficulty making eye contact with others.	0	1	2	3	4
3. I become tense if I have to talk about myself or my feelings.	0	1	2	3	4
4. I find it difficult to mix comfortably with the people I work with.	0	1	2	3	4
5. I find it easy to make friends my own age.	0	1	2	3	4
6. I tense up if I meet an acquaintance in the street.	0	1	2	3	4
7. When mixing socially, I am uncomfortable.	0	1	2	3	4
8. I feel tense if I am alone with just one other person.	0	1	2	3	4
9. I am at ease meeting people at parties, etc.	0	1	2	3	4
10. I have difficulty talking with other people.	0	1	2	3	4
11. I find it easy to think of things to talk about.	0	1	2	3	4
12. I worry about expressing myself in case I appear awkward.	0	1	2	3	4
13. I find it difficult to disagree with another's point of view.	0	1	2	3	4
14. I have difficulty talking to attractive persons of the opposite sex.	0	1	2	3	4
15. I find myself worrying that I won't know what to say in social situations.	0	1	2	3	4
16. I am nervous mixing with people I don't know well.	0	1	2	3	4
17. I feel I'll say something embarrassing when talking.	0	1	2	3	4
18. When mixing in a group, I find myself worrying I will be ignored.	0	1	2	3	4
19. I am tense mixing in a group.	0	1	2	3	4
20. I am unsure whether to greet someone I know only slightly.	0	1	2	3	4

Center for Epidemiologic Studies – Depression Inventory

Instructions: Below is a list of the ways you might have felt or behaved. Please indicate how often you have felt this way during the past week.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	☐	☐	☐	☐
2. I did not feel like eating; my appetite was poor.	☐	☐	☐	☐
3. I felt that I could not shake off the blues even with help from my family or friends.	☐	☐	☐	☐
4. I felt I was just as good as other people.	☐	☐	☐	☐
5. I had trouble keeping my mind on what I was doing.	☐	☐	☐	☐
6. I felt depressed.	☐	☐	☐	☐
7. I felt that everything I did was an effort.	☐	☐	☐	☐
8. I felt hopeful about the future.	☐	☐	☐	☐
9. I thought my life had been a failure.	☐	☐	☐	☐
10. I felt fearful.	☐	☐	☐	☐
11. My sleep was restless.	☐	☐	☐	☐
12. I was happy.	☐	☐	☐	☐
13. I talked less than usual.	☐	☐	☐	☐
14. I felt lonely.	☐	☐	☐	☐
15. People were unfriendly.	☐	☐	☐	☐
16. I enjoyed life.	☐	☐	☐	☐
17. I had crying spells.	☐	☐	☐	☐
18. I felt sad.	☐	☐	☐	☐
19. I felt that people dislike me.	☐	☐	☐	☐
20. I could not get "going."	☐	☐	☐	☐

SCORING: zero for answers in the first column, 1 for answers in the second column, 2 for answers in the third column, 3 for answers in the fourth column. The scoring of positive items is reversed. Possible range of scores is zero to 60, with the higher scores indicating the presence of more symptomatology.

Symptom Checklist-90-R – Anxiety Subscale (SCL-90R; Derogatis, 1994)

Instructions**:** Please indicate how often you have felt each of these ways in the <u>past 7 days</u> using the scale below.
 0 = *none/rarely (<1 day);* 1 = *a little bit (1-2 days);* 2 = *sometimes (3-4 days);* 3 = *most (5-7 days)*

<u>In the past week, have you…</u>
1. felt nervous or shaky inside?
2. suddenly scared for no reason?
3. fearful?
4. tense or keyed up?
5. so restless you couldn't sit still?
6. felt that something bad is going to happen to you?
7. had spells of terror or panic?
8. thoughts and images of a frightening nature?
9. felt yourself trembling?
10. felt your heart pounding or racing?

Berkeley Expressivity Questionnaire (Gross & John, 1997)

<u>Instructions</u>: Please indicate your agreement or disagreement with each of the following statements.

1	2	3	4	5	6	7
strongly disagree			neutral			strongly agree

1. Whenever I feel positive emotions, people can easily see exactly what I am feeling.
2. I sometimes cry during sad movies.
3. People often do not know what I am feeling.
4. I laugh out loud when someone tells me a joke that I think is funny.
5. It is difficult for me to hide my fear.
6. When I'm happy, my feelings show.
7. My body reacts very strongly to emotional states.
8. I've learned it is better to suppress my anger than to show it.
9. No matter how nervous or upset I am, I tend to keep a calm exterior.
10. I am an emotionally expressive person.
11. I have strong emotions.
12. I am sometimes unable to hide my feelings, even though I would like to.
13. Whenever I feel negative emotions, people can easily see exactly what I am feeling.
14. There have been times when I have not been able to stop crying even though I tried to stop.
15. I experience my emotions very strongly.
16. What I'm feeling is written all over my face.

