

Spring 5-1-2021

The Effects of Sexual Surrogacy on Satisfaction, Happiness, and Well-Being

Ryan Liu-Pham

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THE EFFECTS OF SEXUAL SURROGACY ON SATISFACTION, HAPPINESS,
AND WELL-BEING

by

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A Thesis
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 Master of Arts

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May 2021

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2021

Published by the Graduate School



ABSTRACT

The study tested the effects of sexual surrogacy, which I define as the desire to fulfill sexual needs with a surrogate target (e.g., celebrity crushes), on sexual satisfaction, relationship, happiness, and well-being. To examine this topic, I conducted a cross-sectional experimental study. After being asked about sexual desire toward either their current partner or a celebrity crush with a sexual desire behavior inventory, participants were asked to answer questions about their sexual satisfaction, relationship satisfaction, happiness, and well-being. I predicted that desire toward both surrogates and interpersonal targets will predict higher levels of sexual satisfaction, happiness, and well-being but that these associations would be weaker for the surrogate group. We found that sexual desire toward a parasocial target showed comparable associations with well-being compared to the partner group, but that some differences were observed in the effects of relationship satisfaction toward each target.

ACKNOWLEDGMENTS

I would like to thank my mentor and committee chair, Dr. Lucas Keefer for his advice, feedback, support, and encouragement during the development of this thesis. Additionally, I would like to thank my committee members Dr. Don Sacco and Dr. Jaye Derrick for their assistance and encouragement throughout this project. Lastly, I would like to thank my fellow Brain and Behavior graduate students and Psychology of Existential Concerns Lab members for their support and help.

TABLE OF CONTENTS

ABSTRACT ii

ACKNOWLEDGMENTS iii

CHAPTER I – THE BACKGROUND TO SOCIAL SURROGACY 1

 1.1 Social Surrogacy 2

 1.2 Satisfaction, Happiness, and Well-Being..... 6

CHAPTER II – THE CURRENT STUDY 8

 2.1 Hypotheses 9

CHAPTER III - METHOD 11

 3.1 Participants..... 11

 3.2 Materials 12

 3.2.1 Demographic Questionnaire 12

 3.2.2 Condition Groups..... 12

 3.2.3 Sexual Desire Behavior Inventory 12

 3.2.4 Relationship Satisfaction 13

 3.2.6 Happiness..... 14

 3.2.7 Affective Well-Being..... 15

 3.2.8 Satisfaction with Life..... 15

 3.3 Procedure 15

CHAPTER IV – RESULTS 17

4.1 Correlational Analysis	17
4.2 Main Effect Models	18
4.3 Interaction Models	18
4.4 Exploratory Analysis	19
CHAPTER V – GENERAL DISCUSSION	23
5.1 Limitations and Future Directions	26
5.2 Conclusion	29
APPENDIX A – Tables	30
APPENDIX B – Figures	37
APPENDIX C –IRB Approval Letter	52
REFERENCES	53

CHAPTER I – THE BACKGROUND TO SOCIAL SURROGACY

Social relationships have many benefits, which is why some theorists have argued that people have a drive to create lasting, positive, and significant interpersonal relationships (Baumeister & Leary, 1995). Supporting evidence comes from research demonstrating that relationships exert a powerful influence on well-being. For example, stable romantic relationships have been positively correlated with mental health factors such as happiness (Braithwaith et al., 2010) and negatively correlated with depression (Coombs, 1991).

Given the importance of close relationships, individuals also enact psychological strategies to gain the benefits of those relationships even when they may be absent. These strategies include but are not limited to having a relationship with a media figure, sentimental objects, or one's pet. The act of having this type of relationship has been called social surrogacy (Derrick, Gabriel, & Hugenberg, 2009). The type of social surrogacy that I focused on for this experiment was parasocial relationships, one-way relationships between an individual and a media figure such as a celebrity, fictional character, or other media figure (Horton & Wohl, 1956; Derrick et. al., 2009).

The study explored a specific type of parasocial surrogate relationship, sexual surrogacy. Sexual surrogacy is defined as a one-way romantic bond between a person and a sexually desired celebrity or other media persona. Research (reviewed below) demonstrates that because belonging is a basic need, those who feel socially disconnected may be able to find solace in a social surrogate, which can imply that those that do not have a human romantic relationship may fill the need with a sexual surrogate. My work

considered the novel possibility that surrogates may also be beneficial in fulfilling another basic need, the need for sexual satisfaction through sexual desires.

1.1 Social Surrogacy

In addition, to basic survival needs like shelter and food, humans also require inclusion and feeling connected to others (Baumeister & Leary, 1995). However, not everyone acquires these feelings and can turn to social surrogacy (e.g., parasocial relationships). Below I summarize research on a specific form of surrogate, parasocial relationships, and introduce evidence that these bonds can in some cases take on sexual and romantic content.

Social surrogacy and parasocial relationships with media personae (e.g., fictional characters, etc.) and other social distant others allow a surrogate for friendships, usually benefiting mental health and well-being measures such as depression, self-esteem, and belonging (Hartmann, 2016). For example, work has shown that comfort food can be the target of a social surrogacy and can alleviate the negative effects of loneliness (Troisi & Gabriel, 2011). Troisi & Gabriel (2011) conducted two experiments where they found that the consumption of comfort foods activated relationship-related concepts and the second found that comfort foods act as a buffer against threats to belonging in people who have positive associations with relationships. This implies that food can be a target for social surrogacy and shows how it can protect the need to belong.

Parasocial relationships specifically have diverse benefits for the individual. For example, Derrick and colleagues (2009) found that people turned to favored television programs when feeling lonely and reported that this was an effective solution for their loneliness. Additionally, reminders of a favored television program (vs. channel surfing)

buffered decreases in self-esteem and mood and against increased rejection elicited by a close relationship threat (Derrick et al., 2009).

One benefit of both parasocial and interpersonal relationships is the reduction of self-discrepancies, which is when people perceive disparities between their current self and desired ideal selves (Higgins, 1987). Past research shows that self-discrepancies play an important role in psychological well-being, for example those that experience a higher level of this discrepancy are more likely to experience disappointment, dissatisfaction, or even depression (Higgins, 1987). Close relationships in part promote well-being by reducing these discrepancies; for example, Derrick, Gabriel, and Tippin (2008) tested whether parasocial relationships create a similar reduction in self-discrepancies. Derrick et al. (2008) found that people with low self-esteem who were asked to think about their favorite same-sex celebrities experienced a reduction in differences between their actual and ideal selves. Derrick and colleagues (2008) proposed that their findings offered indirect support for the function that media figures may help individuals meet their need to belong through reducing one's self-discrepancies.

