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Ryan Liu-Pham

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THE PROTECTIVE BENEFITS OF SEXUAL SURROGACY IN DISSATISFYING
ROMANTIC RELATIONSHIPS

by

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A Dissertation
Submitted to the Graduate School,
the College of Education and Human Sciences
and the School of Psychology
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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ABSTRACT

The study tested whether the negative effects of dissatisfaction in romantic relationships can be mitigated by sexual surrogacy, an imagined sexual relationship with a celebrity or other socially distant target. I conducted a cross-sectional experimental study to examine my question. Participants were first randomly assigned to a relationship threat task asking them to reflect on insecurities in their romantic relationship or a friendship (control). Then were randomly assigned to reflect on either a celebrity crush or their desire to travel (control). Afterward participants were asked to complete measures of relationship satisfaction and well-being (happiness, loneliness, and affect). I predicted that sexual surrogates would offer a protective benefit to well-being (i.e., higher levels of happiness, lower levels of loneliness, and positive affect) when faced with a threat to their romantic relationship security compared to those that were not primed with their sexual surrogate. Sexual surrogacy had a very small effect on well-being. Interestingly, attachment styles were better predictors of well-being.

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CHAPTER I — THE PROTECTIVE BENEFITS OF SEXUAL SURROGACY IN DISSATISFYING ROMANTIC RELATIONSHIPS

Social relationships seemingly provide many benefits, which is the reasoning behind the argument that people have the drive to create positive, significant, and lasting interpersonal relationships (Baumeister & Leary, 1995). However, successful relationships are not always easily achieved and those feelings of loneliness can be costly to well-being (Park et al., 2020). To lessen the blows of loneliness, some people turn to social surrogacy (e.g., parasocial relationships). Below I review current research on a specific form of surrogacy, parasocial relationships, and the introduction of evidence that these relationships can take on sexual and romantic content. Using the basis of previous literature, I propose a study that tests whether the negative effects of dissatisfaction in romantic relationships can be mitigated by sexual surrogacy, an imagined sexual relationship with a celebrity, or other socially distant target.

1.1 Parasocial Relationships

Parasocial relationships are long-term relationships with a media persona (e.g., fictional characters, celebrities, etc.) that allow a surrogate for friendships, benefiting mental health and well-being (Hartmann, 2016; Rubin et al., 1985). Some examples of this include people with parasocial relationships toward media figures such as Elvis Presley, Greta Garbo, and Donna Reed (Blumer, 1933; Fraser & Brown, 2002; Rother, 2009). Other examples of this could be seen with favored television programs compared to channel surfing, which is discussed further below (Derrick et al., 2009).

Parasocial relationships have diverse benefits for individuals. For example, people who were reminded of a favorite television program were unaffected by experimental

tasks designed to increase belonging needs (Derrick et al., 2009). An initial correlational study found that people reported a greater willingness to respond to loneliness by watching favorite shows than almost any other activity included in the measure (e.g., Drink alcohol, Go for a Walk). Additionally, the same sample reported believing that if they were watching their favorite show, they would feel less lonely than they might feel doing almost anything else. An experimental study asked participants to write about a fight with a close other (or a control essay) then asked some participants to write about their favorite television program (vs. channel surfing whatever was on) (Derrick et al., 2009). While reminders of a fight with a close other led to diminished well-being among the channel surfing group, those who wrote about a favorite TV show were unaffected.

Few studies have viewed the benefits of parasocial romantic or sexual relationships nor have studies tested differences they might have compared to non-romantic parasocial friendships. Previous research by Tuchakinsky (2010) established that individuals report forming both platonic parasocial friendships and intense romantic or sexual parasocial bonds. By developing a new measure more sensitive to these differences, her work was able to disentangle the various “physical” (i.e., romantic, sexual) and emotional aspects of each relationship. Tuchakinsky (2010) suggests that parasocial romantic relationships are similar to human relationships due to how each are formed, namely both are formed on the basis of physical or sexual attraction, both satisfy a need for closeness (physical and emotional), and both elicit intense emotions.

Previous literature also found that parasocial romantic relationships shared similar costs and benefits to real romantic relationships (Adam & Sizemore, 2013). It was found that those that reported stronger parasocial romantic relationships experienced similar

benefits as real romantic relationships: being happy, feeling less alone, and feeling overall better. This first shows that humans have a drive to form substantial relationships and supports speculation that sexual surrogacy provides similar benefits of real relationships.

The proposed study examines whether sexual surrogacy can provide protective benefits when faced with dissatisfaction about an interpersonal romantic relationship. Research (reviewed below) reveals that parasocial relationships can be used to compensate for human interactions which could imply that sexual surrogates could compensate for challenges in human sexual relationships.

1.2 Parasocial Sexual Relations (Sexual Surrogacy)

Although these discussions of sexual surrogacy may seem abstract, individuals are aware of their own experiences with this little-studied phenomenon. For example, Cuellar (2015) recounts his personal journey of sexuality with parasocial relationships. He firsts recounts his sexual and romantic fantasies with celebrity Josh Hartnett and Joseph Gordan Levitt and was using these fantasies to explore his own sexuality when his female fiancée was not satisfying his relationship and sexual needs. Interestingly Cuellar (2015) using these fantasies with these male celebrities to explore his sexuality, he viewed these fantasies as his ideal relationship and was what he wished for.

Not only is sexual surrogacy able to manifest as a fantasy and affect human relationships, studies also show that individuals perceive romantic surrogate relationships as cheating, which implies that people view these relationships as similar to having an affair with a real person (Schnarre & Adam, 2018). Schnarre and Adam (2018) found this by having participants finish one of three vignettes where the prompts contained a couple

and one of the partners was founded to have either a parasocial, online, or offline form of infidelity. A majority of their participants found that the parasocial infidelity was indicative of infidelity, but that the strength of the infidelity was less than those that were asked to finish the online or offline infidelity vignettes (Scharre & Adam, 2018).

Previous research has shown that parasocial relationships are similar to real relationships, they are created with similar values of real relationships. Cortez (1992) found that the choice of newscasters' viewers formed parasocial relations with were predicted by physical and social attraction, shared values, attitudes, background, and similarity in communicative style. This creates the narrative that parasocial attraction follows the same pathway as interpersonal attraction (Cialdini, 1993). Due to the literature stated, I expect that parasocial relationships could have an impact on well-being due to the similarities between parasocial and actual relationships.

1.3 Relationship Satisfaction and Compensation

Relationship satisfaction greatly influences and predicts well-being. For example, relationship satisfaction predicted higher levels of satisfaction with life and more positive moods (Demirtas & Tezer, 2012) as well as higher levels of happiness (Argyle, 2001; Diener et al., 2000). As well, high quality marriages (higher levels of stability and relationship quality) have been seen to offer positive benefits to well-being, where spouse perception of marriage offered protective benefits against problematic marriages (Carr & Springer, 2010; Carr et.al., 2014).

