

IT'S NOT YOU, IT'S ME: INDIVIDUAL FACTORS ASSOCIATED WITH
ATTACHMENT AND RELATIONSHIP SATISFACTION

by

Laura C. H. Coon

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We are all Treaty people.

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Table of Contents

List of Tables	iii
List of Figures	iv
Abstract	v
Introduction	1
Attachment Theory: Infant Development	3
Attachment in Romantic Relationships	5
Adherence to Communal and Exchange Norms	6
Guilt-Proneness and Shame-Proneness	9
The Current Study	11
Method	14
Participants and Procedures	14
Measures	15
Statistical Analysis	19
Results	21
Descriptive Statistics and Bivariate Correlations	21
Mediation: PROCESS Macro Model 4	24
Moderation: PROCESS Macro Model 1	28
Discussion	33
Strengths, Limitations, and Future Directions	38
Implications and Applications	40
References	43
Appendix A: Recruitment Message	50
Appendix B: Survey Measures	51
Appendix C: Informed Consent Form	64

List of Tables

Table 1	Means and standard deviations of the variables by gender and total sample.	22
Table 2	Pearson correlations among the variables.....	24
Table 3	Mediation analyses: Direct and indirect effects.....	27
Table 4	Effect of attachment on relationship satisfaction (DV) at different age levels.	30

List of Figures

Figure 1	Mediation models 1-6.	26
Figure 2	Moderation models 1-6.	29
Figure 3	Simple slopes plot.	31

Abstract

Feeling satisfied in romantic relationships is correlated with higher levels of happiness, lower risk for depression and decreased severity of depressive symptoms, as well as improved recovery from injury and physical illness or disease. Many researchers have tackled the relationship-specific predictors associated with relationship satisfaction, but research on individual factors is less common. The research that does exist points largely and consistently to attachment style as the most important predictor, but it is not entirely clear why this relationship is so strong. The current study sought to investigate the relationship between attachment and satisfaction in hopes of learning more about the inner workings of attachment that are responsible for the strength of its link to relationship satisfaction. Specifically, we were interested in individual-level factors that might help explain this relationship. We proposed that guilt-proneness, shame-proneness, communal norm adherence, and exchange norm adherence might play a mediating role in the effect of attachment style on relationship satisfaction. This study also sought to evaluate potential differences in the strength of this relationship depending on age, marital status, and relationship length. A total of 397 adults living in the US or Canada who were in romantic relationships of at least three months completed self-report questionnaires online via crowdsourcing site Prolific. Relationship satisfaction, attachment style, guilt- and shame-proneness, and orientation to communal and exchange norms were assessed using various measures. Results showed that only communal norm adherence mediated the relationship between anxious attachment and relationship satisfaction. Moderation analyses revealed that the impact of anxious attachment on relationship satisfaction is significantly stronger for older individuals, but not for longer relationships. Implications for research and practice are discussed.

Introduction

Central to well-being and positive mental health for individuals in adult romantic relationships is relationship satisfaction. Individuals who are more satisfied in their relationships report greater emotional and psychological well-being (Adamczyk, 2019), as well as greater overall life satisfaction (Sağkal & Özdemir, 2020; Love & Holder, 2016). Moreover, satisfied partners are consistently documented to have better mental health than their less satisfied counterparts (Braithwaite & Holt-Lunstad, 2017; Whitton & Whisman, 2010; Downward et al., 2022). Examining the bidirectional link between relationship satisfaction and mental health, Braithwaite and Holt-Lunstad (2017) found stronger effects when the relationship was the predictor and mental health was the outcome, concluding that improving a relationship can improve mental health, but improving one's mental health does not reliably result in an improved relationship. For some, higher relationship satisfaction even promotes greater physical health and higher perceptions of one's physical health. Patients with breast cancer in more satisfying relationships maintain lower inflammation during cancer treatment, due to lower levels of stress (Shrout et al., 2020). In older adults, more positive partner interactions protect against dysregulated cortisol patterns (Shrout et al., 2020). Even when controlling for relationship quality, behaviours deemed as 'partner-satisfying' immediately result in more positive and less negative affect as well as greater needs fulfillment and increased partner closeness (Peez et al., 2021).

Given the wide range of positive outcomes associated with relationship satisfaction, the question of what predicts how satisfied or unsatisfied one will be in a romantic relationship has been a topic of interest in relationship psychology for many

years. Numerous studies have successfully noted the importance of relationship-level predictors and identified some of the most influential relationship-specific markings of a high-quality romantic relationship, such as partner communication (Johnson et al., 2022), personality compatibility (Stoeber, 2012), and perceived partner support (Lal & Bartle-Haring, 2011; Ekas et al., 2015). Recently, findings of a meta-analysis conducted using machine learning showed that the top relationship-specific predictors of higher relationship satisfaction were perceived partner commitment, appreciation, sexual satisfaction, and perceived partner satisfaction (Joel et al., 2020). The top individual-difference predictors found were life satisfaction, negative affect, depression, attachment avoidance, and attachment anxiety (Joel et al., 2020). While relationship-specific predictors are useful in explaining the quality of an existing relationship, individual-specific predictors have the potential to provide information as to whether or not one is likely to be satisfied in a future relationship regardless of partner type, and why one feels satisfied or unsatisfied, generally, in relationships.

While life satisfaction, negative affect, and depression all have bidirectional links to relationship satisfaction (Joel et al., 2020; Sağkal & Özdemir, 2020; Braithwaite & Holt-Lunstad, 2017), attachment style is uniquely unidirectional from a developmental perspective, as attachment is developed in infancy and romantic relationships develop later in life, after an attachment style has been formed (Bowlby, 1958). The effect of attachment on romantic relationship satisfaction is a reliably strong and well-documented phenomenon (Roisman et al., 2005; Candel & Turluc, 2019; Holland et al., 2012; Mónaco Gerónimo et al., 2022). Despite this consensus, relatively few studies have looked closely at the individual-level characteristics associated with attachment that help to explain its effect on relationship satisfaction. The current study identifies four

potentially influential individual-level factors that may help to explain the magnitude of this relationship: guilt-proneness, shame-proneness, communal norm adherence, and exchange norm adherence. Additionally, we sought to replicate the novel findings of a meta-analysis that found the strength of the relationship in question to differ significantly based on marriage status, relationship length, and age (Candel & Turliuc, 2019).

Attachment Theory: Infant Development

In order to move forward with an investigation of the inner workings of adult attachment and the impact it has on romantic relationships, we must first establish a concrete understanding of the development and manifestation of attachment, as well as the empirical basis for how we assess attachment today. Working as a child psychologist in London in 1948, John Bowlby's experiences with children who had been separated from their mothers inspired what he would later call his theory of attachment (Bowlby, 1969). Specifically, he was interested in the subsequent maladjustment he observed and life consequences he predicted to accompany early-childhood separation from one's mother (Bowlby, 1969). His observations laid the groundwork for his conceptualization of attachment as a deep emotional bond between two agents in which one seeks closeness and feels secure when in proximity to one's attachment figure (Bowlby, 1969), who is typically the mother but can alternatively be a caretaker who responds reliably and accurately to the infant's signals (Bowlby, 1958).

Mary Ainsworth and colleagues expanded Bowlby's concept of attachment and developed the 'Strange Situation Procedure' to test his theory empirically (Ainsworth et al., 1978). In the strange situation, infants are placed in an unfamiliar environment with their mother and a stranger, free to explore the room. At some point, the mother exits the

room and later returns. Ainsworth and her colleagues observed the infant's behaviour before the mother left, at the time of her exit, during her absence, and upon being reunited with her. These observations resulted in the development of a three-category system of attachment, classifying children as either secure, ambivalent, or avoidant (Ainsworth et al., 1978). Secure children were comfortable exploring the room and acted friendly toward the stranger and became distressed at the mother's exit, but this distress faded for many. Secure infants clung to the mother upon her return, and if they were still distressed at the time of her return, were quickly and easily comforted (Ainsworth et al., 1978; Ainsworth & Bell, 1970). Ambivalent children were more timid of the stranger and stuck close to their mother in the beginning, were extremely distressed at her departure, and angrily inconsolable upon her return (Ainsworth et al., 1978; Ainsworth & Bell, 1970). Avoidant individuals did not explore much, were indifferent at the time of their mother's exit, and avoided proximity with her when she returned, most even avoiding eye contact (Ainsworth et al., 1978; Ainsworth & Bell, 1970).

Ainsworth and her colleagues suggested that the infants' behaviour reflects their confidence in the mother's availability to reliably act as a secure base to explore from, and a safe haven to seek safety or comfort in times of distress (Ainsworth et al., 1978). This confidence or lack thereof results from the culmination of early interactions with the infant's attachment figure (Bowlby, 1973; Ainsworth et al., 1978). These early patterns of interaction establish internal working models for self-partner interactions later in life and are the key to understanding attachment in adults (Collins & Read, 1990; Feeney & Noller, 1990; Hazan & Shaver, 1987). Secure individuals see themselves as friendly, good natured, and likeable, and expect significant others to be generally well-intentioned, reliable, and trustworthy (Simpson, 1990). Ambivalent individuals see themselves as

misunderstood, lacking confidence, and under-appreciated, and expect significant others to be generally unreliable, and unwilling or unable to commit to lasting relationships (Simpson, 1990). Avoidant individuals see themselves as suspicious, aloof, and skeptical, and generally perceive significant others as unreliable or overly eager to commit to lasting relationships (Simpson, 1990).

Attachment in Romantic Relationships

Hazan and Shaver (1987) were the first to apply Ainsworth's three-category system of attachment to love in adult romantic relationships. To test this connection empirically, they assessed participants' experiences in close relationships and their recollections of how their parents generally behaved towards them in childhood (Hazan & Shaver, 1987). They found significant correlations to support the continuity of attachment style, which were successfully replicated longitudinally (Roisman et al., 2005). From this research, Hazan and Shaver established the first set of normative data describing attachment in adult relationships. The majority of individuals were classified as securely attached (~55%), a quarter were classified as anxiously attached (ambivalent), and the remainder were classified as avoidant (~20%), a ratio consistent across a middle-aged adult sample and a sample of undergraduate students (Hazan & Shaver, 1987). They found that anxious individuals' experiences of love were characterized by jealousy and desire for reciprocation and union, while avoidant individuals' experiences of love were characterized by fear of intimacy and loss of independence (Hazan & Shaver, 1987). In contrast, secure individuals' experiences of love were friendly, happy, and trusting (Hazan & Shaver, 1987).