Additionally, parasocial relationships have been found to provide social support similar to that of close others. Of course, media figures cannot provide direct material (i.e., received) support (e.g., Cohen & Wills, 1985). However, the feeling that they are there for the individual offers a form of perceived support (Lakey et al., 2014). When participants' emotions were negatively impacted, viewing the relationship that was giving perceived support restored the participants' affect.

Not only has parasocial relationships been shown to be beneficial on self-esteem and sense of belonging, parasocial relationships can be viewed to negatively affect well-

being measures such as depression (Bernhold, 2019). Parasocial relationships are able to be created with targets that one may not particularly like, when this happens the beneficial effects of a parasocial relationship are no longer there. For example, Bernhold (2019) found that parasocial relationships with a disliked TV character predicted depressive symptoms and loneliness among older adults. It was found that those with a low avoidance attachment style and low-quality romantic relationships showed an increase in depressive symptoms and loneliness when their parasocial relationships increased in intensity. Similar to real relationships, not all of them are beneficial for one's well-being and mental health. Since parasocial relationships can form similar to real relationships and have the benefits and disadvantages of them, the loss of these relationships can cause heartbreak and pain akin to lost social bonds (Cohen 2004).

Although considerable research has demonstrated the benefits of parasocial bonds, fewer researchers have focused on their potential as a romantic or even sexual relationship. Initial research by Tukachinsky (2010) measured individuals' levels of physical (sexual/romantic attraction) and emotional love with a parasocial relationship. Tukachinsky (2010) suggests that parasocial romantic relationships are similar to real human relationships because both are based on physical or sexual attraction, containing a need for physical and emotional closeness, and possessing intense emotions. Tukachinsky (2010) found that the new scale did capture two different kinds of parasocial relationships, love, and friendship. This finding showed that the concepts are different from each other and differ from just a parasocial relationship. Adam & Sizemore (2013) explored this concept by viewing the costs and benefits of a parasocial romantic relationship and comparing them to the costs (e.g. loss of time and money, loss of self-

esteem, etc.) and benefits (sexual gratification, increased happiness and mood, etc.) of a real-life romantic relationship. Adam & Sizemore (2013) found that those that reported stronger parasocial romantic relationships had similar benefits as a real-life romantic relationship, such as the relationship making them happy, feeling less alone, and making them feel better. They found that those that were single reported higher levels of a parasocial romantic relationship than those that were in a relationship and that these levels were comparable between real (e.g., celebrity) and fictional targets. This finding first supports the claim that humans have a drive to form substantial relationships and is evidence of compensatory attachment. In addition, Erickson & Cin (2017) looked at the romantic parasocial attachments among adolescents. Erickson & Cin (2017) accomplished this by having college undergraduates recall their romantic parasocial attachments from adolescent years. Erickson & Cin (2017) found that more intense recalled romantic parasocial attachments were associated with an increase in relationship self-esteem, negative evaluations of sexual experience, and likelihood of experiencing passionate love. Because these parasocial romantic attachments provide such an important foundation for later bonds, Erickson and Cin (2017) argue that they are a common developmental milestone on the transition to adult romantic relationships. There is a component of romantic love when it comes to some parasocial relationships which has dated to media figures such as Elvis Presley (Fraser & Brown, 2002) and Greta Garbo (Blumer, 1933). Another example of this can be seen during WWII soldiers sent letters to Donna Reed (Rother, 2009).

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 was using these fantasies to explore his own sexuality when his female fiancée was not satisfying his relationship needs. Not only was Cuellar (2015) using these fantasies with Josh Hartnett 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 effect human relationships, studies 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).

1.2 Satisfaction, Happiness, and Well-Being

Relationship quality and satisfaction greatly influences well-being. Demirtas & Tezer (2012) found that relationship satisfaction was a significant predictor of subjective well-being and life satisfaction. Not only is relationship satisfaction a predictor of subjective well-being it is a significant source of happiness (Argyle, 2001; Diener et al., 2000). In addition to these individual-level effects, marriages that have high relationship quality offer protective effects on well-being (Carr & Springer, 2010; Carr et.al., 2014). These studies find that the association between the husband's marital quality and life satisfaction is affected by the wife's reports of a happy marriage, higher with high levels of marital quality and low with lower levels of marital quality.

Just as people require social belonging for well-being, humans also have a need for satisfying sexual relationships, that is, relationships that provide a desired amount of sexual activity (Kaplan, 1979). The content and amount of this activity can be highly

variable; with some individuals desiring no sexual activity whatsoever (as in asexuality; Prause & Graham, 2007) and others desiring varying degrees (e.g., allosexuality).

To assess these feelings of satisfaction, researchers agree that several elements are necessary. Heiman and colleagues (2011) define sexual satisfaction as physical sexual intimacy (i.e., importance of one's orgasm and partner's orgasm, what sexual behaviors), recent sexual activity (how many times sexual activity was performed in the last 4 weeks), and sexual functionality (e.g., frequency of sexual desire, frequency of sexual arousal, etc.) which has an influence on sexual and relationship happiness (Heiman et. al., 2011). Sexual satisfaction is associated with measures such as sexual communication, sexual variety, and frequency (Frederick et. al, 2016).

Sexual satisfaction itself is a predictor of well-being. Davison et. al. (2009) found that female participants that were sexually dissatisfied had lower scores of positive well-being and vitality when compared to sexually satisfied female participants. This link between sexual satisfaction and well-being was also explored by Buczak-Stec et al. (2019) who found that sexual satisfaction was positively associated with life satisfaction and positive affect, as well it was negatively associated with negative affect. Since sexual desire is a predictor of sexual functioning which is a component of sexual satisfaction (Vistad et. al., 2007). The study aimed to view other sources such as sexual desire to fulfill the needs of sexual satisfaction.