Conversely, a lack of relationship satisfaction poses a direct threat to well-being. For instance, relationship dissatisfaction is associated with greater emotional distress (Røsand et al., 2012; Røsand et al., 2014). Røsand and colleagues (2012) found that

relationship dissatisfaction was strongly associated with emotional distress; however, high relationship satisfaction moderated adverse effects from various types of emotional strain. To further elucidate the correlation between relationship dissatisfaction and well-being, Røsand and colleagues (2014) found similar associations between relationship dissatisfaction and emotional distress within pregnant women and their partners. But if relationship dissatisfaction is so toxic for well-being, do individuals have strategies for managing this negative experience?

To mitigate the costs of relationship dissatisfaction, one strategy people tend to employ is using parasocial relationships to compensate for insufficient interpersonal relationships. This parasocial compensation hypothesis theorizes that parasocial relationships could satisfy the need to belong of individuals by providing the same social connection normally sought in interpersonal relationships (Hartmann, 2016; Horton & Wohl, 1956). For example, participants who were more socially isolated formed stronger connection of intimacy and closeness to their favored television character (Greenwood & Long, 2009). Additionally, those who feel uncertain about the supportiveness of close others (e.g., attachment anxiety) are more likely to develop parasocial relationships (Cole & Leets, 1999, Greenwood et al., 2008).

Because compensation allows individuals to use media personae to satisfy interpersonal social goals, previous research has looked at how people might also use parasocial bonds to achieve relationships they may not have in their daily life. For instance, a study of lesbian, gay, bisexual, transgendered, and queer (LGBTQ+) youths found that those who experienced low levels of family support but higher levels of parasocial relationships exhibited lower levels of loneliness (Woznicki et al., 2021).

Interestingly, it was found that at high levels of familial support this effect reversed with stronger parasocial attachment predicting greater levels of loneliness. In short, parasocial relationships offer compensation for a lack of social interaction and support.

1.4 Attachment Styles

Not only is it possible, that sexual surrogates may be compared to real romantic relationships. Diving into the differences of attachment styles show just how comparable sexual surrogates and romantic partners are. Due to how comparable sexual surrogacy and real romantic partners are indicative of how attachment styles are important and may be used as a potential moderator. Previous literature found that those that experienced relationship dissolution with a parasocial target had similar emotional intensity as relationship dissolution with a real romantic partner (Cohen, 2004). Cohen found this by sampling 381 adults with questionnaires that included questions about the relationship with their favorite characters, their attachment styles, and how the participant would react if the characters were removed from air. The results showed that viewers expecting to lose their favored characters had negative reactions similar to those that had negative reactions of dissolution of social relations (Cohen, 2004). Not only did participants have negative reactions, furthermore the intensity of those reactions was related to the viewers attachment styles, those with anxious attachments experienced the most intense negative responses (Cohen, 2004). This could strengthen the argument that parasocial relationships can compensate for real relationships since the literature shows that parasocial break-ups can be just as intense as regular break-ups. Not only can this argument be strengthened, it can allude to the theory that attachment styles could be a potential moderator.

Examining attachment style would further provide important information about the relationship of parasocial relations with well-being. Previous literature examined the moderation of attachment style on internet usage and psychological well-being (Young et al., 2020). Young and colleagues (2020) found that avoidant attachment styles had a significant positive relationship with wellbeing (e.g., worse levels of wellbeing). The researchers found that problematic internet use and mental health measures were greatest when anxious attachment was high and avoidant was low. Since attachment style was an indication of internet usage (which could be an indication of likelihood of parasocial relationships) and well-being, it makes attachment style an ideal candidate for examining the relationship between sexual crushes and well-being. Due to previous literature, we could expect to see that those with high levels of anxious attachment styles will get more benefit from having a parasocial romantic relationship on their levels of well-being.

CHAPTER II — THE CURRENT STUDY

Because relationship dissatisfaction can predict negative well-being, and parasocial relationships can compensate for that dissatisfaction in relationships; I proposed that sexual surrogacy can compensate for the negative perceptions of romantic relationships and mitigate the negative effects of relationship dissatisfaction.

To test this hypothesis, I propose a 2 (threat) \times 2 (target) between-subjects design in which participants were situationally threatened with romantic relationship dissatisfaction or a control essay about dissatisfaction with a friendship. Using a between-subjects design avoids any bias or interference that may result from a participant's being exposed to both threats. Afterward, participants were then randomly assigned to complete a measure designed to make salient a sexual surrogate or a control scale assessing desire to travel. By closely matching these second conditions, I hope to be able to test the unique role that desire toward a sexual surrogate may play in providing a foundation for well-being. Specifically, I predicted that relationship (v. friendship) dissatisfaction would yield poorer state well-being for those reminded of travel, but that these costs were eliminated when individuals have a chance to think of a sexual surrogate. Thus, increasing the novelty of parasocial relationships and increasing the similarities of parasocial relationships and real romantic relationships. This would expand what a parasocial relationship could encompass which is meaningful because it furthers the scope on how one can replace a lack of human interaction to still feel a sense of belonging which could increase one's sense of belonging. This research looked to further support the theory that humans have a drive to create meaningful connections (Baumeister & Leary, 1995).

The novel approach to this study examines the compensation effect that sexual surrogacy can provide for those that are in dissatisfying relationships. Given that parasocial relationships could fill the need for social and sexual needs one may have, it could be inferred that sexual surrogates can mitigate the negative effects of negative romantic relationships. Sexual surrogacy will provide a broader scope on the benefits of parasocial relationships can provide, specifically, the benefits of sexual surrogates. My work considers the novel possibility that sexual surrogates can compensate for romantic relationships and offer protective benefits when faced with a dissatisfying romantic relationship.

CHAPTER III — METHOD

3.1 Participants

Based on a priori power analysis $r = .30$, $\alpha = .05$, and power = .80, via G*Power, I sought 300 participants to ensure that each condition has enough power to detect the expected relationship between desire and well-being ($n = 75$ per group). There was an inclusion criterion for participants to be in a romantic relationship, be 18 or over in age, and have a celebrity crush, which were collected via Reddit. Participants were randomly assigned to one of four experimental groups (romantic v. friend and sexual v. travel). The friend condition were asked to write an essay about a dissatisfying friendship event that had occurred, and the romantic condition were asked to write about a dissatisfying relationship event that had occurred. The sexual condition were primed with the desire of their sexual surrogate, and the travel condition were primed with a desire to travel. 339 participants had viable data points. Of the 339 participants 79 were male, 255 were female, and 5 listed other as their gender. The age of the participants ranged from 18 to 67, with a mean of 31.86. Participant ethnic breakdown was 185 listed being white/Caucasian, seven listed being black/African American, four listed being Native American, 18 listed being Latinx or Hispanic, 99 listed being Asian or Pacific Islander, and 25 listed being other. Sexual orientation of the participant broke down into 215 listed being heterosexual, 24 being homosexual, 84 being bisexual, 11 listed other, and five preferred not to say.