BEQ Scoring:
Items 3, 8, and 9 are reverse scored.
Items 3, 5, 8, 9, 13, 16 make up the Negative Emotionality facet
Items 1, 4, 6, 10 make up the Positive Emotionality facet
Items 2, 7, 11, 12, 14, 15 make up the Impulse Strength facet.

Berkeley Expressivity Questionnaire – modified for expressivity in current romantic relationship (Gross & John, 1997)

<u>Instructions</u>: Please indicate your agreement or disagreement with each of the following statements.

1	2	3	4	5	6	7
strongly disagree			neutral			strongly agree

1. Whenever I feel positive emotions, my partner can easily see exactly what I am feeling.
2. I sometimes cry during sad movies when I am around my partner.
3. My partner often does not know what I am feeling.
4. I laugh out loud when my partner tells me a joke that I think is funny.
5. It is difficult for me to hide my fear from my partner.
6. When I'm happy around my partner, my feelings show.
7. My body reacts very strongly to emotional situations when I am around my partner.
8. I've learned it is better to suppress my anger around my partner than to show it.
9. No matter how nervous or upset I am, I tend to keep a calm exterior around my partner.
10. I am an emotionally expressive person around my partner.
11. When I am around my partner, I have strong emotions.
12. I am sometimes unable to hide my feelings from my partner, even though I would like to.
13. Whenever I feel negative emotions, my partner can easily see exactly what I am feeling.
14. There have been times when I have not been able to stop crying around my partner, even though I tried to stop.
15. When I am around my partner, I experience my emotions very strongly.
16. What I'm feeling is written all over my face when I am around my partner.

BEQ Scoring:
Items 3, 8, and 9 are reverse scored.
Items 3, 5, 8, 9, 13, 16 make up the Negative Emotionality facet
Items 1, 4, 6, 10 make up the Positive Emotionality facet
Items 2, 7, 11, 12, 14, 15 make up the Impulse Strength facet.

Emotion Regulation Questionnaire (ERQ; Gross & John, 2003)

<u>Instructions</u>: We would like to ask you some questions about your emotional life, in particular, how you control (that is, regulate and manage) your emotions. The questions below involve two distinct aspects of your emotional life. One is your emotional experience, or what you feel like inside. The other is your emotional expression, or how you show your emotions in the way you talk, gesture, or behave. Although some of the following questions may seem similar to one another, they differ in important ways. For each item, please answer using the following scale:

1	2	3	4	5	6	7
strongly disagree			neutral			strongly agree

1. ____ When I want to feel more *positive* emotion (such as joy or amusement), I *change what I'm thinking about*.
2. ____ I keep my emotions to myself.
3. ____ When I want to feel less *negative* emotion (such as sadness or anger), I *change what I'm thinking about*.
4. ____When I am feeling *positive* emotions, I am careful not to express them.
5. ____When I'm faced with a stressful situation, I make myself *think about it* in a way that helps me stay calm.
6. ____ I control my emotions by *not expressing them*.
7. ____When I want to feel more *positive* emotion, I *change the way I'm thinking* about the situation.
8. ____ I control my emotions by *changing the way I think* about the situation I'm in.
9. ____When I am feeling *negative* emotions, I make sure not to express them.
10. ____When I want to feel less *negative* emotion, I *change the way I'm thinking* about the situation.

Scoring:
Items 1, 3, 5, 7, 8, 10 make up the Cognitive Reappraisal facet.
Items 2, 4, 6, 9 make up the Expressive Suppression facet.
Scoring is kept continuous.
Each facet's scoring is kept separate.

Perceived Partner Responsiveness Scale (PPRS; Reis & Carmichael, 2006)

Instructions: Please answer the following questions about your current romantic partner.

Response Categories:
1 – Not true at all   4 – Moderately true   7 – Completely true
2 – Slightly true   5 – Very true
3 – Somewhat true   6 – Extremely true

My partner usually:

General Items
… is an excellent judge of my character.
… is responsive to my needs.

Understanding Items
… sees the "real" me.
… "gets the facts right" about me.
… understands me.
… is on "the same wavelength" with me.
… knows me well.

Validation Items
… esteems me, shortcomings and all.
… values and respects the whole package that is the "real" me.
… expresses liking and encouragement for me.
… seems interested in what I am thinking and feeling.
… values my abilities and opinions.

Interpersonal Reactivity Index for Couples (IRIC; Peloquin & Lafotaine, 2010)

Interpersonal Reactivity Index for Couples

The following statements inquire about your thoughts and feelings in a variety of situations occurring in your relationship with your partner. For each item, indicate how well it describes you by circling the appropriate number.