CHAPTER II – THE CURRENT STUDY

Parasocial relationships are known to enhance well-being. For example, as noted above PSRs buffer the effects of ostracism and fulfill the need to belong in those that felt alone. As well as showing benefits for self-esteem when people were asked about their favorite same-sex celebrity.

The current study focused specifically on the relationships between sexual surrogacy (sexual behavior, sexual desire, and relationship satisfaction) and well-being. As noted, relationship and sexual satisfaction have benefits for subjective well-being and life satisfaction (e.g., Demirtas & Tezer, 2012). Because sexual desire is a component of sexual satisfaction (Heimann et al., 2011) and sexual satisfaction improves well-being, I anticipated that greater sexual surrogacy (higher sexual behavior, higher sexual desire, and higher relationship satisfaction) toward a target (romantic partner or celebrity target) would be associated with greater reported well-being.

The novel approach further examined this association between sexual surrogacy and well-being across both interpersonal and parasocial contexts. Given that parasocial relationships fill the social needs one may have and that it could be used to fulfill relationships needs; it could be inferred that parasocial relationships can fulfill the sexual needs of a real relationship. In other words, I expected to find evidence of sexual surrogacy; that sexual desire toward a parasocial target will have the same expected positive associations with well-being that interpersonal targets do. This concept will provide a broader scope of what social surrogacy can encompass and promote a possible solution for those that lack a sense of romantic belonging.

The study was a between-subjects design in which participants were only asked about sexual desire toward one target (celebrity crush v. romantic partner). I did not consider both targets in the same study due to potential bias responses to one or both measures, allowing for a single salient target without interference.

2.1 Hypotheses

I tested my predictions using a series of linear regression models predicting each outcome by a block of predictors. First, we estimated a main effect only model for each outcome:

$$DV = \beta_0 + \beta_1 * \text{Condition} + \beta_2 * \text{Checklist} + \beta_3 * \text{Frequency} + \beta_4 * \text{Relationship Satisfaction}$$

I expected to find significant main effects in this model for sexual behavior checklist, sexual desire frequency, and relationship satisfaction. Based on the previous research showing the positive effects of social and sexual relationships, I expected to find that the sexual behavior checklist, sexual desire frequency, and relationship satisfaction would all predict greater happiness, sexual satisfaction, and well-being (positive and negative affect). I expected to find that there is a similar effect between the condition groups on the outcome variables. I expected that those in the romantic partner condition will experience higher benefits (more happy, less lonely, etc.) than those in the crush condition.

Next, to determine whether any benefits of the sexual desire variables vary as a function of condition (crush v. romantic partner), I planned to submit the same outcomes to a model including two proposed interaction terms:

$$DV = \beta_0 + \beta_1 * \text{Condition} + \beta_2 * \text{Checklist} + \beta_3 * \text{Frequency} + \beta_4 * \text{Relationship} \\ \text{Satisfaction} + \beta_5 * \text{Condition} * \text{Checklist} + \beta_6 * \text{Condition} * \text{Frequency}$$

I expected an interaction between sexual desire and condition. For those within the crush group I expected to find that individuals with higher levels of sexual desire would report higher happiness, sexual satisfaction, and well-being (positive and negative affect). For the control group I expected to find stronger positive associations with the outcome measures. At high levels of desire, I expected that the partner control group would report higher levels of well-being relative to the crush group, but that I will observe no such difference at low levels of desire.

The expectation that the magnitude would differ between the condition groups is due to the potential loss of satisfaction without any physical touch from a romantic partner vs. a celebrity crush. Additionally, the social support of a parasocial relationship may not be as strong to fulfill social needs. I still expected a weak positive association between surrogate desire and well-being because past research has shown that these relationships provide some benefits.

To test these hypotheses, participants were randomly assigned to one of two condition groups, Crush or Romantic Partner. In the crush group, these participants were asked a battery of questions that pertain to their celebrity crush rather than the romantic partner group which were asked questions pertaining to their current relationship.

CHAPTER III - METHOD

3.1 Participants

Based on a power analysis from G*Power, with the parameters of $r = .25$, $\alpha = .05$, and power = .8, I sought 240 total participants to ensure that each condition has enough power to detect the expected relationship between desire and well-being ($n = 120$ per group). There was an inclusive criterion of those who were in relationship for at least 3 months and above the age of 18, which were collected through SONA. The relationship stipulation was used to allow us to compare the associations between my outcomes and sexual desire in both contexts: relationships toward humans and relationships with a sexual surrogate. Data were collected from 289 students who fit the criteria, with 247 of them not failing attention checks. Only participants who passed all attention checks were included in the analysis to ensure that only valid data were included. After cleaning the data with attention checks, I checked participants responses to the celebrity or romantic partner names to ensure valid entries, none of the participants were excluded via this criterion. Of the 247 participants 32 were male participants and 215 were female participants. Sex differences were viewed over gender differences as previous literature had linked sex differences in sexual satisfaction and well-being (Buczak-Stec et al, 2019; Davidson et al., 2009). Ages ranged from 18 to 50, with a mean of 20.85. The ethnic breakdown of the participants was that 154 were white/Caucasian, 73 were black/African American, one was Native American, five were Latino(a) or Hispanic, seven were Asian or Pacific Islander, and six were listed as other. Given that there was relatively small representation within these categories, I did not use them as variables in the analysis but report them for the sake of completeness.

3.2 Materials

3.2.1 Demographic Questionnaire

Participants received a demographics questionnaire (Figure B1) asking them for their age, sex, ethnic background, and how long their relationship with their partner is.

3.2.2 Condition Groups

Participants were asked to provide the name of their celebrity crush (Figure B2) or the first name of their partner (Figure B3). This information was inserted into questions to clarify who the target of later measures, Participants were randomly assigned to these condition groups, crush condition ($n = 113$) and romantic partner condition ($n = 134$).

3.2.3 Sexual Desire Behavior Inventory

Participants were given an adapted Sexual Behavior Inventory (Thirlaway et al., 1996). There are two versions of the Sexual Desire Behavior Inventory (SDBI), the first version was adapted for the control group (Figure B4) and the second version was adapted for the crush group (Figure B5). Both versions of the SDBI contained a total of 12 items: 6 forced-choice (Yes/No) responses and 6 ratings. Specifically, both versions of the SDBI ask participants to imagine a series of romantic and sexual acts (e.g., “Holding Hands”, “Kissing”) with the target. For each, participants are asked 1) Whether they would engage in that behavior with the target (Yes /No) and 2) How frequently they desire engaging in those behaviors (1 = Never; 5 = Always). The measure was scored with 2 factors: sexual desire checklist, summation for the 6 forced choice to compile a list of behaviors with yes = 1 and no = 0 ($\alpha = .811$); and the sexual desire frequency was a composite average of the 6 frequency-based items ($\alpha = .910$; Table A1).