Since the seminal work of Hazan and Shaver (1987), attachment in adult romantic relationships has been a popular area of interest in relationship research and even in popular culture. Of relevance to the current study is attachment style as a predictor or an indicator of relationship satisfaction or quality. Research shows attachment style is a stronger predictor of relationship quality than personality as assessed with measures of the Big Five (Nofhle & Shaver, 2006). The past three decades of research provide consistent support for the claim that insecurely attached individuals (avoidant or anxious) are less satisfied in relationships than their securely attached counterparts (Holland et al., 2012; Candel & Turliuc 2019; Mónaco Gerónimo et al., 2022). This work is reviewed effectively in a recent meta-analysis from Candel and Turliuc (2019). In terms of measurement, research supports a two-dimensional approach to the study of attachment, the independent dimensions being attachment-related anxiety and attachment-related avoidance (Fraley et al., 2000)

While an extensive amount of work has investigated the relationship between attachment style and relationship satisfaction, little research has focused on the individual factors that help explain this relationship and the influence it carries across the lifespan. The current work proposes two types of individual characteristics centered around an individual's tendencies that may help to explain the strength of this relationship: relationship orientation, that is, communal and exchange norm adherence, and relationship management emotions guilt- and shame-proneness.

Adherence to Communal and Exchange Norms

The endorsement of communal or exchange norms in romantic relationships provides information regarding an individual's relationship orientation, that is, how they

approach and react to interactions with a partner, and how they typically act in the relationship overall. Clark and Mills (2012) argue that almost all the relationships we develop or participate in can be classified as either communal or exchange. Exchange relationships are characterized by expected reciprocation or the assumption that a benefit is given with the expectation of receiving a comparable benefit (Clark & Mills, 2012). This kind of relationship is most common in transactional situations, such as when giving a barista cash for coffee at a local café, or when purchasing a new vehicle from a car salesperson. In these cases, the benefit (i.e., money) is given with the expectation of a comparable benefit (coffee, new car) in return. In contrast, communal relationships are characterized by the giving of benefits in support of the recipient's welfare non-contingently, that is, without an expectation or a feeling of obligation from either the benefit giver or receiver that the benefit ought to be repaid, reciprocated, or met with a comparable benefit (Clark & Mills, 2012). This is the kind of relationship orientation found most often in close interpersonal relationships, such as romantic relationships. There is substantial research showing that following a communal script is beneficial for relationships and is associated with greater relationship satisfaction, individual and couple well-being, and evokes more positive emotions among partners in general (Clark & Lemay, 2010; Clark & Mills, 2012), while greater use of exchange norms has been directly linked to lower relationship satisfaction (Clark et al., 2010). Despite this widely accepted and intuitive truth, many fail to follow a communal script even in the closest of romantic relationships, and some even adhere strictly to exchange norms in intimate relationships (Clark et al., 2010). In a romantic relationship, when one partner values and follows a communal script and the other partner is highly exchange-oriented, this mismatch creates great distress and subsequent conflict (Clark & Mills, 2012).

Differences in attachment style provide one explanation for individuals' inclinations to follow either a communal or an exchange script (Clark et al., 2010). Research is consistent in showing that individuals with a more secure attachment style generally follow a more communal script (Bartz & Lydon, 2006) compared to their more insecure counterparts (Clark et al., 2010). This is likely due to the unwavering positive feelings they have for their partner and the confidence and security they feel regarding their relationship and its stability, which minimizes if not eliminates the need to seek validation through reciprocation, and the need to convey continuous interest by returning any benefit given to them. Avoidant individuals typically use exchange norms and feel discomfort or distress when a partner or potential partner uses communal norms (Bartz & Lydon, 2006). These individuals are likely motivated by the desire to establish boundaries, maintain independence, and resist intimacy (Bartz & Lydon, 2008).

Anxiously attached individuals have a more complex pattern when it comes to the use of communal and exchange norms. Individuals with a more anxious attachment style see value in following a communal script, they believe that following a communal script is the ideal in a romantic relationship, and they strive for the type of relationship that characterizes communal norm adherence (Bartz & Lydon, 2006; Bartz & Lydon, 2008). However, when an anxiously attached individual follows a communal script, they become extremely concerned with reciprocation or a lack thereof (Bartz & Lydon, 2006; Bartz & Lydon, 2008), and even feel uncomfortable when a potential partner acts communally towards them. Even if the anxiously attached individual acts communally and gives a benefit with absolutely no expectation, want, or need for reciprocation, once the benefit has been given, if no reciprocation has occurred, then the individual takes notice and interprets this as having important consequences for the relationship (Bartz & Lydon,

2008), namely that there is a concerning reason that they did not reciprocate; perhaps an indication of lost interest on behalf of the partner (Bartz & Lydon, 2006).

This concern and vigilance regarding reciprocation conflicts with an anxious individual's communal intentions and can be the source of great distress. Given what we know about communal and exchange norms and relationship satisfaction, in conjunction with the complex experiences of anxious individuals in the use of and receptiveness to communal and exchange norms, we predict that adherence to exchange norms and a failure to adhere to communal norms will help explain the relationship between attachment style and relationship satisfaction.

Guilt-Proneness and Shame-Proneness

Guilt and shame are two self-conscious emotions that we all experience from time to time, but individuals vary in how prone they are to feeling guilt and shame, independently. The use of guilt and shame interchangeably in literature and in casual discussion has dissipated over the years, but an understanding of their similarities and differences is crucial to ground subsequent discussion. Both guilt and shame are self-conscious emotions evoked through negative self-evaluation and accompanied by feelings of discomfort, and they correlate notably with one another (Tangney & Tracy, 2012; Ferguson & Crowley, 1997, Tangney et al., 1992b). They differ, however, in how they arise and how the individual is affected. Feelings of guilt arise as a result of some behaviour, event, or outcome that conflicts with one's moral values, and results in one feeling poorly about something that happened, which motivates one to rectify the situation by apologizing, amending, or undoing (Miceli & Castelfranchi, 2018; Baumeister et al., 1995; Tangney et al., 2007). In contrast, shame arises through a

negative self-evaluation in which one deems one has failed to meet the standards one holds for an ideal self, which results in the individual feeling bad about oneself, rather than feeling bad about something that happened (Miceli & Castelfranchi, 2018).

Furthermore, while feelings of guilt tend to motivate individuals to act to rectify the situation, shame leads to actions harmful to relationships including withdrawal and escape behaviours, and it can cause one to exhibit hostility and self-defensive reactivity (Miceli & Castelfranchi, 2018).

Empirical work on the relationship between guilt-proneness and relationship satisfaction is limited, though theory supports the prediction of a potential positive correlation. Guilt, in the context of romantic relationships, is a relationship-enhancing interpersonal phenomenon that strengthens social behaviour by eliciting reparative and affirming action (Baumeister et al., 1994; Baumeister et al., 1995; Tangney et al., 2007). Baumeister argued that guilt serves three main functions in an interpersonal relationship: it motivates people to adopt relationship-enhancing behaviour patterns, it can be used as a means of influencing others, giving some power to the less-powerful partner, and it is a means of redistributing emotional distress within the dyad, such that guilt can make the transgressor feel worse, which can result in the victim feeling better (Baumeister et al., 1994; Tangney, 1992). Research shows that lower levels of guilt are associated with more socially problematic behaviours like aggression (Tangney et al., 1992a; Stewing, 2010), suggesting that guilt-prone individuals exhibit less socially problematic behaviours. Guilt-proneness has also been positively associated with collaborative problem-solving (Lopez et al., 1997) and positive empathy (Tangney et al., 1992a; Leith & Baumeister, 1998), which has been shown to predict relationship satisfaction (Kimmes et al., 2014). These

findings support the prediction that guilt-proneness is associated with greater relationship satisfaction.

Unlike guilt, shame has been assessed repeatedly in the study of relationship satisfaction, with overwhelming support for a negative association between shame-proneness and relationship satisfaction. Shame is more emotionally painful than guilt, and leads to socially injurious responses such as anger, suspicion, resentment, and hostility toward oneself and others (Tangney et al., 1992a; Tangney & Dearing, 2002). Shame-proneness is also negatively associated with collaborative problem-solving, and positively correlated with conflict avoidance (Lopez et al., 1997). Mills (2005) argues shame-proneness can develop through early, negative interactions with attachment figures. Specifically, researchers posit that shame stems from the need a child has for attachment, and that rejection by attachment figures perpetuates the idea of an undesirable self, which leaves an individual prone to feeling shame (Lewis, 1971). Shame correlates with attachment in adulthood, with some studies showing that shame is positively associated with anxious attachment and negatively associated with avoidant attachment and secure attachment (Akbağ & Erden, 2010; Lopez et al., 1997). Given the strong correlations with relationship satisfaction and various tenets of attachment, we predict that shame will play an influential role in the association between attachment style and relationship satisfaction. We predict the same about guilt, though support for this prediction is more theoretical and its investigation will be more exploratory.

The Current Study

The extent to which an individual feels satisfied in a romantic relationship has notable consequences for mental health, physical health, and overall well-being (Sağkal

& Özdemir 2020; Love & Holder, 2016; Braithwaite & Holt-Lunstad, 2017). Years of investigation into factors that predict relationship satisfaction have revealed that an individual's attachment style is a strong predictor of relationship satisfaction (Roisman et al., 2005; Candel & Turliuc, 2019; Holland et al., 2012), but research has yet to identify the individual-level characteristics associated with attachment that explain the power of this effect. A full understanding of this relationship as it pertains to the individual would provide a more complete framework from which to build self-improvement interventions in individual therapy. Furthermore, a better understanding of the influence of attachment on relationship satisfaction would inform and orient future research more accurately.

In the current study, we proposed that an individual's use of communal and exchange norms as well as proneness to experiencing guilt and shame would help explain the relationship between attachment style and relationship satisfaction. To test this empirically, we used simple mediation analyses with anxious and avoidant attachment as independent variables and relationship satisfaction as the outcome (Model 4 of Hayes PROCESS Macro for R; Hayes, 2022). First, we predicted that relationship satisfaction would be positively correlated with guilt-proneness and communal norm use (H1) and negatively correlated with shame-proneness, exchange norm use, anxious attachment, and avoidant attachment (H2). In terms of mediation, we predicted that guilt would mediate the relationship between avoidant attachment and relationship satisfaction (H3), and that shame would mediate the relationship between anxious attachment and relationship satisfaction (H4). We expected that communal norm use would mediate the relationship between anxious attachment and relationship satisfaction (H5) and the relationship between avoidant attachment and relationship satisfaction (H6). We also predicted that exchange norm use would mediate the relationship between avoidant attachment and

relationship satisfaction (H7). Follow-up analyses were conducted to explore whether shame mediated the relationship between avoidant attachment and relationship satisfaction, and whether exchange norm use mediated the relationship between anxious attachment and relationship satisfaction, but these analyses were exploratory. Finally, we explored the findings of an existing meta-analysis (Candel & Turliuc, 2019) that examined these effects across studies by testing their hypothesis that the relationship between both dimensions of attachment and relationship satisfaction would be moderated by the participants' age, relationship length, and marital status, such that the relationship would be stronger for married participants who are older and have longer relationships (H8).