3.2 Materials

3.2.1 Demographic Questionnaire

Participants first received a demographics questionnaire asking them for their age, sex, ethnic background, sexual orientation, and how long their relationship with their partner is (Figure B1). I did not expect to find a difference in these measures, but it is standard practice to report these data. I did not expect to find enough variability to find differences in sexual orientation, though I am including orientation for exploratory purposes in case there is enough variability to test for differences.

3.2.2 Relationship Dissatisfaction Manipulation

Participants were asked to either write about a time they were dissatisfied with their relationship partner (romantic condition, $n = 172$) or their best friend (friend condition, $n = 167$). Specifically, the task was for participants to reflect on insecurities or dissatisfying events such as a time their partner cheated, or the participant felt betrayed in their romantic relationship (Figure B2). Participants that were randomly placed in the friend condition were tasked with reflecting on insecurities or dissatisfying events such as a time they felt their friend betrayed them in their platonic friendship (Figure B3). These essays were based on experimental work done by Murray and colleagues (1998), and they have been validated in previous work on parasocial relationships (e.g., Derrick et al., 2009).

3.2.3 Relationship Satisfaction

Participants completed the satisfaction subscale of the Rusbult Investment Model Scale (Rusbult et al., 1998) twice (prior and post manipulation) as a manipulation check to ensure that the relationship threat elicited relationship dissatisfaction within the

participants' romantic relationship (Figure B4). The scale consists of 6 items such as "I feel satisfied with my relationship" and "my relationship is close to ideal" and participants rate their agreement along a 7-point Likert scale (1 = Strongly disagree / 7 = Strongly agree). Relationship satisfaction for both prior to manipulation ($\alpha = .89$; Table A1) and post manipulation ($\alpha = .91$; Table A1) was viewed as a composite score, with higher scores meaning higher levels of relationship satisfaction.

3.2.4 Attachment Style

I measured attachment style with a modified version of the Experiences in Close Relationships - Relationship Structures Scale (ECR-RS; Fraley et al., 2006). This scale was adapted to measure avoidant and anxious attachment styles with one's romantic partner. This is a 9-item measure with items such as "It helps to turn to my partner in times of need" and "I often worry that my partner does not really care for me." All statements were rated on a 7-point Likert scale consisting of response anchors of strongly disagree (1) to strongly agree (7).

The measure quantifies attachment style along two dimensions: attachment anxiety (3 items) and attachment avoidance (6 items). Mean scores for each subscale were calculated with higher scores indicating greater levels of anxious ($\alpha = .89$; Table A1) or avoidant attachment ($\alpha = .84$; Table A1).

3.2.5 Parasocial Relationship Scale

I measured differences in parasocial relationships (i.e., para-friendship and para-love) with the Parasocial Relationships Scale (Tuchakinsky, 2010). This scale was adapted to measure different factors of parasocial relationships that could be formed with a celebrity or a fictional character.

The Parasocial Relationship Scale consists of 24 items divided into 4 subscales: friend communication, physical love, emotional love, and friend support. All statements were on a 7-point Likert scale with response anchors of strongly disagree (1) to strongly agree (7). The friend communication subscale ($\alpha = .84$; Table A1) consists of 6 statements such as “If my crush was a real person or obtainable, I could disclose negative things about myself honestly and deeply to them.” The physical love subscale ($\alpha = .78$; Table A1) consists of 4 statements such as “I find my crush very attractive physically.” The emotional love subscale ($\alpha = .84$; Table A1) consists of 7 statements such as “I adore my crush.” The friend support subscale ($\alpha = .88$; Table A1) consists of 7 statements such as “If my crush was a real person or obtainable, I would share my possessions with them.” All subscales were averaged, with higher scores indicating higher levels of the corresponding subscale.

3.2.6 Desire Condition

Participants were randomly assigned to be one of 2 condition groups (Sexual v. Travel), the participant were given an adapted Sexual Behavior Inventory or a Desire to Travel survey (SDBI; Thirlaway et al., 1996). For those that were assigned sexual condition ($n = 159$), the participant was asked to name their celebrity crush before receiving the SDBI (Figure B5). The SDBI asks participants to imagine a series of 4 sexual acts such as kissing and having penetrative sex with their celebrity crush. For each act participants were asked if they would engage in the activity (0 = No, 1 = Yes) and how often they desire to engage in those behaviors (1 = Never; 5 = Always).

For those that were randomly assigned to the travel condition ($n = 180$), the participant was given a series of 4 places such as Italy and Bora Bora (Figure B6). For

each destination the participant were asked if they would travel to this location (0 = No, 1 = Yes) and how often they desire to travel to these destinations (1 = Never; 5 = Always). Locations were based on a multitude of ‘best places’ to travel to lists (Bloom, 2021; Travel + Leisure, 2021; 30 world's best places to visit | U.S. news travel).

I collapsed the experimental condition across one variable. Where both the summation of yes responses (travel or sexual desire checklist; $\alpha = .86$; Table A1) and the average desire response (travel or sexual desire frequency; $\alpha = .80$; Table A1) were estimated for each participant.

3.2.7 Well-Being

State well-being was measured by affect (positive and negative), subjective happiness, and loneliness. Past research has established the relationship between loneliness, happiness, and affect with parasocial relationships (Baek et al., 2013; Jennings & Alper, 2016), this made these variables ideal candidates for understanding how sexual surrogacy effects well-being.

Loneliness was measured with a state loneliness scale (Tam & Chan, 2019; Figure B7). This single-item measure asks participants how much they agree with the statement “I feel lonely” (1 = Not at all; 7 = Very much).

To measure happiness, participants completed the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999; Figure B8). This is a four-item scale that contains items such as “Some people are generally very happy, they enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?” and “Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this

characterization describe you?”. Because all 4 items use the same 7-point response scale (with item-appropriate anchors), I averaged responses to the four items to compute a composite happiness score ($\alpha = .89$; Table A2), with lower responses meaning lower happiness (Lyubomirsky & Lepper, 1999).

Affect was measured with an adapted version of the PANAS-X (Watson & Lee, 1994; Figure B9). The items were changed, but the instructions were changed to ask participants to answer the questions about how they feel right now to measure their state affect. The PANAS-X is a 20-item scale that had participants rank how certain words and emotions fit to them ‘right now’ and the survey contains items such as “Afraid” and “Active” with a five-point scale (1 = very slightly or not at all; 5 = extremely). Responses to these items were scored as a sum of the 10 questions for positive affect ($\alpha = .90$; Table A1) and 10 questions for negative affect ($\alpha = .91$; Table A1) with higher scores reflecting more positive/negative affect.