Empathic Concern scale:

1. I often have tender, concerned feelings for my partner when he/she is less fortunate than me.
2. Sometimes I don't feel very sorry for my partner when he/she is having problems.
4. When I see my partner being taken advantage of, I feel kind of protective towards him/her.
6. My partner's misfortunes do not usually disturb me a great deal.
8. When I see my partner being treated unfairly, I sometimes don't feel very much pity for him/her.
9. I am often quite touched by things I see happen in my relationship.

11. In my relationship with my partner, I would describe myself as a pretty soft-hearted person.

Perspective Taking scale:

3. I try to look at my partner's side of a disagreement before I make a decision.
5. I sometimes try to understand my partner better by imagining how things look from his/her perspective.
7. If I'm sure I'm right about something, I don't waste much time listening to my partner's arguments.
10. In my relationship, I believe that there are two sides to every question and try to look at them both.
12. When I'm upset at my partner, I usually try to "put myself in his/her shoes" for a while.
13. Before criticizing my partner, I try to imagine how I would feel if I were in his/her place.

Scoring. Items are rated on the following scale: 0 = Does *not describe me well;* 4 = *Describes me very well.* Items 2, 6, 7, and 8 are reverse coded. Items in each scale are summed to obtain scale total scores.

Interpersonal Emotion Regulation Questionnaire (IERQ; Hofmann, Carpenter, & Curtiss, 2016)

Below is a list of statements that describe how people use others to regulate their emotions. Please read each statement and then circle the number next to it to indicate how much this is true for you by using a scale from 1 (not true for me at all) to 5 (extremely true for me). Please do this for each statement. There are no right or wrong answers.

1------------------------2--------------------3-------------------4----------------------5

not true for me at all   a little bit   moderately   quite a bit
extremely true for me

1. It makes me feel better to learn how others dealt with their emotions.	1—2—3—4—5
2. It helps me deal with my depressed mood when others point out that things aren't as bad as they seem.	1—2—3—4—5
3. I like being around others when I'm excited to share my joy.	1—2—3—4—5
4. I look for other people to offer me compassion when I'm upset.	1—2—3—4—5
5. Hearing another person's thoughts on how to handle things helps me when I am worried.	1—2—3—4—5
6. Being in the presence of certain other people feels good when I'm elated.	1—2—3—4—5
7. Having people remind me that others are worse off helps me when I'm upset.	1—2—3—4—5
8. I like being in the presence of others when I feel positive because it magnifies the good feeling.	1—2—3—4—5
9. Feeling upset often causes me to seek out others who will express sympathy.	1—2—3—4—5
10. When I am upset, others make me feel better by making me realize that things could be a lot worse.	1—2—3—4—5
11. Seeing how others would handle the same situation helps me when I am frustrated.	1—2—3—4—5
12. I look to others for comfort when I feel upset.	1—2—3—4—5
13. Because happiness is contagious, I seek out other people when I'm happy.	1—2—3—4—5
14. When I am annoyed, others can soothe me by telling me not to worry.	1—2—3—4—5
15. When I'm sad, it helps me to hear how others have dealt with similar feelings.	1—2—3—4—5
16. I look to other people when I feel depressed just to know that I am loved.	1—2—3—4—5

17. Having people telling me not to worry can calm me down when I am anxious.	1—2—3—4—5
18. When I feel elated, I seek out other people to make them happy.	1—2—3—4—5
19. When I feel sad, I seek out others for consolation.	1—2—3—4—5
20. If I'm upset, I like knowing what other people would do if they were in my situation.	1—2—3—4—5

Scoring instructions: All items are forward scored. *Enhancing Positive Affect* = Sum of items 3, 6, 8, 13, 18; *Perspective Taking* = Sum of items 2, 7, 10, 14, 17; *Soothing* = Sum of items 4, 9, 12, 16, 19; *Social Modeling* = Sum of items 1, 5, 11, 15, 20

Personal Assessment of Intimacy in Relationships (PAIR; Schaefer & Olsen, 1981)

Instructions: Please respond to each question *as your relationship is now*.