Method

Participants and Procedures

Participants were recruited via the crowdsourcing site Prolific. To be eligible for the study, participants had to be at least nineteen, living in Canada or the United States, and in a romantic relationship of at least three months in duration at the time of recruitment. Prolific uses pre-screeners to determine basic demographic eligibility such as age, location, and relationship status and therefore no additional screening was needed for this study. Interested and eligible participants were provided with a secure link to an online survey developed using Opinio, a survey tool hosted and supported by Dalhousie University. A copy of the recruitment message can be found in Appendix A. Participants were first presented with the informed consent form, and consenting participants were then invited to complete the survey. Two attention checks were incorporated into the survey, as were three items intended to verify eligibility and identify any individuals who were inconsistent in their responses. These items asked participants about their age, where they live, and the length of their current romantic relationships, to ensure that responses matched the built-in pre-screening eligibility requirements. Participants who responded inappropriately quickly according to Prolific guidelines, participants who did not complete the study, and participants who failed both attention checks or any of the three eligibility checks were removed from the study. The remaining participants (N = 400) were compensated in accordance with Prolific's worker payment recommendations. Although Prolific guidelines require that participants receive payment unless they fail at least two attention checks, the data of three additional participants were removed at the data screening stage of analysis because they failed either of the two attention checks.

A total of 397 individuals were included in the final sample. Participant age ranged from 19 to 84, with an average age of 39 ($M = 39.21$, $SD = 12.58$, $Mdn = 37.0$). A little over two thirds of participants lived in the United States (68.5%) and the remainder lived in Canada (31.5%). Around 49% of participants identified as men ($n = 195$), 49% as women ($n = 194$), 2% as non-binary, and one individual chose 'other.' Participants were predominantly White (70%), followed by Asian (15.9%), Hispanic (6.3%), Black (5%), Indigenous (0.5%), and other (2.3%). Almost all participants had finished high school (99.7%), and three-quarters had completed a university or college program (75.8%). Most participants were heterosexual (84.9%), followed by bisexual (8.3%), gay or lesbian (3.3%), other (3%), and 0.5% of individuals opted not to identify their sexual orientation. Participant relationship length was on average 13 years ($M = 12.61$, $SD = 10.33$, $Mdn = 10.2$), and the majority were married or considered common law (67.5%). Most participants were cohabitating with their romantic partner (83.1%). Many participants reported having two or more children (37.8%), with a minority having only one child (12.59%). Almost half did not have any children (49.6%).

Measures

A copy of the survey including each of the following measures can be found in Appendix B.

Demographic Information

At the beginning of the survey, participants provided basic demographic information regarding their gender, age, sexual orientation, ethnicity, education, and number of children. Participants also provided information regarding their current romantic relationship, including length of relationship, relationship status (i.e., married,

common law, or simply in a relationship), and whether or not they were living in the same household as their partner.

Relationship Satisfaction

Romantic relationship satisfaction was measured using the 16-item Couples Satisfaction Index (CSI-16; Funk & Rogge, 2007). The first item asks about the individual's overall degree of happiness in their relationship, rated on a 7-point scale (0 = *Extremely unhappy*, 6 = *Perfect*). For items 2-5, participants rate the truth of each statement concerning their relationship (e.g., *My relationship with my partner makes me happy*) on a 6-point scale (0 = *Not at all true*, 5 = *Completely true*). Items 6-9 ask participants about how the relationship benefits them (e.g., *How rewarding is your relationship with your partner?; How well does your partner meet your needs?*), rated on a 6-point scale (0 = *Not at all*, 5 = *Completely*). Participants then rate how they feel about their relationship on 6-point scales from *boring* to *interesting*, *bad* to *good*, *empty* to *full*, *fragile* to *sturdy*, *discouraging* to *hopeful*, and *miserable* to *enjoyable*. A total score for relationship satisfaction is calculated by summing the responses across all items and can range from 0-81. The original authors reported high internal consistency ($\alpha = .98$; Funk & Rogge, 2007), which was replicated in the current sample.

Sexual Satisfaction

Sexual satisfaction was assessed using the Global Measure of Sexual Satisfaction (GMSEX; Lawrence & Byers, 1992). The GMSEX evaluates overall sexual satisfaction in a relationship using five items. Participants are asked to describe their sexual relationship with their partner rating each item on a seven-point scale from *bad* to *good*, *unpleasant* to *pleasant*, *negative* to *positive*, *unsatisfying* to *satisfying*, and *worthless* to *valuable*. The GMSEX has excellent psychometric properties and has been used as a valid

measure for assessing sexual satisfaction in a variety of adult samples in different populations, such as North America (Lawrence & Byers, 1995), China (Renaud et al., 1997), Spain (Sanchez-Fuentes et al., 2015), and Portugal (Pascoal et al., 2013), with consistent reports of high internal consistency as well as temporal stability. We, too, found high internal consistency in the current sample ($\alpha = .95$).

Attachment Style

Participant attachment style was assessed using the Experiences in Close Relationship-Revised Questionnaire (ECR-R; Fraley et al., 2000). This is a 36-item measure in which participants are asked to respond to items pertaining to the ways in which they generally experience romantic relationships (e.g., *It makes me mad that I don't get the affection and support I need from my partner; I find it difficult to allow myself to depend on romantic partners*). Participants rate each item on a 7-point scale ($1 = \text{Strongly disagree}$, $7 = \text{Strongly agree}$). The first 18 items are averaged to obtain a score for attachment-related anxiety (anxious attachment). The remaining 18 items are averaged to obtain a score for attachment-related avoidance (avoidant attachment). Internal consistency for both subscales of the ECR-R is typically high ($\alpha = .90$; Fraley et al., 2000; Sibley et al., 2004). In the current sample we found high internal consistency for both the anxiety subscale ($\alpha = .95$) and the avoidance subscale ($\alpha = .95$). The ECR-R has also been evaluated longitudinally and has excellent stability over a 6-week assessment period (Sibley & Liu, 2004), suggesting it provides accurate information regarding trait attachment.

Communal Norm Adherence

The Communal Orientation Scale (COS; Clark et al., 1987) was used to assess the extent to which participants follow a communal script and adhere to communal norms

generally. The COS consists of 14 items each rated on a 7-point Likert scale (1 = *Extremely uncharacteristic of me*, 7 = *Extremely characteristic of me*). Items were designed to assess how much participants value the needs and feelings of others in social relationships and how much they believe that people should help others and have concern for others' wellbeing (e.g., *When making a decision, I take other people's needs and feelings into account; When I have a need that others ignore, I'm hurt*; Clark et al., 1987). All items are summed to create a total score for communal orientation (communal norm adherence). This measure has documented good test-retest reliability as well as moderate internal consistency ($\alpha = .78$; Clark et al., 1987). We found higher internal consistency in the current study sample ($\alpha = .84$).

Exchange Norm Adherence

The Exchange Orientation Scale (EOS; Mills & Clark, 1994) was used to assess the extent to which participants follow an exchange script and adhere to exchange norms generally. Aside from only having 9 items, the EOS is very similar to the COS. The 9 items are rated on a 7-point Likert scale (1 = *Extremely uncharacteristic of me*, 7 = *Extremely characteristic of me*). Items were designed to assess the extent to which participants value reciprocation and balance in relationships such that benefits given should match benefits received (e.g., *When someone buys me a gift, I try to buy that person as comparable a gift as possible; It's best to make sure things are always kept 'even' between two people in a relationship*; Clark & Mills, 1994). The nine items are summed to create a total score for exchange orientation. The current study assessed internal consistency and found it to be moderate in our sample ($\alpha = .72$).

Guilt- and Shame-Proneness

Participants' tendency to feel guilty or shameful was assessed using the Test of Self-Conscious Affect-3 (TOSCA-3; Tangney et al., 2000). The TOSCA-3 is a scenario-based measure, in which participants are asked to read through a scenario, imagine themselves in the situation, and rate how likely it is that they would react in each of the ways described. For each item, there is a scenario, and five reactions (e.g., Scenario: *You make plans to meet a friend for lunch. At 5 o'clock, you realize you stood him up.* Reactions: *You cannot apologize enough for forgetting; You think you should make it up to him as soon as possible, etc.*). Participants rate the likelihood that they would react similarly to each proposed reaction on a 5-point scale (1 = *Not likely*, 5 = *Very likely*). For each scenario, one of the reaction options represents a guilt reaction, and one of the reaction options represents a shame reaction. Participant scores on the guilt reaction items in all scenarios are summed to create a total score for guilt-proneness. Participant scores on the shame reaction items in all scenarios are summed to create a total score for shame-proneness. Tangney and colleagues report Cronbach's alphas for the guilt and shame scales to be fair and moderate ($\alpha = .66$, $\alpha = .76$), respectively. The current study found moderate internal consistency for both the guilt scale ($\alpha = .77$) and the shame scale ($\alpha = .79$).

Statistical Analysis

All statistical analyses for the current study were carried out using R software (v4.1.2). The data were screened for linearity, normality, influential outliers, and constant variance. Some of the data had a right skew given that individuals generally reported relationship satisfaction greater than the midpoint. Participant age had a notably wide range (19-84), and the distribution shows a bit of a right skew, though Hayes' PROCESS

(Hayes, 2022) does not require normality as an assumption, and age is only used in this study when testing a PROCESS moderation model. One potential outlier was identified and tested, but it was not found to be off-trend or influential and therefore was not removed from the data. All other assumptions were met, and variables were mean centered prior to analysis. To ensure maximum confidence in our results, 10,000 bootstrapping samples were performed for the mediation and moderation analyses (Wood, 2004).

First, descriptive statistics were generated and bivariate correlations among all variables were calculated. Mediation models require a significant bivariate correlation between the possible mediator and the outcome variable. Given the absence of a significant correlation between guilt-proneness and relationship satisfaction, only six mediation models were examined. The mediation models were tested using Hayes' PROCESS Macro (Model 4, v4.3; Hayes, 2022) to determine if communal norm use, exchange norm use, and shame proneness mediated the relationship between both attachment dimensions and relationship satisfaction. To assess whether the relationship between attachment style and relationship satisfaction was stronger or weaker depending on participant age, relationship length, and relationship status (H8), six moderation models were tested using Hayes' PROCESS Macro (Model 1; Hayes, 2022).