3.2.4 Relationship Satisfaction

Participants completed a modified version of Rusbult's Investment Model Scale to view relationship satisfaction (Rusbult et al., 1998). The modifications included word changes to allow insight into both human relationships (Figure B7) and parasocial relationships (Figure B8) and removal of items that would not allow insight into parasocial relationships. This scale was specifically selected because it is widely used in relationships research (e.g., Finkel et al., 2002; Rusbult et al., 1999) and has been applied in several previous studies of parasocial relationships (e.g., Branch, Wilson, & Agnew, 2013; Eyal & Dailey, 2012).

The Rusbult's Investment Model Scale consists of 25 items divided into 4 subscales: satisfaction, quality of alternatives, relationship investment, and relationship commitment. All statements are rated on a 7-point Likert scale with response anchors of strongly disagree (1) to strongly agree (7). The satisfaction subscale consists of 6 questions such as "I feel satisfied with my relationship" and "my relationship is close to ideal". The score for this subscale will range from 6 to 42, with higher scores meaning more satisfaction in the relationship. The quality of alternatives subscale consists of 6 questions such as "My needs for intimacy, companionship, etc., could easily be fulfilled" and "If I weren't fantasizing about/dating [partner / crush], I would do fine". The score for this subscale will range from 6 to 42, with higher scores meaning more willing to dissolve current relationship and look elsewhere. The relationship investment subscale consists of 6 questions such as "I feel very involved in our relationship" and "I have put a great deal into our relationship that I would lose". The score for this subscale will range from 6 to 42, with higher scores meaning more investment into the relationship. The

relationship commitment subscale consists of 7 questions such as “I feel very attached to our relationship” and “I would not feel very upset if this relationship were to end”. The score for this subscale will range from 7 to 49, with higher scores meaning more relationship commitment. The variable of Relationship Satisfaction was viewed as a composite score, with higher scores meaning higher levels of relationship satisfaction ($\alpha = .947$; Table A1). Although I collected data on the other scales, they were not included in this initial analysis given my focus on sexual desire effects.

3.2.5 Sexual Satisfaction

I measured target-specific sexual satisfaction with the Global Measure of Sexual Satisfaction Scale (GMSEX, Lawrance & Byers, 1995; Figure B6). The scale is a 5 item 7-point bipolar scale of word pairs such as, good-bad, satisfying-unsatisfying, and valuable-worthless. Possible scores range from 5 to 35, with lower scores indicating less sexual satisfaction ($\alpha = .910$; Table A1).

3.2.6 Happiness

I measured happiness with the Subjective Happiness Scale (Figure B9, Lyubomirsky & Lepper, 1999). This is a 4-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 the responses to the four items to compute a composite happiness score, with lower responses meaning lower happiness ($\alpha = .135$; Table A1).

3.2.7 Affective Well-Being

Well-being was measured by positive and negative affect and loneliness.

Loneliness (Figure B10) was assessed using a single-item state measure validated in past research (“I feel lonely”; Tam & Chan, 2019). Participants rated their agreement along a 7-point scale (1 = “not at all”; 7 = “very much”).

Positive and negative affect was viewed with an adapted version of the PANAS-X (Figure B11; Watson & Lee, 1994). Participants completed a general PANAS with 10 positive (e.g., alert, active) and 10 negative (e.g., afraid, nervous) state mood ratings. All items were ranked 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 ($\alpha = .903$) and 10 questions for negative affect ($\alpha = .870$), with a possible score of 5 to 50 for either score (Table A1).

3.2.8 Satisfaction with Life

Satisfaction with Life was measured with the Satisfaction with Life Scale (Figure B12; Diener et al., 1985). This is a 5-item scale that contains questions such as “In most ways my life is close to my ideal” and “The conditions of my life are excellent.”. All questions are a 7-point Likert scale with response anchors of strongly disagree (1) to strongly agree (7). Responses for these items were a scored as a sum with a possible score of 5 to 35 ($\alpha = .903$; Table A1).

3.3 Procedure

Participants were recruited through SONA, the survey was available immediately online. They were first given an informed consent statement, then answered demographic questions. After demographics, participants were randomly assigned to answer measures

about their sexual desire toward either the celebrity crush or close partner. The participants then answered the relationship satisfaction questionnaire. Finally, participants completed the dependent measures, including subjective happiness, sexual satisfaction, and well-being.

CHAPTER IV – RESULTS

4.1 Correlational Analysis

I first estimated bivariate correlations between celebrity crush / romantic partner desire, celebrity crush / romantic partner sexual behavior checklist, relationship satisfaction, and all outcome variables (Table A1).

At the bivariate level (collapsing experimental groups) sexual behavior checklist, sexual desire frequency, and relationship satisfaction were all significantly positively correlated with each other. Although not explicitly hypothesized in my models, this pattern fits the theory that these variables are all components of both satisfying romantic relationships and sexual surrogacy, as defined earlier in the paper.

The sexual surrogacy variables positively correlated with sexual satisfaction. This could indicate the benefits of sexual surrogacy on sexual satisfaction, which would support my hypotheses, however this specific relationship needs to be estimated in more nuanced linear regression models (below).

As well, relationship satisfaction had a significantly negative correlation with negative affect and loneliness, and a significantly positive correlation with happiness and satisfaction with life. This indicated that relationship satisfaction generally predicted more favorable outcomes. Although this pattern collapses across groups, the trend is consistent with my view that sexual surrogacy could provide benefits like lower levels of loneliness and negative affect, and higher levels of happiness and satisfaction with life.

In summary, at the bivariate level the correlations seem consistent with my hypothesis that those who have higher levels of sexual surrogacy tend to be less alone and report higher levels of happiness, sexual satisfaction, and satisfaction with life.