3.3 Procedure

Participants were recruited through subreddits on Reddit.com pending admin approval. The survey was available immediately. Participants were automatically randomly assigned to a condition group. The participant was first given the consent online, then answered demographic questions. After the demographic questions were answered, the participant was asked about their relationship satisfaction with their romantic partner and given a parasocial relationship scale. Afterward the participants were asked to write about dissatisfaction toward their romantic partner or a friend. Afterward, participants were asked about their relationship satisfaction with their romantic partner. Then was primed with their sexual desire towards a celebrity crush or

the desire to travel. Finally, the participant completed the well-being measures (subjective happiness, loneliness, and affect).

CHAPTER IV — RESULTS

4.1 Correlational Analysis

I first estimated the bivariate correlations between relationship satisfaction (pre- and post-manipulation), attachment style (anxious and avoidant), parasocial relationships (friend communication, physical love, emotional love, and friend support), combined desire (collapsing experimental groups of sexual and travel desire), combined checklist (collapsing experimental groups of sexual and travel checklists) with all outcome variables.

At the bivariate level, the collapsed experimental variables of desire and checklist were significantly negatively correlated with relationship satisfaction (both pre- and post-manipulation) and were significantly positively correlated with all forms of parasocial relationships and each other. Desire alone was significantly positively correlated with an avoidant attachment style and positive affect.

Attachment styles were viewed as avoidant attachment and anxious attachment. Avoidant attachment styles were significantly positively correlated with two forms of parasocial relationships (friend communication and emotional love), desire, anxious attachment, negative affect, and loneliness. While being significantly negatively correlated with relationship satisfaction (both pre- and post-manipulation) and happiness. Anxious attachment styles were significantly positively correlated with two forms of parasocial relationship (friend communication and emotional love), negative affect, and loneliness, while being negatively correlated with happiness.

The parasocial relationships were viewed on four subscales for the bivariate correlations. All four subscales were significantly positively correlated with each other.

The subscale of friend communication was significantly correlated with affect (positive and negative) and loneliness in a positive direction while being negatively correlated with happiness and relationship satisfaction (pre- and post-manipulation). Emotional love was significantly correlated with negative affect and loneliness in a positive direction while being negatively correlated with happiness and relationship satisfaction (pre- and post-manipulation). The subscale of friend support was significantly positively correlated with negative affect and loneliness while being significantly negatively correlated with relationship satisfaction (pre- and post-manipulation).

In summary, at the bivariate level, the correlations for relationship satisfaction seemed to be consistent with previous literature. Although I collapsed the experimental conditions, there were trends that emerged which could indicate that there are minimal associations between desire with the other predictors and some of the outcome variables. Accordingly, I proceeded to analyze the hypothesized t-tests for the manipulation check and ANOVA.

4.2 Manipulation

To determine whether the dissatisfaction prime successfully reduced relationship satisfaction, I first conducted a 2 (pre- vs. post-manipulation) x 2 (romantic vs. friendship dissatisfaction) ANOVA to analyze the effect of the dissatisfaction prime on relationship satisfaction. The 2-way ANOVA showed that there was no difference between pre- and post-manipulation on the relationship satisfaction, $F(1,362) = 0.07, p = .790$.

Additionally, the 2-way ANOVA revealed that there was not a significant interaction between the relationship satisfaction scores (prior and post manipulation) based on the dissatisfaction prime, $F(1,362) = 0.37, p = .550$. It was expected that the relationship

satisfaction should not change for those that were primed with dissatisfaction of a friend, which did occur. Relationship satisfaction was expected to decrease for those that were primed with dissatisfaction of their romantic relationships, which did not occur. This indicates that the manipulation did not work. This could be due to unintentional priming which is expanded upon below.

4.3 ANOVA

To determine whether target salience moderated any effect of dissatisfaction condition on well-being, I submitted well-being indices to a 2 (romantic vs friend) x 2 (sexual vs travel) ANOVA. Then, I conducted a pairwise comparison for significant findings of all effects.

4.3.1 Negative Affect

Negative affect was subjected to a 2 (romantic vs friend dissatisfaction) x 2 (sexual vs travel desire) ANOVA. The ANOVA revealed that there was a difference of negative affect based on the simple main effect of desire (sexual vs travel), $F(1,335) = 5.48$, $p = .020$ (Table A4). Comparing condition means showed that sexual desire ($M = 17.2$, $SD = 7.2$) was higher than desire to travel ($M = 15.3$, $SD = 7.2$) on negative affect, $p = .020$. There was marginal significance for the main effect of dissatisfaction condition (romantic vs friend dissatisfaction), $F(1,335) = 2.72$, $p = .100$. Comparing condition means showed that was a marginal difference, romantic dissatisfaction ($M = 15.6$, $SD = 7.2$) was lower than friendship dissatisfaction ($M = 16.9$, $SD = 7.2$), $p = .100$.

In summary, when looking at negative affect when the participant was primed with sexual desire they expressed higher levels of negative affect, with no interference from dissatisfaction. While those that were manipulated to feel romantic dissatisfaction

showed lower levels of negative affect compared to those that were dissatisfied with their friendship. Overall, these findings do not support my hypothesis for an interaction between dissatisfaction and sexual desire.

4.3.2 Happiness

A two-way ANOVA was performed to analyze relationship dissatisfaction (romantic vs friendship) and desire (sexual vs travel) on happiness. The analysis showed that there were simple main effects of desire ($F(1,334) = 4.64, p = .032$) on happiness (Table A5). Comparing condition means showed that sexual desire ($M = 4.2, SD = 0.9$) was lower than travel desire ($M = 4.4, SD = 0.9$) on happiness, $p = .032$.

In other words, when looking at happiness those that were primed with sexual desire showed lower levels of happiness compared to those that were primed with desire to travel. These findings do not support my hypothesis as there was no interaction between dissatisfaction and desire, while also finding effects in the opposite direction than predicted.

4.3.3 Loneliness

I conducted a two-way ANOVA to analyze relationship dissatisfaction (romantic vs friendship) and desire (sexual vs travel) on loneliness. The analysis revealed that there was a simple main effect of relationship dissatisfaction on loneliness, $F(1,336) = 4.03, p = .045$ (Table A6). Comparing condition means showed that romantic dissatisfaction ($M = 3.0, SD = 1.8$) was lower than friendship dissatisfaction ($M = 3.4, SD = 1.8$) on loneliness, $p = .045$.

Surprisingly, there was evidence that those that were dissatisfied with their romantic relationships were less lonely compared to those that were dissatisfied with their

friendships. Since there was no interaction to show compensation, there was a lack of support for my hypothesis.