Results

Descriptive Statistics and Bivariate Correlations

Descriptive Statistics

Descriptive statistics are presented by gender and for the total sample in Table 1. Participants were generally satisfied in their romantic relationships, with the mean score for both genders and the total sample surpassing the midpoint. Independent t-tests were conducted to explore the apparent gender differences. These analyses revealed that women had significantly higher scores for communal norm adherence ($t(395) = 3.55, p < .001$), guilt-proneness ($t(395) = 4.73, p < .001$), and shame-proneness ($t(395) = 5.01, p < .001$) compared to men.

Table 1*Means and Standard Deviations of the Variables by Gender and Total Sample*

Variables (Possible range)	Women (n = 194)		Men (n = 195)		Total (N = 397)*	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Relationship satisfaction (0-81)	63.06	15.46	62.83	16.19	62.89	15.90
Sexual satisfaction (5-35)	26.81	6.88	27.21	7.56	26.96	7.23
Anxious attachment (1-7)	2.66	1.34	2.66	1.35	2.68	1.36
Avoidant attachment (1-7)	2.34	1.10	2.44	1.14	2.41	1.14
Communal norm adherence (14-70)	54.32	8.54	51.27	8.43	52.77	8.61
Exchange norm adherence (9-45)	23.76	5.74	25.00	5.51	24.40	5.67
Guilt-proneness (16-80)	68.26	6.41	64.73	8.24	66.53	7.56
Shame-proneness (16-80)	54.04	9.21	49.15	10.02	51.69	9.98

*Total includes 8 non-binary respondents, respondents who chose “Other” or “Prefer not to say”. These groups each have under ten participants and therefore have insufficient power to detect effect sizes, thus only women and men are included in gender comparisons.

Bivariate Correlations

Pearson correlations between the variables were calculated and are presented in Table 2. Relationship satisfaction was significantly and positively correlated with sexual satisfaction and communal norm adherence, and significantly but negatively correlated with anxious attachment, avoidant attachment, and shame-proneness. There was no significant correlation between relationship satisfaction and age, relationship length,

exchange norm adherence, or guilt-proneness. Thus, H1 and H2 are both partially supported. The largest correlation with relationship satisfaction was sexual satisfaction, followed by anxious attachment and avoidant attachment. Anxious attachment was significantly and negatively correlated with communal norm adherence and guilt-proneness, and positively correlated with exchange norm adherence and shame-proneness. Avoidant attachment was significantly and negatively correlated with communal norms and guilt-proneness, and positively correlated with shame-proneness. Age was significantly and positively correlated with relationship length, and negatively correlated with sexual satisfaction, anxious attachment, exchange norm adherence, and shame-proneness.

Table 2*Pearson Correlations Among the Variables*

Variables	1	2	3	4	5	6	7	8	9
1. Age	--								
2. Relationship length	.75***	--							
3. Relationship satisfaction	-.07	-.07	--						
4. Sexual satisfaction	-.21***	-.29***	.71***	--					
5. Anxious attachment	-.20***	-.17***	-.48***	-.33***	--				
6. Avoidant attachment	.00	.01	-.67***	-.53***	.55***	--			
7. Communal norms	.03	.05	.23***	.18***	-.12*	-.35***	--		
8. Exchange norms	-.11*	-.13*	-.02	.08	.17***	.04	-.08	--	
9. Shame-proneness	-.20***	-.11*	-.16**	-.07	.27***	.15**	.03	.67	--
10. Guilt-proneness	.04	.05	.07	.08	-.10*	-.12*	.33***	-.14**	.51***

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

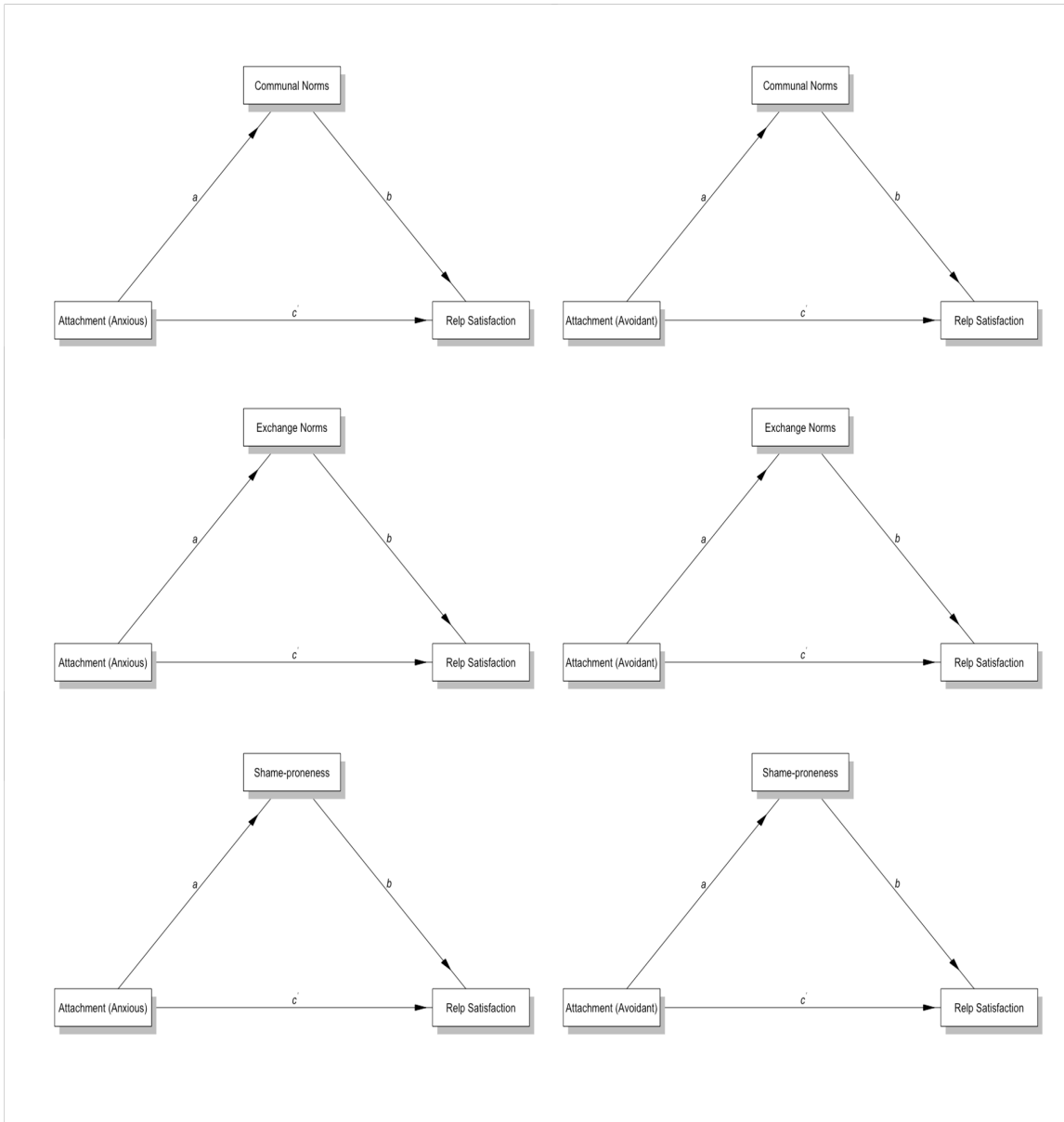
Mediation: PROCESS Macro Model 4

The six mediation models that were tested are presented in Figure 1. Guilt-proneness was excluded from these analyses due to the absence of a significant correlation with the dependent variable. The indirect effect of anxious attachment on relationship satisfaction through shame-proneness was not significant, nor were the indirect effects of avoidant attachment on relationship satisfaction through communal

norm adherence and exchange norm adherence. Thus, H3, H4, H6, and H7 were not supported. Exploratory analyses revealed that shame did not mediate the relationship between avoidant attachment and relationship satisfaction, and that exchange norm adherence did not mediate the relationship between anxious attachment and relationship satisfaction. The indirect effect of anxious attachment on relationship satisfaction through communal norm adherence was significant (H5). The direct and indirect effects for these models are presented in Table 3. Communal norm adherence mediated the relationship between anxious attachment and relationship satisfaction such that anxiously attached individuals had lower relationship satisfaction in part because of their weak adherence to communal norms.

Figure 1

Mediation Models 1-6



Note. Statistical diagrams generated using RStudio software and the lavaan package.

Adapted from “lavaan: An R Package for Structural Equation Modeling” by Y. Rosseel,

2012, *Journal of Statistical Software*, 48(2), 1–36 (doi:10.18637/jss.v048.i02).

Table 3*Mediation Analyses: Direct and Indirect Effects*

Pathway	Coefficient	SE	LLCI - ULCI
Direct Effects			
Anxious → Communal	-0.738	0.339	-1.412 to -0.069
Communal → RS	0.320	0.094	0.136 to 0.510
Avoid → Communal	-2.666	0.365	-3.370 to -1.948
Anxious → Exchange	0.691	0.207	0.281 to 1.093
Exchange → RS	0.164	0.122	-0.082 to 0.399
Avoid → Exchange	0.204	0.270	-0.335 to 0.738
Anxious → Shame	1.959	0.383	1.203 to 2.705
Shame → RS	-0.048	0.073	-0.194 to 0.091
Avoid → Shame	1.334	0.421	0.491 to 2.156
Anxious → RS	-5.450	0.510	-6.352 to -4.347
Avoid → RS	-9.392	0.679	-10.727 to -8.067
Indirect Effects			
Anxious → Communal -> RS	-0.236	0.140	-0.559 to -0.068
Avoid → Communal -> RS	0.061	0.256	-0.431 to 0.586
Anxious → Exchange -> RS	0.113	0.093	-0.057 to 0.315
Avoid → Exchange -> RS	0.003	0.037	-0.065 to 0.091
Anxious → Shame -> RS	-0.093	0.147	-0.400 to 0.175
Avoid → Shame -> RS	-0.115	0.098	-0.331 to 0.054