Although the bivariate correlations combine groups, the fact that trends emerged indicated that minimally the associations in the parasocial group were not negative or otherwise so non-significant as to undermine the trends for the romantic group. Accordingly, I proceeded to analyze the hypothesized regression models.

4.2 Main Effect Models

I analyzed the main effects of sexual behavior checklist, sexual desire frequency, relationship satisfaction, and condition (0 = romantic partner; 1 = celebrity crush) on the outcomes of positive affect, negative affect, loneliness, sexual satisfaction, happiness, and satisfaction with life using the predicted main effect model (Table A2). I observed a main effect of condition only on positive and negative mood indicating that individuals felt higher levels of both emotions in the crush condition. In contrast, relationship satisfaction predicted lower levels of loneliness, as well as greater happiness, sexual satisfaction, and satisfaction with life. As well, sexual desire frequency predicted higher levels of positive and negative mood. The sexual behavior checklist predicted higher levels of sexual satisfaction.

4.3 Interaction Models

I analyzed the predicted interactions between condition and the sexual desire variables (sexual behavior checklist and sexual desire frequency) (Table A3). First, a ΔR^2 between the main effects only model (1) and the main effects with interaction model (2) was tested to determine whether the inclusion of interaction terms would significantly improve the predictive ability of the model (Table A4). There was only marginal significant improvement for the negative affect model, $F(2,221) = 3.539, p = .076$, so I proceeded to interpret only this model.

The interaction model on negative affect had no significant main effects but included a significant interactive effect between condition and sexual desire frequency, $b = .039$, $SE = .018$, $t(221) = 2.166$, $p = .031$ (see Figure B13 for pattern).

Probing the simple slopes indicated that there was a significant relationship between sexual desire frequency and negative affect for those in the crush condition ($b = .347$, $SE = .016$, $t(221) = 2.91$, $p = .005$), but not for the romantic partner condition ($b = .016$, $SE = .009$, $t(221) = 1.68$, $p = .096$) (Figure B13). The model implied that at high levels of sexual desire (+1 SD), those in the romantic partner condition expressed lower levels of negative affect than those in the crush condition ($b = .570$, $SE = .198$, $t(221) = 2.88$, $p = .004$). At mean sexual desire frequency those in the romantic partner condition expressed lower levels of negative affect than those in the crush condition ($b = .303$, $SE = .127$, $t(221) = 2.39$, $p = .018$). At low sexual desire frequency (-1 SD) the conditions did not differ ($b = .036$, $SE = .156$, $t(221) = .228$, $p = .820$). In other words, the crush and romantic groups expressed comparably low levels of negative affect when desire was low, but greater desire toward the crush elicited stronger negative emotions during the study relative to the romantic group.

4.4 Exploratory Analysis

For the main effect and interaction models, I focused on sexual desire being the focus of sexual surrogacy, due to the initiation of parasocial romance forming through physical attraction. However, relationships are not solely rooted in attraction. This framework would view sexual surrogacy at the moments of desire, but not the relationship as a whole. Which is why I wanted to view sexual surrogacy with relationship satisfaction as a moderator of my outcomes. Not only that, relationship

satisfaction is a predictor of sexual satisfaction that I did not originally include in the first analysis and it was highly correlated with my outcomes. I therefore analyzed the addition of condition \times relationship satisfaction to the second model of main effects and interactions on all outcomes (positive affect, negative affect, loneliness, sexual satisfaction, happiness, and satisfaction with life) (Table A5). The ΔR^2 tests indicated significant model improvement for negative affect $F(3,220) = 4.375, p = .003$, loneliness $F(3,218) = 4.144, p = .005$, sexual satisfaction $F(3,218) = 27.382, p < .001$, and satisfaction with life $F(3,220) = 3.455, p = .008$ (Table A6). Comparing model 2 and model 3, there is a significant change when viewed on negative affect $F(1,220) = 4.375, p = .004$ (Table A7). Overall, this model 3 appears to be a better fit for the data over preferred models on these four outcomes (Table A6; Table A7).

These models indicated a significant relationship satisfaction \times condition interaction on negative affect, loneliness, sexual satisfaction, and satisfaction with life. Figure B14 demonstrates the interaction between condition and relationship satisfaction in predicting negative affect. The simple slopes showed a significant relationship between relationship satisfaction and negative affect for those in romantic partner condition group ($b = -.334, SE = .047, t(211) = -3.83, p < .001$) but not for those in the celebrity crush group ($b = .048, SE = .049, t(211) = .450, p = .654$) (Figure B15). A floodlight analysis at high (+1 SD) levels of satisfaction indicated that those in the romantic partner condition expressed lower levels of negative affect than the crush condition ($b = .638, SE = .165, t(211) = 3.86, p < .001$). At mean levels of relationship satisfaction, those in the romantic partner condition expressed lower levels of negative affect than the crush condition ($b =$

.301, $SE = .125$, $t(211) = 2.41$, $p = .017$). At low (-1 SD) satisfaction, there was no difference in condition groups ($b = -.035$, $SE = .174$, $t(211) = -.202$, $p = .841$).

Figure B15 demonstrates the interaction between condition and relationship satisfaction in predicting loneliness. The simple slopes showed a significant relationship between relationship satisfaction and loneliness for those in romantic partner condition group ($b = -.413$, $SE = .140$, $t(209) = -4.90$, $p < .001$) but not for those in the celebrity crush group ($b = -.053$, $SE = .116$, $t(209) = -.473$, $p = .637$) (Figure B17). A floodlight analysis at high (+1 SD) levels of satisfaction indicated that those in the romantic partner condition expressed lower levels of loneliness than the crush condition ($b = 1.10$, $SE = .452$, $t(209) = 2.44$, $p = .016$). At mean levels of relationship satisfaction, there was no difference between condition groups ($b = .047$, $SE = .347$, $t(209) = .135$, $p = .892$). At low (-1 SD) satisfaction, those in the romantic partner condition expressed higher levels of loneliness than the crush condition ($b = -1.01$, $SE = .470$, $t(209) = -2.14$, $p = .033$).