4.4 Exploratory Moderation Analysis

4.4.1 Regressions

For the analysis above, I focused on sexual desire being the focus of sexual surrogacy, due to formation of parasocial romantic relationships forming through physical attraction. As seen in previous work, attraction is not the sole factor in relationships. Thus, I am expanding the views of sexual surrogacy to incorporate attachment styles as a moderator of my outcomes.

To explore this avenue of attachment styles as a moderator, I analyzed the centered main effects of relationship satisfaction, attachment styles (avoidance and anxious attachment), parasocial relationship styles (friend communication, physical love, emotional love, and friend support), desire [behavior checklist and desire (sexual vs travel)], the interactions between the dissatisfaction condition (romantic vs friendship), desire variables [behavior checklist and desire (sexual vs travel)], attachment style (avoidant vs anxious attachment styles); and the interactions between dissatisfaction condition (romantic vs friendship) and desire condition (sexual vs travel) on the outcomes of affect (positive and negative), happiness, and loneliness (Table A7).

4.4.1.1 Positive Affect

The regression revealed that there were no significant main effects, however there was a marginal interaction between dissatisfaction and anxious attachment style, $b = 1.08$, $SE = 0.63$, $t(300) = 1.73$, $p = .085$ (Table A7).

Probing the simple slopes, I saw that there was no difference between the dissatisfaction condition groups on positive affect. However, a floodlight analysis (Figure B10) showed at high (+1 SD) levels of anxious attachment there was marginal effects of dissatisfaction condition groups on positive affect, it was indicated that those were primed with romantic dissatisfaction exhibited higher levels of positive affect compared to those in the friend dissatisfaction group, $b = 2.75$, $SE = 1.66$, $t(300) = 1.66$, $p = .098$. At mean levels of anxious attachment, there was no difference between condition groups, $b = 0.10$, $SE = 1.29$, $t(300) = 0.77$, $p = .441$. At low (-1 SD) levels of anxious attachment, there was no difference between condition groups, $b = -0.60$, $SE = 1.57$, $t(300) = -0.38$, $p = .705$.

4.4.1.2 Negative Affect

The regression showed that anxious attachment styles were predictive of negative affect, $b = 0.90$, $SE = 0.37$, $t(301) = 2.41$, $p = .016$. Feelings of friendship support with the parasocial target was marginally predictive of negative affect, $b = 0.83$, $SE = 0.50$, $t(301) = 1.67$, $p = .096$. There was marginal interaction between avoidant attachment styles and dissatisfaction conditions, $b = 1.50$, $SE = 0.63$, $t(301) = 1.89$, $p = .059$.

Probing the simple slopes (Figure B11), it was shown that there was a significant relationship between avoidant attachment and negative affect for those in the romantic dissatisfaction condition ($b = 1.27$, $SE = 0.61$, $t(301) = 2.07$, $p = .039$) but not those in the friendship dissatisfaction condition ($b = -0.23$, $SE = 0.70$, $t(301) = -0.33$, $p = .741$). A floodlight analysis showed at high (+1 SD) levels of avoidant attachment there no difference between condition groups $b = -2.12$, $SE = 1.37$, $t(301) = -1.55$, $p = .123$. At mean levels of avoidant attachment, there was no difference between condition groups, b

= -0.50, SE = 1.06, $t(301) = -0.47$, $p = .637$. At low (-1 SD) levels of avoidant attachment, there was no difference between condition groups, $b = 1.12$, SE = 1.36, $t(301) = 0.82$, $p = .411$.

4.4.1.3 Happiness

The regression showed that a main effect of anxious attachment styles was predictive of happiness, $b = -0.13$, SE = 0.05, $t(300) = -2.68$, $p = .008$. There were no interaction effects present.

4.4.1.4 Loneliness

The regression showed that both relationship satisfaction (post-manipulation, $b = -0.06$, SE = 0.02, $t(302) = -3.09$, $p = .002$) and anxious attachment styles ($b = 0.32$, SE = 0.08, $t(302) = 3.78$, $p < .001$) were predictive of loneliness. There were no interaction effects present.

CHAPTER V — GENERAL DISCUSSION

This study examined the relationship between sexual surrogacy and well-being by looking at the protective benefits that may come from sexual surrogacy in dissatisfying romantic relationships. I expected to find benefits of sexual surrogacy on well-being when faced with dissatisfying romantic relationships.

Interestingly there were no interaction effects on the 2 (romantic vs friendship dissatisfaction) x 2 (sexual vs travel desire) ANOVA's, however, there were main effect differences on negative affect, happiness, and loneliness. For the relationship dissatisfaction condition those that were primed with a dissatisfying friendship showed higher levels of negative affect and loneliness over their condition counterparts. This could indicate that people hold their friends closer to their hearts than their romantic partners. While this finding does not support my hypothesis it does follow a tangential framework that receiving support from parents, friends, or romantic partners have a role with ones' well-being (Ratelle et al., 2013). Additionally, there were more interesting results, there was a difference for those in the desire condition groups (sexual vs. travel desire) on happiness, participants that were primed with sexual desires experienced lower levels of happiness compared to those that were primed with the desire to travel. These results were surprising given the background research on sexual satisfaction and well-being, as well as a call for further exploration.

The findings in the exploratory regressions showed that the main effects of attachment style (avoidance and anxious), parasocial physical love, and relationship satisfaction regressed on some of the outcome measures, while none of the interaction variables proved to be significant. These findings are very surprising as there was no

replication on sexual desire and well-being measures from a similar theoretical framework (Liu-Pham, 2022). However, with the finding of ideals of physical love in parasocial relationships indicated that those participants felt less lonely, this could allude a new component of sexual desire in parasocial relationships that was considered before. The sexual desire variables focused on sexual acts such as oral sex and penetrative sex as the focal point, while the ideals of physical love in parasocial relationships focused on finding their parasocial target attractive. This could indicate that sexual acts alone may not be strong enough to illicit strong emotions of sexual desires.

Another reason could be that the sexual acts did not resonate with the participants in my sample. The sexual acts that the desire behaviors focused on were oral sex and penetrative sex which can be seen as ‘the norm’ or ‘vanilla sex’ (Ribner, 2009). Just like there is a shift to consensual non-monogamy for the new generation, there may also be a shift towards kinkier sex (sexual activities that are considered to be outside of the norm; Christina, 2011; Rehor, 2015). This may rectify the problem of weak desire prime and may be able to be more generalizable to the current population.

Not only could there be issues in what attributes matter for desire, there may be issues in thinking about celebrity crushes in the face of one’s real romantic relationship. Previously, to assert that sexual surrogates were similar to real romantic relationships previous research found that parasocial relationships were as intense as real romantic relationships, as well that some people held the idea that parasocial relationships were considered cheating (Cohen, 2004; Schnarre & Adam, 2018). Looking for differences between dissatisfaction of a romantic relationship vs friendship may not be as easily seen, which is supported by the lack of significant results and that there was no difference in

relationship satisfaction post dissatisfaction manipulations. To rectify this issue, I would consider adding a new condition group that did not view dissatisfaction but viewed a more neutral emotion, to help make the power of a romantic relationship dissatisfaction condition group more robust. Overall, there was no evidence that sexual surrogacy offered protective benefits in the face of a dissatisfying romantic relationship.