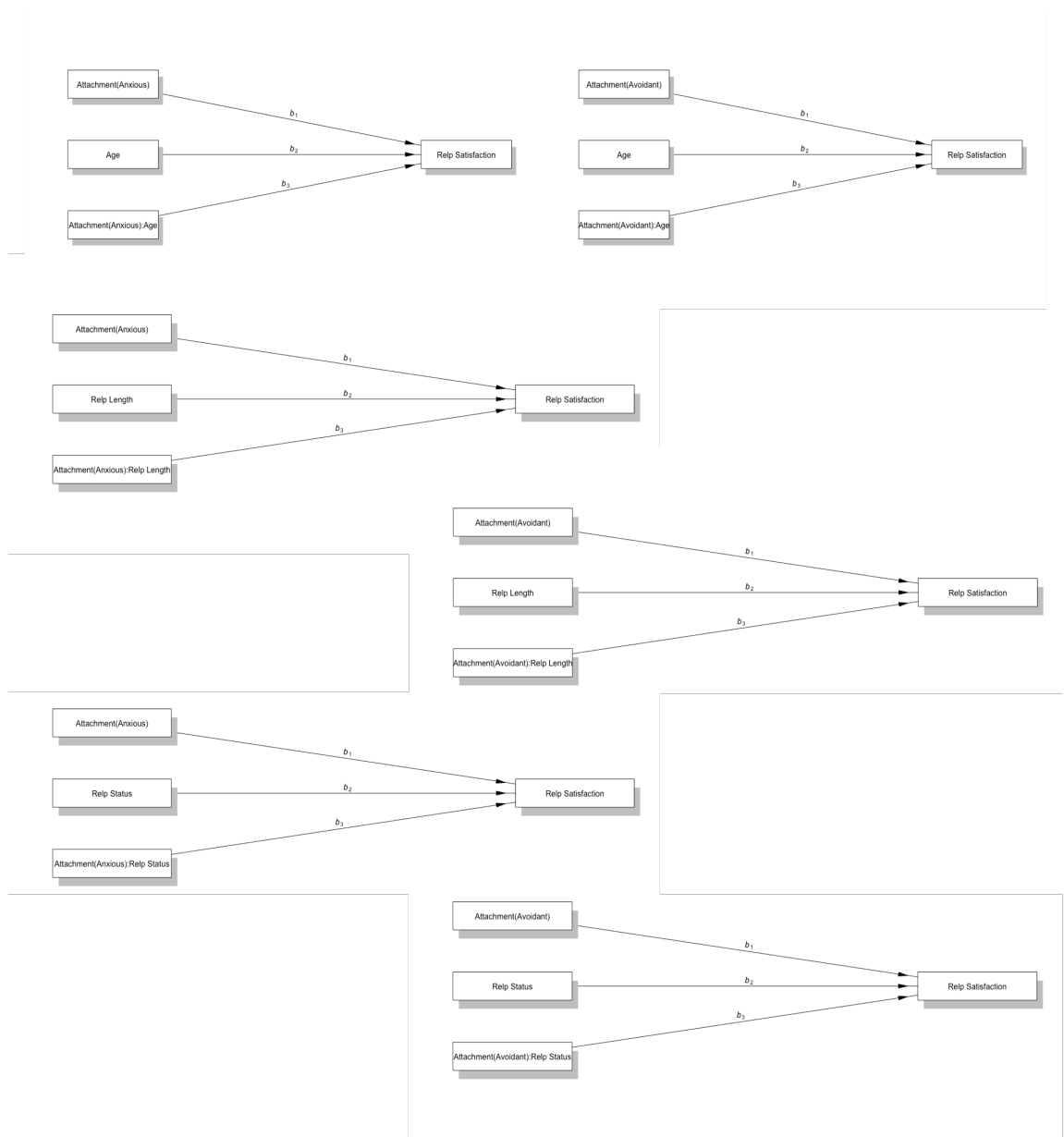
SE = bootstrapped standard error; LLCI/ULCI = Lower/Upper limit bootstrapped 95% confidence interval; Anxious = anxious attachment; Avoid = avoidant attachment; Communal = communal norm adherence; Exchange = exchange norm adherence; Shame = shame-proneness; RS = relationship satisfaction. All models with bootstrapped 95% confidence intervals (B = 10,000).

Moderation: PROCESS Macro Model 1

The six moderation models that were tested are presented in Figure 2. There was no significant interaction of relationship length or status or attachment style on relationship satisfaction. There was a significant interaction of participant age and anxious attachment on relationship satisfaction. Participant age moderated the relationship between anxious attachment and relationship satisfaction such that this relationship was stronger for older individuals. The strength of this relationship therefore increased with participant age, but did not differ significantly across relationship length or status. Conditional effects of attachment on relationship satisfaction for the mean age ($M = 39.21$), one standard deviation below the mean age (26.63), and one standard deviation above the mean age (51.79) are presented in Table 4. Although only this model was significant, the relationship between attachment (both anxious and avoidant) and relationship satisfaction was consistently stronger for older individuals, those in longer relationships, and those who were in a relationship but not married; though not statistically significant aside from the first model, the trends are worth noting.

Figure 2

Moderation Models 1-6



Note. Statistical diagrams generated using RStudio software and the lavaan package.

Adapted from “lavaan: An R Package for Structural Equation Modeling” by Y. Rosseel, 2012, *Journal of Statistical Software*, 48(2), 1–36 (doi:10.18637/jss.v048.i02).

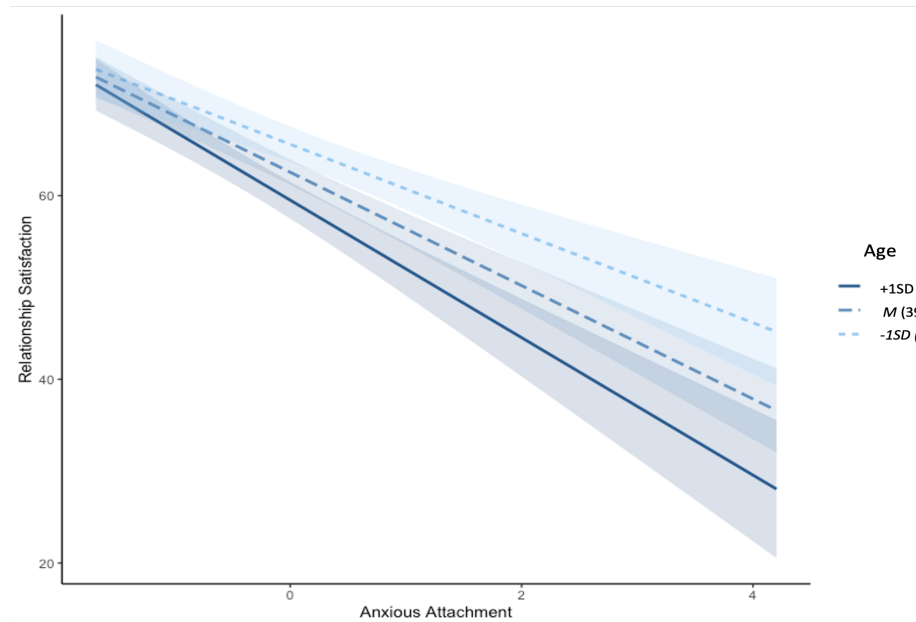
Table 4*Effect of Attachment on Relationship Satisfaction (DV) at Different Age Levels*

IV	Age -1SD, M, +1SD	Effect	SE	<i>t</i>	<i>p</i>
Anxious	26.63	-4.86	0.69	-7.02	< .001
	39.21	-6.17	0.52	-11.82	< .001
	51.79	-7.48	0.81	-9.28	< .001
Avoidant	26.63	-8.29	0.75	-10.98	< .001
	39.21	-9.30	0.52	-17.99	< .001
	51.79	-10.32	0.73	-14.08	< .001

The results from a simple slopes analysis conducted to probe the significant moderating effect of participant age on anxious attachment are presented in Figure 3. The three slopes represent the relationships between anxious attachment and relationship satisfaction at the mean age (39.21), at one standard deviation below the mean age (26.63), and at one standard deviation above the mean age (51.79).

Figure 3

Simple Slopes Plot



Note. Simple slopes diagrams generated using RStudio software and the interactions package. Adapted from “interactions: Comprehensive, User-Friendly Toolkit for Probing Interactions” by J. A. Long, 2021 (<https://cran.r-project.org/web/packages/interactions/index.html>).

The relationship between anxious attachment and relationship satisfaction was significant at all age levels, though significantly stronger as age increased. At one standard deviation below the mean age (26.63) the slope of the relationship between anxious attachment and relationship satisfaction was the smallest ($b = -4.86$, $t(396) = -7.02$, $p < .001$), followed by the slope at the mean age (39.21: $b = -6.17$, $t(396) = -11.82$, $p < .001$), and the steepest slope indicating the strongest relationship was at one standard deviation above the mean (51.79; $b = -7.48$, $t(396) = -9.28$, $p < .001$). The same trend was found for avoidant attachment with steeper slopes overall, but the differences were not

statistically significant in that model. The degree of anxious attachment evidently has the strongest impact on relationship satisfaction for older individuals; the strength of this relationship appears to increase with age.

Discussion

The purpose of the current study was to examine in more depth the well-established relationship between attachment style and romantic relationship satisfaction. Bowlby (1973) can be credited with laying the initial groundwork for this research, having theorized that infants develop an internal working model for future relationships based on the patterns of interaction they have with their primary caregiver during infancy. This idea of working models was the basis for later work by Hazan and Shaver (1987) who tested the relationship between individuals' early childhood experiences with their caregivers, and their recent or current experiences with partners in romantic relationships. This research confirmed a strong and consistent link between attachment to a caregiver in early childhood and later attachment behaviours in romantic relationships (Hazan & Shaver, 1987), thus sparking a dimensional approach to attachment known to many as attachment style. Researchers have since observed this link between attachment style and experiences in romantic relationships (e.g., Roisman et al., 2005; Candell & Turliuc, 2019), and have consistently attributed certain relationship characteristics to secure, anxious, and avoidant attachment styles.

All findings demonstrate a strong link between attachment style and relationship satisfaction, but few studies have focused on the individual-level characteristics that help explain the influence attachment has on relationship satisfaction. The first major aim of this study was to determine whether relationship-maintenance emotions such as guilt- and shame-proneness, or relationship orientation whether it be communal- or exchange-focused, help explain the strength and consistency of the relationship between attachment style and relationship satisfaction. The second major aim of this study was to investigate findings of an across-studies meta-analysis (Candell & Turliuc, 2019) that suggested that

older individuals, married individuals, and individuals in longer relationships report a stronger relationship between attachment style and relationship satisfaction, by using a within-study moderation analysis.