Figure B16 demonstrates the interaction between condition and relationship satisfaction in predicting sexual satisfaction. The simple slopes showed a significant relationship between relationship satisfaction and sexual satisfaction for those in romantic partner condition group ($b = .684$, $SE = .059$, $t(209) = 10.66$, $p < .001$), but not for those in the celebrity crush group ($b = .159$, $SE = .081$, $t(209) = 1.73$, $p = .087$) (Figure B16). A floodlight analysis at high (+1 SD) levels of satisfaction indicated that those in the romantic partner condition expressed higher levels of sexual satisfaction than those in the crush condition ($b = -.538$, $SE = .254$, $t(209) = -2.12$, $p = .035$). At mean levels of relationship satisfaction, there was no difference between condition groups ($b = .286$, $SE = .195$, $t(209) = 1.47$, $p = .142$). At low (-1 SD) satisfaction, those in the crush condition

reported higher levels of sexual satisfaction than those in the romantic partner condition ($b = 1.11, SE = .262, t(209) = 4.23, p < .001$).

Figure B17 demonstrates the interaction between condition and relationship satisfaction in predicting satisfaction with life. The simple slopes showed a significant relationship between relationship satisfaction and satisfaction with life for those in romantic partner condition group ($b = .684, SE = .059, t(211) = 10.66, p < .001$) but not for those in the celebrity crush group ($b = .159, SE = .081, t(211) = 1.732, p = .086$) (Figure B17). A floodlight analysis at high (+1 SD) levels of satisfaction there was marginal effects that indicated that those in the romantic partner condition expressed higher levels of satisfaction with life than those in the crush condition ($b = -.614, SE = .319, t(211) = -1.92, p = .056$). At mean levels of relationship satisfaction, there was no difference between condition groups ($b = .154, SE = .242, t(211) = .637, p = .525$). At low (-1 SD) satisfaction, those in the crush condition expressed higher levels of satisfaction with life than those in the romantic partner condition ($b = .921, SE = .336, t(211) = 2.74, p = .007$).

CHAPTER V – GENERAL DISCUSSION

This study examined the relationship between sexual surrogacy and well-being by offering a first test of how any benefits of sexual surrogacy compare to sexual desire toward a romantic partner. I expected to find evidence for sexual surrogacy, namely that sexual desire toward a crush would have similar benefits compared to real romantic relationships on my focal outcomes.

There was an interesting finding in the main effects model, where those that held high sexual desire frequency felt both positive and negative emotional states. There are a multitude of potential reasons here for this relationship. One of which may be the fact that participants are feeling positive moods from the thoughts of sexual desires, while also feeling frustrated from the lack of physical satisfaction.

The evidence of sexual surrogacy was found within the exploratory model when the sexual surrogacy variables were found to have significant interactions on some of the focal outcomes. An example can be found within people who were dissatisfied with their partner, held views of being more sexually satisfied with their celebrity crush than their romantic partner as well as feeling less lonely and more satisfied with life. While those who were highly satisfied with their romantic partner showed higher scores on these outcomes. This finding supports the view that sexual surrogacy may represent a safer relationship in some ways since even dissatisfaction in this context did not diminish well-being in the way that romantic dissatisfaction did. Further work is needed to assess a compensatory function in this context, but the results suggest that dissatisfaction with a romantic partner could make such a safe surrogate relationship an appealing alternative for maintaining well-being.

There was evidence that did support my claim that sexual desire towards a celebrity crush would have similar benefits compared to sexual desire towards a real romantic partner. I saw almost no interactions between condition group and desire, which means that the association between desire and well-being were essentially equivalent for romantic partners and celebrity crushes. However, sexual desire was not very beneficial due to making participants feeling both positive emotions and loneliness, but those effects are equivalent for both groups. These results were somewhat surprising given the background research on sexual satisfaction and well-being, and call for further exploration.

The findings in the exploratory model found that within the condition groups only relationship satisfaction with a romantic partner held any significant effects on my focal outcomes. This pattern meant that in many cases, high satisfaction yielded comparably better well-being among the romantic group (vs. crush). However, the strong associations between satisfaction and well-being in the romantic group meant that the crush group reported significantly better well-being among the dissatisfied, as noted above. The overall findings from the exploratory model expressed that the patterns suggest that relationship satisfaction with a crush offers neither benefits nor costs in the same way as a romantic relationship. This brings into question, why relationship satisfaction? On the surface, one might be able to explain that the difference is here due to the lack of physical touch between targets. But that would not be the only explanation, a relationship is typically a two-way street where there is communication, compromise, and more, but with a parasocial relationship it is only a one-way relationship. This one-sided nature could be the reason here as not only are they not getting physical satisfaction, they do not

receive true communication. There is a lack of rapport between the subject and the target of a parasocial relationship which is distinct difference between real relationships and parasocial. Not only is there that lack of rapport, there is possibly a lack of growth. Within a real relationship, people tend to grow within it, in terms of relationship milestones such as cohabitation, marriage, children, etc. while in a parasocial relationship there is no room for growth as there only seems to be a sense of friendship or that the relationship is based on attraction. People enter into relationships for a multitude of reasons, not just one sole reason such as physical attraction. Essentially, parasocial relationships can lack complexity when compared to a real relationship.

As I found evidence for my claims, there was also a startling amount of null effects where sexual desire did not interact with the outcome variables. There may be a multitude of reasons for why there were no significant interactions. One of which may be the manipulation of the study. I had used the sexual desire inventory to prime the participants with the thoughts of sex with their celebrity crush or romantic partner. This protocol may not have been as strong as I hoped. This could be due to the number of acts (6) that the inventory held, as well some of them may not actually be considered sexual in nature such as holding hands and hugging. The addition of acts could increase the power of the priming. To rectify this mistake, could increase the amount of significant interactions. Not only could there be a lack of power from the manipulation, the null effects could also mean that the groups do not differ at the main effect level, or that both groups had effects but that they were equivalent. This could indicate that desire works in similar manners for both relationships.

Another reasoning could be that within a relationship, sexual desire is not as important when compared to how satisfied one is with the relationship. This could mean that there is deeper meaning to relationships other than just sex. As stated before, there are multiple aspects of a relationship such as emotional connection, communication, etc. Because of this, people may view relationships as a whole, rather than just by one facet of the relationship. Essentially, this could indicate that parasocial relationships are more shallow than real relationships due to not encompassing multiple aspects of a relationship.

Overall, there was evidence for sexual surrogacy, and there was support for the claim that sexual desire towards a celebrity target would hold similar benefits when compared towards sexual desire with a real romantic partner.