Does not describe me/my relationship at all				Describes me/my relationship very well
1	2	3	4	5

1. My partner listens to me when I need someone to talk to.

2. We enjoy spending time with other couples.

3. I am satisfied with our sex life.

4. My partner helps me clarify my thoughts.

5. We enjoy the same recreational activities.

6. My partner has all the qualities I've ever wanted in a mate.

7. I can state my feelings without him/her getting defensive.

8. We usually "keep to ourselves."

9. I feel our sexual activity is just routine.

10. When it comes to having a serious discussion it seems that we have little in common.

11. I share very few of my partners' interests.

12. There are times when I do not feel a great deal of love and affection for my partner.

13. I often feel distant from my partner.

14. We have very few friends in common.

15. I am able to tell my partner when I want sexual intercourse.

16. I feel "put-down" in a serious conversation with my partner.

17. We like playing together.

18. Every new thing that I have learned about my partner has pleased me.

19. My partner can really understand my hurts and joys.

20. Having time together with friends is an important part of our shared activities.

21. I "hold back" my sexual interest because my partner makes me feel uncomfortable.

22. I feel it is useless to discuss some things with my partner.

23. We enjoy the outdoors together.

24. My partner and I understand each other completely.

25. I feel neglected at times by my partner.

26. Many of my partner's closest friends are also my closest friends.

27. Sexual expression is an essential part of our relationship.

28. My partner frequently tries to change my ideas.

29. We seldom find time to do fun things together.

30. I don't think anyone could possibly be happier than my partner and I when we are with one another.

31. I sometimes feel lonely when we're together.

32. My partner disapproves of some of my friends.

33. My partner seems disinterested in sex.

34. We have an endless number of things to talk about.

35. I think that we share some of the same interests.

36. I have some needs that are not being met by my relationship.


Relationship Assessment Scale (RAS; Hendrick, 1988)

Please indicate the number for each item which best answers that item for you in regards to your current relationship.

1. How well does your partner meet your needs?
     1 - Not at all   2 – Slightly   3 – Moderately   4 – Very   5 - Extremely

2. In general, how satisfied are you with your relationship?
     1 - Not at all   2 – Slightly   3 – Moderately   4 – Very   5 - Extremely

3. How good is your relationship compared to most?
     1 - Not at all   2 – Slightly   3 – Moderately   4 – Very   5 - Extremely

4. How often do you wish you hadn't gotten in this relationship?
     1 – Never   2 – Sometimes   3 – Half the time   4 – Often   5 – Always

5. To what extent has your relationship met your original expectations:
     1 - Not at all   2 – A little   3 – Moderately   4 – A lot   5 – Completely

6. How much do you love your partner?
     1 - Not at all   2 – A little   3 – Moderately   4 – A lot   5 – Very much

7. How many problems are there in your relationship?
     1 – None at all   2 – Very little   3 – Moderate amount
     4 – A lot   5 – A great deal

NOTE: Items 4 and 7 are reverse scored. Items are summed and divided by 7 to get a mean score.

Inclusion of the Other in the Self Scale (IOS; Aron, Aron, & Smollan, 1992)

Instructions: Please indicate which picture best describes your current relationship with

your romantic partner.
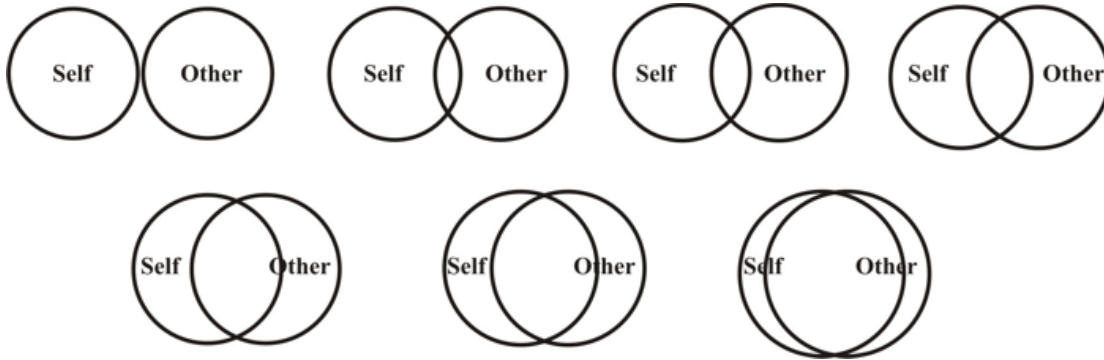
APPENDIX B

ASU IRB CORRESPONDENCE

EXEMPTION GRANTED

Kristin Mickelson
Social and Behavioral Sciences, School of (SSBS)
-
Kristin.Mickelson@asu.edu

Dear Kristin Mickelson:

On 8/9/2018 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Emotion Regulation Processes and Social Anxiety in Romantic Relationships
Investigator:	Kristin Mickelson
IRB ID:	STUDY00008609
Funding:	Name: Social and Behavioral Sciences; ASUW
Grant Title:	
Grant ID:	
Documents Reviewed:	• Thesis Study Consent Form, Category: Consent Form; • SA and ER Survey questions.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Recruitment Flyer.pdf, Category: Recruitment Materials; • IRB Protocol - ER & SA in Romantic Relationships, Category: IRB Protocol;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation on 8/9/2018.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Kaitlyn Schodt
        Kristin Mickelson