Prior to conducting mediation and moderation analyses, we identified a number of gender differences among the variables. Consistent with past research, women in our sample were significantly more prone to feeling both guilt and shame, and endorsed communal norms more strongly than men (Ferguson & Eyre, 2000). Interestingly, we did not find any gender differences across attachment styles. There have been conflicting findings over the years with some researchers finding that women have higher anxious attachment than men, and that men have more avoidant attachment than women (Del Giudice, 2011). Research also shows that in Asian cultures, men typically score higher on both anxious and avoidant attachment measures (Wongpakaran et al., 2012). However, early studies (Hazan & Shaver, 1987) and more recent studies (Blanchard et al., 2022), like ours, found no gender differences in attachment style. We also found no gender differences in participants' endorsement of exchange norms, which is consistent with relevant research on sexual relationships (Raposo et al., 2020).

Bivariate correlations revealed that individuals with higher relationship satisfaction also endorsed communal norms more strongly, were less shame-prone, and had lower attachment-related anxiety as well as lower attachment-related avoidance, partially supporting H1 and H2. Following a communal script has consistently been related to feeling more satisfied in relationships, so this finding was expected (Clark et al., 2010; Bartz & Lydon, 2006). As anticipated, insecurely attached individuals were less satisfied in their relationships, a fact undisputed over decades of attachment research (Holland et al., 2012; Candel & Turliuc 2019; Mónaco Gerónimo et al., 2022).

Unexpectedly, guilt-proneness was not associated with relationship satisfaction, unlike shame-proneness. A correlation between guilt-proneness and relationship satisfaction has not been observed empirically, so this finding does not contradict any existing research, but it does conflict with the theory that guilt is a relationship-enhancing emotion (Tangney et al., 1992b; Baumeister, 2004; Tangney et al., 2007). One possible explanation for why guilt-proneness was not significantly linked with relationship satisfaction is that while feeling guilty may enhance relationships by encouraging relationship-favoring behaviours, guilt-prone individuals still experience the negative feeling of guilt, which may offset any impact on relationship satisfaction. It also might be the case that one partner's guilt-proneness and associated rectifying behaviours would increase the other individual's satisfaction, as the recipient of the positive actions, rather than one's own. Future partner-dyad research could further explore this theory.

Given the lack of a significant correlation between guilt-proneness and relationship satisfaction, guilt's possible mediation role between attachment and relationship satisfaction could not be assessed (H3). Mediation analyses showed that shame-proneness did not significantly help to explain the strength of the relationship between anxious attachment and relationship satisfaction, contradicting H4. Likewise, communal norm use and exchange norm use did not mediate the relationship between avoidant attachment and relationship satisfaction. Thus, overall H4, H6, and H7 were not supported. Communal norms did mediate the relationship between anxious attachment and relationship satisfaction; thus H5 was supported. We found that the lower relationship satisfaction experienced by anxiously attached individuals could be explained in part by their low or inconsistent adherence to communal norms. Earlier research has demonstrated how anxiously attached individuals struggle with adhering to communal

norms due to their preoccupation with reciprocation, and the discomfort they experience when a partner uses a communal script towards them (Clark et al., 2010; Bartz & Lydon, 2006; Bartz, 2008). We also know that communal norms are a strong predictor of relationship satisfaction and those who follow a communal script are much more satisfied in their relationships (Clark et al., 2010; Bartz & Lydon, 2006). So, given the importance of communal norm use and adherence for relationship satisfaction, and considering the difficulty experienced by anxious individuals in following a communal script despite their desire or intention to do so, it seems plausible that anxiously-attached individuals have lower relationship satisfaction in part because of their inability to successfully and/or consistently follow a communal script, and the distress they experience when a partner acts communally towards them. One possible explanation for exchange norm adherence not having the same effect may be that neither attachment style is uniquely associated with exchange norm adherence in the way that anxious attachment is with communal norm adherence. This could also be one explanation for why shame-proneness did not mediate either relationship.

The moderation analyses were intended to investigate the findings of a meta-analysis (Candel & Turliuc, 2019) that found a stronger relationship between attachment and relationship satisfaction for older individuals, married individuals, and individuals in longer relationships. An earlier meta-analysis that looked at between-studies relationship length as a moderator had similar results (Hadden et al., 2014). These findings had not been replicated within a study, so we were interested in exploring this theory in our sample. Indeed, we found that age moderated this relationship for anxious attachment such that an individual's level of anxious attachment had a stronger association with their relationship satisfaction for older individuals, compared to their younger counterparts. We

did not find this to be the case with avoidant attachment, and for either relationship status or relationship length. Perhaps relationship status mattered less in our sample because of the high mean age, and because even those who were not married were generally in long-term, well-established relationships.

The particularly interesting finding was that relationship length did not moderate the relationship; that is, the longer participants had been in a relationship did not affect the strength of the association between attachment and relationship satisfaction. On its own, this finding may not attract much attention. However, we did find that the relationship was stronger for older individuals, just not for longer relationships. The authors of the meta-analysis, which inspired this moderation analysis, posited that the reason for age moderating this relationship was essentially that older individuals were typically in longer relationships and/or married (Candel & Turliuc, 2019). However, this explanation does not hold up in our case given that age was a moderator, but relationship length was not, nor was relationship status. So, it appears there is something about an individual's age that uniquely predicts the link between anxious attachment and relationship satisfaction, over and above the length of the relationship. Future research could further explore this finding by identifying age-related characteristics associated with attachment style and relationship satisfaction that do not share properties with relationship length-related characteristics. For example, perhaps the number of previous relationships one has been in, rather than the length, has some unique effect on one's experience of attachment and the impact it has on relationship satisfaction, such that a greater number of past relationships result in a stronger effect. In this example, if older age is associated with a higher number of past relationships, the association between

attachment and satisfaction would be stronger for older individuals, regardless of current relationship length.

Strengths, Limitations, and Future Directions

It is important to note that the current study focused on relationship satisfaction, as experienced by the individual. We used data from individuals rather than dyads, with the intention of addressing a more niche aspect of relationship research; we were interested in stable traits or characteristics that follow individuals across relationships, like attachment style. Relationship satisfaction can be reported by one individual within the dyad and provide useful information regarding that individual's experiences and perceptions, but this does not necessarily tell us anything about overall relationship quality or success. We do not claim to have learned anything about the overall relationship, as this was not a goal of the current study; the focus is on the individual's perceptions and personal experiences of their relationship.

Attachment and relationship research samples typically consist of relatively young participants. We consider it a strength that the current study had a mean age of 39, which allowed us to generalize more broadly and consider older individuals and their experiences. We also had a relatively diverse group in terms of sexual orientation, and therefore were not limited to considering only heterosexual relationships. We were able to replicate past research findings such as identifying the strong correlation between shame and guilt, as well as the links between relationship satisfaction and communal norm use, shame-proneness, anxious attachment, and avoidant attachment. The fact that these previously found correlations were replicated in the present study gives confidence that

the new findings do indeed extend our understanding of how attachment and relationship satisfaction are connected.

As is the case with all research, the current study has limitations to consider. Self-report measures, particularly, as in this case, those that require the disclosure of information about opinions, feelings, and evaluation of a close relationship, are subject to social desirability bias. Not only are participants responding to questions about themselves, but also about their partners, and particularly guilt-prone individuals may have a hard time responding truthfully if they struggle to speak poorly of their partner. It could also be true that some participants completed the survey in the presence of a significant other, given that many of the sample were cohabitating with their partner, which could further hinder the accuracy of their relationship satisfaction reporting. Because the data were collected online for the current study, this would have been difficult to avoid. Future studies could take precautions and administer the survey in person, or encourage participants during the informed consent process to complete the survey alone, not in the presence of others and especially not in the presence of a significant other.

Another limitation of the current study involves the exclusive use of forced choice questions in the survey. Individuals have unique and complex life experiences and relationship histories, which can be difficult to fully communicate through forced choice questions. A qualitative component to this study could have given participants the opportunity to express anything they found to be particularly noteworthy about their experiences in relationships, providing the study with more personal insight. Unfortunately, given the time constraints of the current study and the number of participants needed to obtain sufficient power for quantitative analysis, it was not feasible

to analyze qualitative responses from the whole sample. Future studies could benefit from integrating a qualitative component along with the necessary quantitative measures, providing the study with more detailed accounts given by individuals in their own words.

Finally, it is important to note that the effect size we obtained from our mediation analyses, though significant, was not large. Researchers should view this finding as a source of inspiration for future work and further investigation, rather than a final evaluation on this topic.

Implications and Applications

There were two main findings of the current study. First, we found that communal norm adherence mediated the relationship between anxious attachment and relationship satisfaction such that anxiously attached individuals have lower satisfaction in part because of their inability to consistently follow a communal script. Second, we found that age moderated the relationship between anxious attachment and relationship satisfaction, such that the relationship was stronger for older individuals, while relationship length did not. These two findings are related and identify new avenues to pursue in investigating links between attachment and relationship satisfaction. Each finding has implications for attachment and relationship research, theory, and practice.

In terms of theory and research, learning that communal norm adherence plays a significant role in the relationship between anxious attachment and satisfaction identifies a specific factor that can help us better understand this association. Our results suggest that researchers should acknowledge the role of communal norms when investigating or discussing the relationship between attachment and relationship satisfaction. Our finding also informs therapists and other clinicians treating clients challenged by the impact their

attachment style has on their romantic relationships. Attachment style, though technically a trait, can be adjusted to some degree. However, this requires an immense amount of effort, commitment, and work with the proper professional. For anxiously attached individuals, therapists could focus more short-term work on practicing a communal script and on increasing the patient's comfort using communal norms and being treated more communally. This could be an intervention used in conjunction with attachment therapy, or it could be practiced on its own. Knowing that anxiously attached clients will likely present with lower relationship satisfaction in part because of their challenges with communal norms can help shape treatment plans and give the client something to practice almost immediately.

The implications of our finding that age moderates the relationship between anxious attachment and relationship satisfaction, but relationship length does not, are largely theory- and research-relevant. Although an interesting finding, it leaves us with an important question: what is it about age, independent from relationship length, that impacts the strength of this relationship between attachment and satisfaction? The previous attempt at an explanation for why age is a moderator, namely, that age likely indicates a longer relationship and married status, has now been challenged. New research will have to focus on these inconsistencies to find an answer to this question. This finding could also be of relevance to therapists who assume that the length of a relationship can explain challenges with attachment and satisfaction. Therapists who work in this area should now consider the potential role of a participant's age and avoid designing treatment around relationship length. Though there are many unanswered questions, researchers, theorists, and therapists should consider the potential implications of these

findings and reflect on their own previous assumptions, some of which the current research challenges.