5.1 Limitations and Future Directions

A concern would be the age of the sample. Most of the sample was in their early 20s. Due to this, the sample may not be considering a serious long-term relationship, which may attribute to higher levels of sexual surrogacy with a celebrity crush. Those within the 18 to 29 age range are considerably more active on social media, which may result in a higher likelihood to form a parasocial relationship (Rasmussen, 2018). Results might differ in an older sample who would more than likely be married and would more than likely be with their partner for longer than 3 months. This difference could lead to results such as less sexual desire with a romantic partner due to age or increased sexual desire with a celebrity crush due to social media usage. I would expect that those who were married may experience lower levels of sexual surrogacy for a celebrity target but

may exhibit high levels of sexual surrogacy for their romantic partner (unless deeply dissatisfied with that relationship).

Another limitation was that participants needed to be in a relationship for at least 3 months to be included. This was intended to restrict the sample to those that would have a higher chance of understanding the feelings of relationship satisfaction to allow the comparison to between those that had to report relationship satisfaction with a celebrity target. This inclusion criterion lacks the ability to compare sexual surrogacy for those that are in a romantic relationship (v. single). I expect single individuals to show a higher degree of benefits from sexual surrogacy than those that were in romantic relationships, due to the fact that social surrogacy is theorized to help mitigate the effects of loneliness. In other words, my sample of partnered individuals may actually underestimate the effects of sexual surrogacy. To rectify this, I would open up the inclusion criteria to allow those that were not in a relationship in future work, which would allow more comparisons to be made.

One future direction that this could take is the relationship type (monogamy, polyamory, open relationship, etc.) of the romantic relationship. This could be a possible moderator due to the nature of sexual surrogacy. In this current climate, some relationships are turning to consensual non-monogamy (any relationship type where all parties agree that they may engage in sexual and/or romantic relationships with other partners) to keep their relationships flowing and alive (Conley et al., 2012; Conley & Moors, 2014; Selterman et al., 2019). Not only do people desire to keep their relationship alive, the prevalence of consensual non-monogamy is high within the gay community and sexual minorities of both genders (Bryant & Demian, 1994; LaSala, 2005; Rubin et al.,

2014). This shift in relationships not being just monogamous could indicate that those who have a more open relationship type may have lower levels of sexual desire for a celebrity or other target due to being able to potentially have more sexual activities with extra-dyadic partners. While those in a monogamous relationship may have higher levels of sexual surrogacy, due to their sexual desire with their one partner decreasing from sexual partner familiarity (Morton & Gorzalka, 2014). I would expect to find that those who have a monogamous relationship may benefit from sexual surrogacy than those that are in any form of a consensual non-monogamous relationship.

The current climate of the study has given research a new precedent, as the population is staying home due to the COVID-19 pandemic. This climate becomes an issue since people are now in a different environment than before, such as staying home, not going out with friends, etc. This new environment has created a sense of loneliness, isolation, and more in the current population (Brooks et al., 2020). The new environment the world has found itself in may manifest the prominence of parasocial relationships as people are finding themselves without the physical aspects of real relationships, platonic and romantic. I expect that in a different time the results that were found here, would not provide as strong relations between the predictors and the outcomes, due to people being able to fulfill their relational needs with the physical meetings of friends and family.

Due to the self-report nature of the study, there may be some intentional or incidental misreporting. Fenton and colleagues (2001) found that male participants tend to overreport their levels of sexual activity and female participants tend to underreport their levels of sexual activity. 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).

5.2 Conclusion

Building onto the idea of parasocial relationships I tested whether there was another subset of sexual surrogacy within the umbrella term. This idea of sexual surrogacy was supported for by the finding of the interactions between a sexual desire predictor and a sexual satisfaction. Additionally, this idea was supported by the significance of the main effects from the sexual surrogacy variables. These findings suggest that even those that find their relational needs satisfied from romantic relationships that they may still benefit from other forms of relational support. This finding of support for sexual surrogacy matters because it allows for the idea that social surrogacy may be able to be formed with other forms of relationships other than just friendships via a parasocial relationship and could help improve the relational needs of those that cannot get them from normal human interactions.

APPENDIX A – Tables

Table A1.

Observed correlations between all variables.

	1	2	3	4	5	6	7	8	9
1. Combined Act	-	.486**	.446**	.003	-.055	.047	.532**	.020	.051
2. Combined Desire		-	.477**	.113	.061	.057	.370**	-.004	-.001
3. Combined Satisfaction			-	.086	-.133*	-.184**	.544**	.198**	.186**
4. Positive Affect				-	.188**	-.226**	.073	.345**	-.262**
5. Negative Affect					-	.292**	-.183**	-.075	-.253**
6. Loneliness						-	-.137*	-.364**	-.381**
7. Sexual Satisfaction							-	.162*	.166*
8. Happiness								-	.425**
9. Satisfaction with Life									-
α	.811	.910	.947	.903	.870	N/A	.950	.135	.851
<i>M</i> (<i>SD</i>)	4.47 (1.70)	13.94 (7.28)	5.22 (1.69)	3.09 (0.95)	1.67 (.684)	3.05 (1.82)	6.00 (1.37)	4.65 (.803)	4.76 (1.30)

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A2.**Regression Results of Main Effects**

	Positive Affect			Negative Affect			Loneliness			Sexual Sat.			Happiness			Sat. with Life		
	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta
Sexual Behavior Checklist	-.083	.051	-.128	-.053	.036	-.113	.063	.096	.050	.304	.056	.339***	.002	.042	.004	-.011	.070	-.012
Sexual Desire Frequency	.031	.012	.234*	.026	.009	.268*	.045	.024	.175	.009	.014	.051	-.006	.010	-.053	-.020	.018	-.111
Relationship Satisfaction	.085	.048	.150	-.053	.034	-.128	-.307	.091	-.281***	.343	.052	.435***	.149	.039	.313***	.215	.066	.273**
Condition	.447	.175	.175*	.272	.126	.195*	.170	.343	.046	.195	.198	.073	.191	.145	.119	.113	.242	.042

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A3.**Regression Results of Main Effects and Interactions**