5.1 Limitations and Future Directions

A concern for this study is the study design and manipulation power. The first of the concerns here is that I asked participants to report some basic demographic information about their celebrity crush, (i.e., the name of the crush, how many crushes the participant held, how long the crush has lasted, etc.) prior to the dissatisfaction manipulation. Due to the survey order, I might have unintentionally primed all participants to think about their celebrity crush, thus wiping out all effects of the dissatisfaction manipulation. This speculation is supported by a manipulation check analyses that were done to view if the manipulation was successful. I conducted a 2 (pre- vs. post-manipulation) x 2 (romantic vs. friendship dissatisfaction) ANOVA to analyze the effect between relationship satisfaction and a dissatisfaction prime (romantic dissatisfaction vs friendship dissatisfaction) as a manipulation check. It was expected that the relationship satisfaction should not change for those that were primed with dissatisfaction of a friend, which did occur. Relationship satisfaction was expected to decrease for those that were primed with dissatisfaction of their romantic relationships, which did not occur. This indicates that the manipulation did not work. To resolve this issue, I could consider reordering the survey. Reordering the survey could increase the power of the manipulation and would remove any unintentional priming of celebrity

crushes prior to manipulation and allow for more intense influence of the dissatisfaction manipulation on a participant.

Another issue to consider is the reporting of data itself. Since participants entered answers themselves without any assistance, there may be some intentional or incidental misreporting. To back up the claim incidental misreporting, when viewing some comments by participants post survey some claimed that some questions were confusing to understand the first read through, which may be due to some word changes or adaptations of the measures to incorporate both fictional crushes and real celebrities that are crushes. As well, there is previous literature that showed male participants tend to overreport their levels of sexual activity and female participants tend to underreport their levels of sexual activity (Fenton et al., 2001). This could be a problem because then the levels of sexual desire may be skewed due to social desirability bias. One way to mend this issue is to include a social desirability scale, which may help determine if a participant's data is worth being included in the analysis or not (Grimm, 2010). This could allow for ease when making claims of gender differences when it pertains to sexual surrogacy. However, this study was done predominantly by females which would not allow for a generalizable interpretation of gender differences. To rectify this predicament, I would try to recruit more of a male identifying sample. In addition to the social desirability scale and sample recruitment, potentially having participants have support such as in person testing, interview style testing, etc. during the survey would help alleviate the confusion that some participants may have.

Another limitation to consider is the current climate of the world. Previously there was a new precedent set due to policies around the COVID-19 pandemic. The climate

that was created posed a new issue as people were in a new social environment than before, such as staying home, mask mandates, citywide closures, etc. This new environment caused the manifestation of parasocial relationships in people who were finding themselves feeling physically and emotionally isolated from loved ones in the physical sense (i.e., hanging out, meeting up, etc.; Bond, 2021). This uprise in parasocial relationships may have been caused by the newfound sense of loneliness, isolation, and more that was more prevalent in the population at the height of the pandemic (Brooks et al., 2020). However, as American States are opening up and allowing for the end of the pandemic, this could result in diminishing robust benefits of parasocial relationships. This could indicate that parasocial relationships are possibly influenced by societal factors which is indicative of how social surrogacy works, in that these relationships occur and form as a strategy used to feel a sense of belonging (Derrick et al., 2009).

With a multitude of null effects, it could be seen as a call to demystify what factors may be seen as important in parasocial relationships, specifically parasocial romantic relationships. This study focused on trying to bring out sexual desire in parasocial relationships, but it did not show any significant findings. This could mean that sexual surrogacy or sexual desire may not be as important to romantic partners as other factors. Thus, incorporating other relationship factors to view parasocial relationships may further elucidate what factors a person holds dear to them in romantic relationships. For example, people may view romantic relationships as a whole over viewing them by one facet of the relationship. Thus, viewing this could help push the idea of parasocial relationships as multifaceted, thus indicating that these forms of relationships are as deep as real romantic relationships.

Another future direction this research could take is the drive to compare the different benefits that come with different forms of parasocial relationships (i.e., friendship vs romantic). This may be an interesting route to take this research as I found that on the loneliness measure, those with levels of physical love values in parasocial relationships that focused on attraction over sexual desire expressed lower levels of loneliness. While there may not be an extreme number of significant findings, it would serve as the basis to explore this avenue of other possible measures that one may hold dear in a parasocial relationship, such as willingness to sacrifice, investment, etc. I would expect to find that other variables instead of just sexual desire may factor into making a parasocial relationship more similar to real relationships, or the possibility that sexual desire in conjunction with other factors may show how similar parasocial relationships are to real romantic relationships.

5.2 Conclusion

This study looked to provide evidence parasocial sexual desire would compensate for dissatisfying romantic relationships. Sadly, there was no evidence to suggest that this compensation occurs. However, the lack of evidence serves as call for more research in the area of parasocial relationships and romantic relationships. This research is important as the world changed (i.e., COVID-19 pandemic) that possibly increased the need for different avenues of social support due to physical and emotional isolation which could happen again. Understanding how people cope with a newfound sense of loneliness is important in moving forward due to the human need for a sense of belonging.

APPENDIX A - Tables

Table A.1 *Observed correlations between all variables*

	1	2	3	4	5	6	7	8	9	10
Pre-R.S.	-									
Post-R.S.	.91**	-								
Avoidance	-.72**	-.72**	-							
Anxious	-.47**	-.45**	.43**	-						
Friend	-.16**	-.16**	.14*	.21**						
Com.					-					
Physical	.02	.01	-.06	-.03	.23**					
Love						-				
Emotional	-.25**	-.24**	.21**	.22**	.70**	.31**				
Love							-			
Friend	-.14*	-.11*	.06	.07	.73**	.25**	.65**			
Support								-		
Combined	-.20**	-.20**	.15**	.10	.18**	.17**	.24**	.21**		
Desire									-	
Combined	-.18**	-.15**	.10	.07	.17**	.18**	.17**	.23**	.46**	-
Checklist										
α	.89	.91	.84	.89	.84	.78	.84	.88	.80	.86
$M(SD)$	35.4 (6.0)	35.5 (6.4)	2.2 (1.1)	2.5 (1.7)	4.0 (1.3)	6.5 (0.6)	3.5 (1.3)	4.6 (1.2)	7.4 (3.4)	2.9 (1.5)

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, Pre-R.S. = Relationship Satisfaction prior to manipulation, Post-R.S. = Relationship Satisfaction post manipulation