Finally, attachment has been a subject of interest in popular culture for some time now. Many people are fascinated by self-reflection, self-help work, and seeking out explanations for why they feel the way they do with partners and in relationships. Specific to attachment, it can be comforting to learn that something as uncontrollable as interactions in infancy could contribute to romantic relationship difficulties in adulthood. Learning about the significance of communal norms in the link between attachment and satisfaction could bring about self-reflection in anxious individuals and encourage self-awareness surrounding communal norm use. It is unlikely for individuals to alter their attachment style without the help of psychological professionals. However, although it will not change an attachment style, practicing communal behaviour could be beneficial for anxiously attached individuals who shy away from professional help. Perhaps an at-home, do-it-yourself intervention could be created to help anxiously-attached individuals become more comfortable following a communal script. While it may not change attachment style, it has the potential to buffer the negative interaction between anxious attachment and relationship satisfaction. Finally, learning that the link between anxious attachment and relationship satisfaction only grows stronger with age could encourage a sense of urgency, specifically for anxiously attached individuals, to confront and address attachment-related issues early on.

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Appendix A

Recruitment Message

The following posting will be what Prolific workers see on the crowdsourcing site, as a recruitment message for the study.

Individual Factors that Predict Relationship Satisfaction and Longevity

By Laura Coon

£3.00 / £7.20/hr

25 mins

This study aims to understand the individual factors that influence or predict romantic relationship satisfaction and sexual satisfaction.

In this study you will be asked to respond to multiple-choice type questions about your attitudes, feelings, and thoughts about your typical experiences in relationships (romantic, familial, sexual, and other). You will also be asked to respond to multiple-choice type questions where you are asked about potential reactions to several realistic, casual scenarios.

There will be a few questions in the survey that let us know you are a real person paying attention. You must answer all of these questions correctly to be compensated for completing the study. This study will take around 20-25 minutes to complete.

If you are 19+, living in Canada or the United States, and currently in a relationship that is 3+ months in duration, you are eligible to participate in this study.

Devices you can use to take this study:

Desktop

Mobile

Tablet

Appendix B

Survey Measures

Couples Satisfaction Index (CSI[16]; Funk & Rogge, 2007)

Please answer the following questions regarding your current primary romantic relationship.

1. Please indicate the degree of happiness, all things considered, of your relationship.

- (0) Extremely unhappy
- (1) Fairly unhappy
- (2) A little unhappy
- (3) Happy
- (4) Very happy
- (5) Extremely happy
- (6) Perfect

Please answer the following questions regarding your current primary romantic relationship using the following scale:

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not at all true (0)	A little true (1)	Somewhat true (2)	Mostly true (3)	Almost completely true (4)	Completely true (5)

2. Our relationship is strong.

3. My relationship with my partner makes me happy.

4. I have a warm and comfortable relationship with my partner.

5. I really feel like part of a team with my partner.

Please answer the following questions regarding your current primary romantic relationship using the following scale:

- | | | | | | |
|-------------------|-----------------|-----------------|---------------|-----------------------------|-------------------|
| ○ | ○ | ○ | ○ | ○ | ○ |
| Not at all
(0) | A little
(1) | Somewhat
(2) | Mostly
(3) | Almost
completely
(4) | Completely
(5) |

6. How rewarding is your relationship with your partner?
7. How well does your partner meet your needs?
8. To what extent has your relationship met your original expectations?
9. In general, how satisfied are you with your relationship?

For each of the following items, select the answer that best describes how you feel about your relationship.

Base your responses on your first impressions and immediate feelings about the items.

10.
 - (5) Interesting
 - (4)
 - (3)
 - (2)
 - (1)
 - (0) Boring

11.
 - (0) Bad
 - (1)
 - (2)
 - (3)
 - (4)
 - (5) Good

12.
 - (5) Full

- (4)
- (3)
- (2)
- (1)
- (0) Empty

13.

- (5) Sturdy
- (4)
- (3)
- (2)
- (1)
- (0) Fragile

14.

- (0) Discouraging
- (1)
- (2)
- (3)
- (4)
- (5) Hopeful

15.

- (5) Enjoyable
- (4)
- (3)
- (2)
- (1)
- (0) Miserable

16. In general, how often do you think that things between you and your partner are going well?

- All of the time (0)
- Most of the time (1)
- More often than not (2)
- Occasionally (3)
- Rarely (4)
- Never (5)

Global Measure of Sexual Satisfaction (GMSEX; Lawrence & Byers, 1995).

Please describe your sexual relationship with your partner.

1.
 - (7) Very good
 - (6)
 - (5)
 - (4)
 - (3)
 - (2)
 - (1) Very bad

2.
 - (7) Very pleasant
 - (6)
 - (5)
 - (4)
 - (3)
 - (2)
 - (1) Very unpleasant

3.
 - (7) Very positive
 - (6)
 - (5)
 - (4)
 - (3)
 - (2)
 - (1) Very negative

4.
 - (7) Very satisfying
 - (6)
 - (5)
 - (4)
 - (3)
 - (2)
 - (1) Very unsatisfying

5.

- (7) Worthless
- (6)
- (5)
- (4)
- (3)
- (2)
- (1) Very valuable

**The Experiences in Close Relationships-Revised Questionnaire (ECR-R;
Fraley, Waller, and Brennan, 2000)**

The statements below concern how you feel in emotionally intimate relationships. We are interested in how you generally experience relationships, not just in what is happening in your current relationship.

Respond to each statement by clicking the appropriate circle to indicate how much you agree or disagree with the statement.

○	○	○	○	○	○	○
Strongly Disagree (1)	(2)	(3)	(4)	(5)	(6)	Strongly agree (7)

1. I'm afraid that I will lose my partner's love.
2. I often worry that my partner will not want to stay with me.
3. I often worry that my partner doesn't really love me.
4. I worry that romantic partners won't care about me as much as I care about them.
5. I often wish that my partner's feelings for me were as strong as my feelings for him or her.
6. I worry a lot about my relationships.
7. When my partner is out of sight, I worry that he or she might become interested in someone else.
8. When I show my feelings for romantic partners, I'm afraid they will not feel the same about me.
9. I rarely worry about my partner leaving me.
10. My romantic partner makes me doubt myself.
11. I do not often worry about being abandoned.
12. I find that my partner(s) don't want to get as close as I would like.
13. Sometimes romantic partners change their feelings about me for no apparent reason.
14. My desire to be very close sometimes scares people away.
15. I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am.
16. It makes me mad that I don't get the affection and support I need from my partner.
17. I worry that I won't measure up to other people.
18. My partner only seems to notice me when I'm angry.
19. I prefer not to show a partner how I feel deep down.
20. I feel comfortable sharing my private thoughts and feelings with my partner.
21. I find it difficult to allow myself to depend on romantic partners.
22. I am very comfortable being close to romantic partners.
23. I don't feel comfortable opening up to romantic partners.
24. I prefer not to be too close to romantic partners.
25. I get uncomfortable when a romantic partner wants to be very close.

26. I find it relatively easy to get close to my partner.
27. It's not difficult for me to get close to my partner.
28. I usually discuss my problems and concerns with my partner.
29. It helps to turn to my romantic partner in times of need.
30. I tell my partner just about everything.
31. I talk things over with my partner.
32. I am nervous when partners get too close to me.
33. I feel comfortable depending on romantic partners.
34. I find it easy to depend on romantic partners.
35. It's easy for me to be affectionate with my partner.
36. My partner really understands me and my needs.

Communal Orientation Scale (Clark et al., 1987)

For each item, please rate the extent to which that statement is characteristic (or not) of you.

○	○	○	○	○
Extremely Uncharacteristic (1)	(2)	(3)	(4)	Extremely Characteristic (5)

1. It bothers me when other people neglect my needs.
2. When making a decision, I take other people's needs and feelings into account.
3. I'm not especially sensitive to other people's feelings.
4. I don't consider myself to be a particularly helpful person.
5. I believe people should go out of their way to be helpful.
6. I don't especially enjoy giving others aid.
7. I expect people I know to be responsive to my needs and feelings.
8. I often go out of my way to help another person.
9. I believe it's best not to get involved taking care of other people's personal needs.
10. I'm not the sort of person who often comes to the aid of others.
11. When I have a need, I turn to others I know for help.
12. When people get emotionally upset, I tend to avoid them.
13. People should keep their troubles to themselves.
14. When I have a need that others ignore, I'm hurt.

Exchange Orientation Scale (Clark et al., 1987)

For each item, please rate the extent to which that statement is characteristic (or not) of you.

○	○	○	○	○
Extremely Uncharacteristic (1)	(2)	(3)	(4)	Extremely Characteristic (5)

1. When I give something to another person, I generally expect something in return.
2. When someone buys me a gift, I try to buy that person as comparable a gift as possible.
3. I don't think people should feel obligated to repay others for favors.
4. I wouldn't feel exploited if someone failed to repay me for a favor.
5. I don't bother to keep track of benefits I have given others.
6. When people receive benefits from others, they ought to repay those others right away.
7. It's best to make sure things are always kept 'even' between two people in a relationship.
8. I usually give gifts only to people who have given me gifts in the past.
9. When someone I know helps me out on a project, I don't feel I have to pay them back.

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

Note: AP = Alpha Pride. BP = Beta Pride. E = Externalization. D = Detachment. G = Guilt. S = Shame. RG = Ruminative Guilt.

The self-conscious emotion and psychological defense codes were not shown to study participants.

For each item, please rate how likely it is that you would react in the way described for each statement.

Not likely				Very likely
(1)	(2)	(3)	(4)	(5)

Q1. You make plans to meet a friend for lunch. At 5 o'clock, you realize you stood him up.

- a) You cannot apologize enough for forgetting the appointment. RG
- b) You would think: "I'm inconsiderate." S
- c) You would think: "Well, they'll understand." D
- d) You think you should make it up to him as soon as possible. G
- e) You would think: "My boss distracted me just before lunch." E

Q2. You break something at work and then hide it.

- a) You would think: "This is making me anxious I need to either fix it or get someone else to." G
- b) You would think about quitting. (S) S
- c) For days you'd worry about it, repeatedly trying to think of a way to remedy the situation. RG
- d) You would think: "A lot of things aren't made very well these days." E
- e) You would think: "It was only an accident." D

Q3. You are out with friends one evening and you're feeling especially witty and attractive. Your best friend's spouse seems to particularly enjoy your company.

- a) You would think: "I should have been aware of what my best friend is feeling." G
- b) You would feel happy with your appearance and personality. AP
- c) You would feel pleased to have made such a good impression. BP
- d) You can't stop thinking about the problems you may have caused your friend and their spouse. RG
- e) You would probably avoid eye-contact for a long time. S

Q4. At work, you wait until the last minute to plan a project, and it turns out badly.

- a) You'd bend over backwards for months to make up for it but fear that it won't make any difference. RG
- b) You would feel incompetent. S

- c) You would think: "There are never enough hours in the day." E
- d) You would feel: "I deserve to be reprimanded for mismanaging the project." G
- e) You would think: "What's done is done." D

Q5. You make a mistake at work and find out a co-worker is blamed for the error.

- a) You would think the company did not like the co-worker. E
- b) You would think: "Life is not fair." D
- c) You would keep quiet and avoid the co-worker. S
- d) You would feel troubled and preoccupied with what happened but unable to correct the situation. RG
- e) You would feel unhappy and eager to correct the situation. G

Q6. For several days you put off making a difficult phone call. At the last minute you make the call and are able to manipulate the conversation so that all goes well.

- a) You would think: "I guess I'm more persuasive than I thought." AP
- b) You would regret that you put it off. G
- c) You would feel like a coward. S
- d) You would think: "I did a good job". BP
- e) You would feel badly about getting off so easily and always feel "funny" whenever you thought about the call. RG
- f) You would think you shouldn't have to make calls you feel pressured into. E

Q7. While playing around, you throw a ball and it hits your friend in the face.

- a) You would feel inadequate that you can't even throw a ball. S
- b) You would think maybe your friend needs more practice at catching. E
- c) You'd replay the incident over and over, wondering what you could have done to avoid it. RG
- d) You would think: "It was just an accident." D
- e) You would apologize and make sure your friend feels better. G

Q8. You have recently moved away from your family, and everyone has been very helpful. A few times you have needed to borrow money, but you paid it back as soon as you could.

- a) You would feel immature. S
- b) You would think: "I sure ran into some bad luck." D
- c) You would return the favor as quickly as you could. G
- d) You would think: "I am a trustworthy person." AP
- e) You would be proud that you repaid your debts. BP
- f) You'd still never be able to forgive yourself for putting your family out. RG

Q9. You are driving down the road, and hit a small animal.

- a) You would think the animal shouldn't have been on the road. E
- b) You would think: "I'm terrible." S
- c) You would feel: "Well, it was an accident." D
- d) You'd have trouble getting the image of the animal out of your mind. RG
- e) You'd feel bad you hadn't been more alert driving down the road. G

Q10. You walk out of an exam thinking you did extremely well. Then you find out you did poorly.

- a) You would think: "Well, it's just a test." D
- b) You would think: "The instructor doesn't like me." E
- c) You would think: "I should have studied harder." G
- d) You would feel stupid. S
- e) You'd keep thinking back to all of the things you did wrong in preparing for the exam. RG

Q11. You and a group of co-workers worked very hard on a project. Your boss singles you out for a bonus because the project was such a success.

- a) You would feel the boss is rather short-sighted. E
- b) You would feel alone and apart from your colleagues. S
- c) You would feel your hard work had paid off. BP
- d) You would feel competent and proud of yourself. AP
- e) You would feel you should not accept it. G
- f) You'd feel compelled to find new ways each day to make it up to your co-workers. RG

Q12. While out with a group of friends, you make fun of a friend who's not there.

- a) You would think: "It was all in fun; it's harmless." D
- b) You would feel small ... like a "rat." S
- c) You would think that perhaps that friend should have been there to defend himself/herself. E
- d) You would berate yourself over and over for it and vow never to do it again. RG
- e) You would apologize and talk about that person's good points. G

Q13. You make a big mistake on an important project at work. People were depending on you, and your boss criticizes you.

- a) You would think your boss should have been clearer about what was expected of you. E
- b) You would walk around for days kicking yourself, thinking of all the mistakes you made. RG
- c) You would feel like you wanted to hide. S
- d) You would think: "I should have recognized the problem and done a better job." G
- e) You would think: "Well, nobody's perfect." D

Q14. You volunteer to help with the local Special Olympics for handicapped children. It turns out to be frustrating and time-consuming work. You think seriously about quitting, but then you see how happy the kids are.

- a) You would feel selfish and you'd think you are basically lazy. S
- b) Every time you hear about the kids, you get a gnawing feeling inside, knowing how you almost let them down. RG
- c) You would feel you were forced into doing something you did not want to do. E
- d) You would think: "I should be more concerned about people who are less fortunate." G
- e) You would feel great that you had helped others. BP

Q15. You are taking care of your friend's dog while they are on vacation and the dog runs away.

- a) You would think: "I am irresponsible and incompetent." S
- b) You would think that your friend must not take very good care of their dog or it wouldn't have run away. E
- c) You would feel badly every time you saw a dog. RG
- d) You would vow to be more careful next time. G
- e) You would think your friend could just get a new dog. D

Q16. You attend your co-worker's housewarming party, and you spill red wine on their new cream-colored carpet, but you think no one notices.

- a) You think your co-worker should have expected some accidents at such a big party. E
- b) You would stay late to help clean up the stain after the party. G
- c) Every time you see your co-worker you get a nervous feeling in the pit of your stomach, thinking of that stain on the carpet. RG
- d) You would wish you were anywhere but at the party. S
- e) You would wonder why your co-worker chose to serve red wine with the new light carpet. D

Appendix C

Informed Consent Form

Informed Consent to Participate in Research

Overview.

You are invited to take part in a research study being conducted by Laura Coon, a graduate student in the Department of Psychology and Neuroscience at Dalhousie University and Chris Moore (Lab Director) of the Early Social Development Lab at Dalhousie University in the Department of Psychology and Neuroscience. The purpose of this research is to gather insight into the factors that contribute to how satisfied individuals are in their romantic relationships. Participating involves completing an online survey hosted by Opinio. Your total time commitment for this session is approximately 20-25 minutes. The study asks personal questions about your feelings, behaviours, and experiences in your romantic, social, and familial relationships.

Participants: You are eligible to take part in this study if you meet the requirements of being at least 19 years of age living in Canada or the United States, and you are currently in a romantic relationship that is more than three months old.

Survey: If you choose to participate in this research you will be asked to complete an online questionnaire in one sitting at a location of your choosing via a survey hosted by Opinio. Completing the survey will take approximately 20-25 minutes.

Voluntary Participation/Withdrawal

Your participation in this research is entirely your choice. You do not have to participate in this research study. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. Once you begin the survey, there is no way to withdraw your data from the study. No identifying information will be collected so there is no way for this data to be linked to you. You may exit the survey early but the data you have entered to that point may be included in the analysis. You have the option to exit the survey at any time simply by closing your browser. You can withdraw from the survey at any time with no penalty or loss of compensation. Some of the more sensitive questions have the option for you to choose “prefer not to say”.

Privacy and Confidentiality

Your responses to the survey will be anonymous. This means that there are no questions in the survey that ask for identifying details such as your name or email address. All responses will be saved on a secure Dalhousie server. Only Laura Coon, supervisor Dr. Chris Moore, and Lab Manager Stef Hartlin will have access to the survey results.

The study data will be gathered by Opinio which is Dalhousie’s secure web platform for building and managing online surveys. Your data in this study will be

anonymous, no identifying information will be collected so there is no way for this data to be linked to you. It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet. However, your participation in this online survey involves risks similar to a person's everyday use of the Internet.

I will describe and share general findings of this research in a Master's thesis. I will share your anonymous data in a public research database called Scholar's Portal, where it may be used to advance knowledge. Following completion of the study, the data we collect will be archived in a data repository. Since we are unable to identify which data belongs to which participant after you have submitted the survey, we are unable to withdraw your data after completion to have it excluded from the data repository. However, this anonymity also makes it impossible for any of the data to be connected to you and the data that is archived will be de-identified and remain completely anonymous. Given the anonymous nature of this data and our inability to link the participants to the data in order to identify and remove the data, it is a requirement of the study to consent to having the data we collect (all de-identified) be archived in the data repository. All analysis, reports, and subsequent publications of the de-identified data will be done at the aggregate level. Nothing published would allow people to identify you, nor can the researchers identify you at any point.

The data repository is an open-access data repository called Scholar's Portal. The anonymized data we collect will be uploaded to the repository and will be accessible by the general public. The data we share, however, will have no way to identify individuals, and nobody will have any way of knowing which data belong to you. Future research projects may use the anonymous data that we upload to the repository, in addition to the project you are participating in. These future projects may focus on any topic, and could be unrelated to the goals of this current study.

Benefits and Risks

We are unsure if you will receive any personal benefits (beyond your compensation) by taking part in this research study. This research is considered to be minimal risk. However, you may experience some discomfort in reviewing your personal feelings about your romantic (and other) relationships. However, we do not expect this discomfort to exceed what would typically be experienced in day-to-day life. You will be asked questions about your experience in relationships, romantic relationships, sexual aspects of your romantic relationship, and about your relationship with your parents. If you may potentially be made uncomfortable by these types of questions, especially those about relationships, you may want to refrain from taking the survey. That being said, there are no objectively disconcerting questions, these risks will only arise should you have pre-existing discomfort in responding to questions about these types of things. The following sites are available to help locate resources in your area should you wish to access mental health help for personal or relationship-related reasons. An informative site about relationship distress is also listed below should you wish to learn more about relationship distress.

Canadian Mental Health Association: Getting Help (<https://cmha.ca/brochure/getting-help/>)

Mental Health America: Affiliate Resource Center (<https://arc.mhanational.org/find-affiliate>)

Canadian Psychological Association “Psychology Works” Fact Sheet: Relationship Distress (<https://cpa.ca/psychology-works-fact-sheet-relationship-distress/>)

Compensation

You will be compensated the amount you agreed upon before you entered into the survey (£3.00/\$4.93CAD), and compensation will be provided after you have completed the entire survey. You will not be penalized with loss of compensation if you choose to withdraw from the study early by closing your browser.

Contact Information

If you have any ethical concerns about your participation in this research, you may contact Research Ethics, Dalhousie University at (902) 494-3423, or email ethics@dal.ca. If you have questions regarding the research, please contact the Principle Investigator at lcoon@dal.ca. We may publish what we learn from this study. If we do, we will not let anyone know your name. We will not publish anything else that would let people know who you are. Once the study is complete we will post a lay summary of results on the ESDL website: <http://esdl.psychology.dal.ca/>

Conflicts of Interest

None of the researchers in this study have any conflicts of interest to declare. You can print a copy of this consent form for your records.

I understand that by proceeding with this survey, I am agreeing to take part in research.

- I agree
- I do not agree [upon which participants will be taken to an exit page]