Table A.2 *Correlations of Predictor Variables and Outcome Variables*

	Positive Affect	Negative Affect	Happiness	Loneliness
Pre-R.S.	.12*	-.31**	.28**	-.51**
Post-R.S.	.11*	-.27**	.24**	-.47**
Avoidance	-.07	.26**	-.23**	.44**
Anxious	-.06	.30**	-.29**	.47**
Friend Com.	.12*	.24**	-.11*	.21**
Physical Love	.07	.09	< .01	-.07
Emotional Love	.08	.31**	-.15**	.24**
Friend Support	.12*	.25**	-.04	.13*
Combined Desire	.12*	.08	-.01	0.10
Combine Checklist	.07	.03	0.07	0.07
Positive Affect		.08	.41**	-.17**
Negative Affect			-.24**	.39**
Happiness				-.38**
Loneliness				
α	.90	.91	.89	N/A
$M (SD)$	25.7 (8.2)	16.2 (7.3)	4.3 (0.9)	3.2 (1.8)

Note. * $p < .05$, ** $p < .01$, *** $p < .001$, Pre-R.S. = Relationship Satisfaction prior to manipulation, Post-R.S. = Relationship Satisfaction post manipulation

Table A.3 2 (*romantic dissatisfaction vs friend dissatisfaction*) x 2 (*sexual desire vs travel desire*) ANOVA on *Positive Affect*

	df	SS	MS	F	Sig.
Dissatisfaction	1	1.07	1.07	0.02	.900
Desire	1	27.17	27.17	0.40	.527
Interaction	1	1.77	1.77	0.03	.872
Error	333	22531.04	67.66		
Total	337	245769.00			

Table A.4 2 (*romantic dissatisfaction vs friend dissatisfaction*) x 2 (*sexual desire vs travel desire*) ANOVA on *Negative Affect*

	df	SS	MS	F	Sig.
Dissatisfaction	1	141.45	141.45	2.72	.100
Desire	1	285.17	285.17	5.48	.020
Interaction	1	0.14	0.14	< .01	.959
Error	334	17388.95	52.06		
Total	338	106412.00			

Table A.5 2 (*romantic dissatisfaction vs friend dissatisfaction*) x 2 (*sexual desire vs travel desire*) ANOVA on Happiness

	df	SS	MS	F	Sig.
Dissatisfaction	1	0.40	0.40	0.46	.497
Desire	1	3.98	3.98	4.64	.032
Interaction	1	0.01	0.01	0.01	.926
Error	333	286.02	0.86		
Total	337	6607.00			

Table A.6 2 (*romantic dissatisfaction vs friend dissatisfaction*) x 2 (*sexual desire vs travel desire*) ANOVA on Loneliness

	df	SS	MS	F	Sig.
Dissatisfaction	1	13.17	13.17	4.03	.045
Desire	1	1.41	1.41	0.43	.512
Interaction	1	2.11	2.11	0.65	.422
Error	335	1093.41	3.26		
Total	339	4654.00			

Table A.7 Regression Results of Main Effects and Interactions

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	Positive Affect			Negative Affect			Happiness			Loneliness		
	B	SE	β	B	SE	β	B	SE	β	B	SE	β
Dissatisfaction (Condition)	1.03	1.29	0.06	-0.45	1.06	-0.03	0.11	0.14	0.06	-0.36	0.24	-0.10
Desire (Condition)	-0.31	1.35	-0.02	1.58	1.12	0.11	-0.20	0.15	-0.11	-0.22	0.25	-0.06
Post-R.S.	0.13	0.11	0.10	-0.09	0.09	-0.08	0.02	0.01	0.10	-0.06**	0.02	-0.22
Avoidance	-0.13	0.85	-0.02	-0.23	0.70	-0.03	0.01	0.09	0.02	0.22	0.16	0.13
Anxious	-0.67	0.45	-0.13	0.90*	0.37	0.20	-0.13**	0.05	-0.23	0.32***	0.08	0.29
Friend Com.	0.64	0.59	0.10	-0.22	0.49	-0.04	-0.02	0.06	-0.03	0.05	0.11	0.04
Physical Love	0.30	0.79	0.02	0.27	0.65	0.02	<0.01	0.09	<0.01	-0.26†	0.15	-0.09
Emotional Love	<0.01	0.54	<0.01	0.71	0.45	0.13	-0.06	0.06	-0.09	0.09	0.10	0.07
Friend Support	0.24	0.60	0.04	0.83†	0.50	0.14	0.05	0.07	0.07	0.06	0.11	0.04
Combined Desire	0.10	0.23	0.04	-0.01	0.19	<0.01	<0.01	0.03	-0.01	0.02	0.04	0.04
Combined Checklist	0.23	0.55	0.04	-0.48	0.45	-0.10	0.10	0.06	0.16	-0.11	0.10	-0.09
Dissatisfaction*Desire	0.31	0.31	0.10	-0.01	0.26	<0.01	0.02	0.03	0.04	-0.04	0.06	-0.05
Dissatisfaction*Checklist	-0.21	0.74	-0.03	0.43	0.61	0.07	-0.11	0.08	-0.13	0.11	0.14	0.07
Dissatisfaction*Avoidance	-0.01	0.96	<0.01	1.50†	0.79	0.17	-0.09	0.11	-0.08	0.02	0.18	0.01
Dissatisfaction*Anxious	1.08†	0.63	0.15	-0.05	0.52	-0.01	0.05	0.07	0.06	0.01	0.12	<0.01
Condition*Condition	-1.27	1.96	-0.07	-0.40	1.61	-0.02	-0.04	0.21	-0.02	0.18	0.36	0.04

Note. † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$, Post-R.S. = Relationship Satisfaction post manipulation

APPENDIX B – Figures

What is your age?

Please tell us what subreddit you found us from.

What is your gender?

- Male
- Female
- Other

What is your ethnic background?

- White/Caucasian
- Black/African American
- Native American
- Latino(a) or Hispanic
- Asian or Pacific Islander
- Other

What is your sexual orientation?

- Heterosexual
- Homosexual
- Bisexual
- Other
- Prefer not to say

Are you currently in a romantic relationship?

- Yes
- No

If so, how long have you and your partner been together?

- 0-3 Months
- 3-6 Months
- 7-9 Months
- 10 Months to 1 Year
- 1 Year to 2 Years
- 2+ Years

How would you describe your relationship type?

- Monogamy
- Consensual Non-Monogamy (poly, open, swinging, etc.)

Please tell us the name of a celebrity crush you have.

How many celebrity crushes would you say you have?

- 1
- 2
- 3
- 4
- 5
- more than 5

Figure B.1 *Demographic Questionnaire*

Write a story about a time that you were disappointed in your partner or insecure in your romantic relationship (i.e., they could have cheated, they could have done something that you did not want them to do, etc.)

Figure B.2 *Relationship Threat*

Write a story about a time that you were disappointed with your best friend or insecure in your friendship (i.e., they could have betrayed your trust, they could have done something that you did not want them to do, etc.)

Figure B.3 *Friendship Threat*

Please answer the following questions with your significant other in mind.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I am satisfied with my relationship.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My relationship feels much better than others' relationships	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My relationship is close to ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This relationship makes me very happy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
This relationship does a good job of fulfilling my needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I love my significant other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B.4 *Relationship Satisfaction*

When answering the questions below please think about \${q://QID12/ChoiceTextEntryValue}.

	Would you do these acts with \${q://QID12/ChoiceTextEntryValue}?			How often do you fantasize about doing these acts with \${q://QID12/ChoiceTextEntryValue}?					
	Yes	No	Prefer not to answer	Never	Sometimes	About half the time	Most of the time	Always	Prefer not to answer
Kissing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oral Sex (Penis in Mouth, Vagina to Mouth)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Penetrative Sex (Penis in Vagina, Penis in Anus)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mutual Masturbation (no vaginal, anal, or oral sex during the sexual encounter)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B.5 *Sexual Desire Prime Condition Group*

When answering the questions below please think about the following places listed below.

	Would you travel to these locations?			How often do you fantasize about going to these locations?					
	Yes	No	Prefer not to answer	Never	Sometimes	About half the time	Most of the time	Always	Prefer not to answer
Bora Bora	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
New Zealand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Italy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maui	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B.6 *Travel Desire Prime Condition Group*

Please assess the statement and answer how much the statement pertains to yourself.

I feel lonely

Not at all | | Very much

Figure B.7 *Loneliness Question*

Instructions: For each of the following statements and/or questions, please select the point on the scale that you feel is most appropriate in describing you.

In general, I consider myself

1 2 3 4 5 6 7
not a very happy person | | a very happy person

Compared with most of my peers, I consider myself

1 2 3 4 5 6 7
less happy | | more happy

Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

1 2 3 4 5 6 7
not at all | | a great deal

Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

1 2 3 4 5 6 7
not at all | | a great deal

Figure B.8 *Subjective Happiness Scale*

This scale consists of a number of words and phrases that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel like this right now.

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alert	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jittery	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attentive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Irritable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enthusiastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hostile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Guilty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Excited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ashamed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Proud	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B.9 PANAS-X

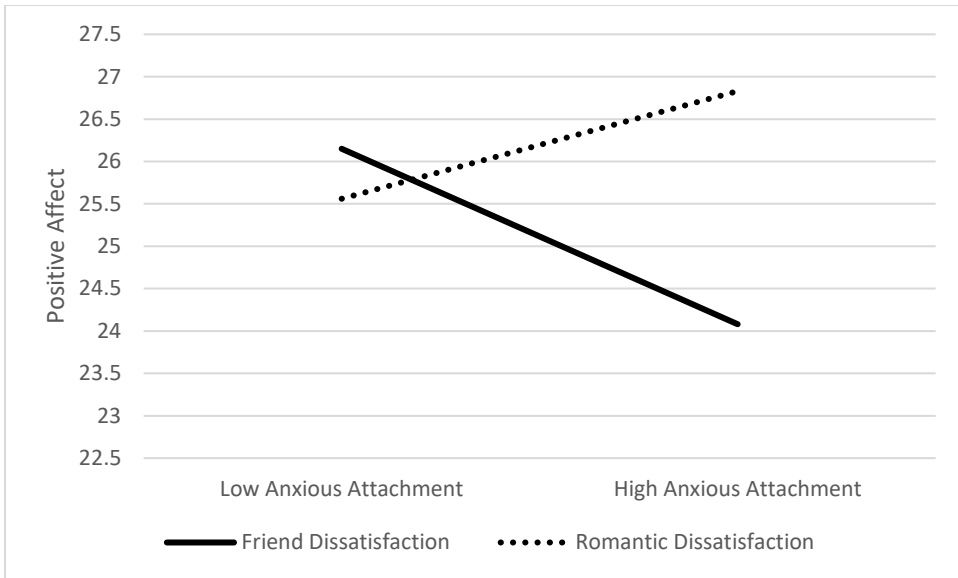


Figure B.10 *Positive Affect as a function of Dissatisfaction Condition and Anxious Attachment*

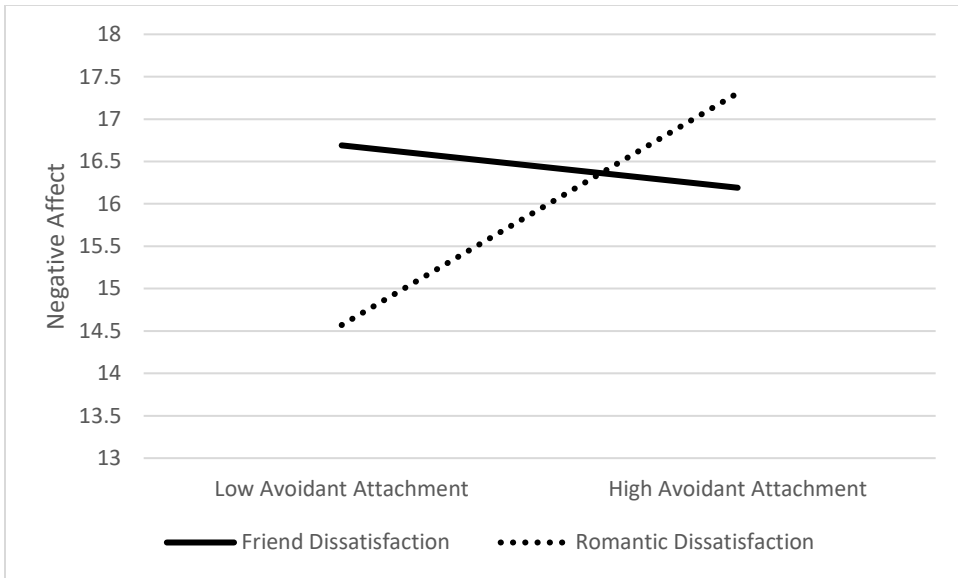


Figure B.11 *Negative Affect as a function of Dissatisfaction Condition and Avoidant Attachment*

APPENDIX C – IRB Approval Letter

Office of
Research Integrity



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NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident submission on InfoEd IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: 22-562
PROJECT TITLE: Sex or Travel?
SCHOOL/PROGRAM: Psychology
RESEARCHERS: PI: Ryan Liu-Pham
Investigators: Liu-Pham, Ryan-Noguchi, Kenji-
IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited Category
PERIOD OF APPROVAL: 10-May-2022 to 09-May-2023

Donald Sacco, Ph.D.

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

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