	Positive Affect			Negative Affect			Loneliness			Sexual Sat.			Happiness			Sat. with Life		
	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta
Sexual Behavior Checklist	-.154	.088\7	-.237	-.057	.062	-.122	-.022	.167	-.017	.206	.095	.230*	-.094	.075	-.174	-.001	.121	-.002
Sexual Desire Frequency	.041	.015	.311*	.013	.011	.133	.060	.029	.236*	.003	.016	.016	-.010	.012	-.089	-.020	.021	-.108
Relationship Satisfaction	.086	.048	.151	-.058	.034	-.141	-.307	.091	-.281**	.338	.052	.429***	.143	.039	.301***	.215	.066	.274*
Condition	.413	.178	.215	.320	.127	.229*	.093	.356	.025	.256	.205	.096	.213	.146	.132	.110	.247	.041
Condition*Checklist	.111	.106	.135	-.006	.076	-.010	.136	.203	.086	.134	.116	.117	.134	.088	.196	-.013	.147	-.012
Condition*Desire	-.025	.025	-.109	.039	.018	.230*	-.044	.051	-.094	.030	.029	.091	.019	.021	.098	-.002	.035	-.007

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A4. ΔR^2 of Main Effects vs. Main Effects and Interactions

	Main Effect R^2	Main Effect and Interactions R^2	ΔR^2
Positive Affect	.053	.060	.007
Negative Affect	.069	.091	.022
Loneliness	.067	.071	.004
Sexual Satisfaction	.409	.420	.011
Happiness	.066	.087	.019
Satisfaction with Life	.052	.052	.000

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A5.**Exploratory Regression Results of Main Effects and Interactions**

	Positive Affect			Negative Affect			Loneliness			Sexual Sat.			Happiness			Sat. with Life		
	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta	B	SE	Beta
Sexual Behavior Checklist	-.158	.088	-.273	-.036	.061	-.088	.045	.162	.041	.156	.095	.189	-.102	.073	-.210	-.057	.118	-.071
Sexual Desire Frequency	.032	.015	.241*	.016	.010	.166	.066	.027	.266*	-.004	.016	-.023	-.014	.012	-.126	-.022	.020	-.121
Relationship Satisfaction Condition	.192	.075	.341*	-.178	.052	-.443**	-.680	.139	-.636***	.632	.082	.785***	.217	.063	.460***	.482	.101	.627***
Condition*Check	.161	.103	.227	.001	.071	.002	.075	.189	.056	.200	.111	.195	.102	.086	.172	.102	.138	.105
Condition*Desire	-.007	.025	-.031	.031	.017	.189	-.061	.048	-.135	.044	.028	.129	.027	.020	.144	.009	.033	.029
Condition*Rel. Sat	-.188	.096	-.244*	.191	.067	.346**	.619	.178	.423**	-.525	.105	-.473***	-.134	.080	-.209	-.458	.129	-.435***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A6.

Exploratory ΔR^2 of Model 1 vs. Model 3

	Model 1	Model 3	ΔR^2
Positive Affect	.053	.071	.018
Negative Affect	.069	.127	.058**
Loneliness	.067	.122	.055**
Sexual Satisfaction	.409	.478	.069***
Happiness	.066	.096	.030
Satisfaction with Life	.052	.103	.051**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table A7.

Exploratory ΔR^2 of Model 2 vs. Model 3

	Model 2	Model 3	ΔR^2
Positive Affect	.060	.071	.011
Negative Affect	.091	.127	.036**
Loneliness	.071	.122	.051***
Sexual Satisfaction	.420	.478	.059***
Happiness	.087	.096	.009
Satisfaction with Life	.052	.103	.051***

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX B – Figures

What is your age?

What is your sex?

- Male
- Female
- Other

What is your ethnic background?

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

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

Figure B1. *Demographic Questionnaire*

Please write the name of your celebrity crush. This information will not be shared with anyone. It will only be used to clarify questions in the survey.

Figure B2. *Crush Condition*

Please write the first name of your partner. This information will not be shared with anyone. It will only be used to clarify questions in the survey.

Figure B3. *Romantic Partner Condition*

When answering the questions below please think about \${q://QID5/ChoiceTextEntryValue}.

	Would you do these acts with \${q://QID5/ChoiceTextEntryValue}?			How often do you fantasize about doing these acts with \${q://QID5/ChoiceTextEntryValue}?					
	Yes	No	Prefer not to answer	Never	Sometimes	About half the time	Most of the time	Always	Prefer not to answer
Holding Hands	<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"/>
Hugging	<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"/>
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 B4. *Romantic Partner Sexual Behavior Inventory*

When answering the questions below please think about \${q://QID4/ChoiceTextEntryValue}.

	Would you do these acts with \${q://QID4/ChoiceTextEntryValue}?			How often do you fantasize about doing these acts with \${q://QID4/ChoiceTextEntryValue}?					
	Yes	No	Prefer not to answer	Never	Sometimes	About half the time	Most of the time	Always	Prefer not to answer
Holding Hands	<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"/>
Hugging	<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"/>
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 B5. *Celebrity Crush Sexual Behavior Inventory*

When answering the questions about Sexual Satisfaction, please answer the following questions with $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$ in mind.

If you have not had actual sexual relations with $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$, please imagine how sexual relations with $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$ would be and rank accordingly to how you would feel about it.

Bad	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Good
Unpleasant	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Pleasant
Negative	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Positive
Unsatisfying	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Satisfying
Worthless	<input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	Valuable

Figure B6. *Sexual Satisfaction Scale*

Please answer the following questions with $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$ in mind.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I am committed to maintain a relationship with $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want our relationship to last for a very long time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very attached to our relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is likely I will desire others than $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would not feel very upset if this relationship were to end	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am orientated toward the long-term future of my relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our relationship is likely to end in the near future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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 $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My alternatives are attractive to me (dating others, desiring others, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

My alternatives to this relationship are close to ideal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I weren't fantasizing about/dating \${q://QID5/ChoiceTextEntryValue} \${q://QID4/ChoiceTextEntryValue}, I would do fine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People other than \${q://QID5/ChoiceTextEntryValue} \${q://QID4/ChoiceTextEntryValue}, are very appealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My needs for intimacy, companionship, etc., could easily be fulfilled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have put a great deal into our relationship that I would lose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other people I know, I have invested a great deal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very involved in our relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many aspects of my life have become linked to \${q://QID5/ChoiceTextEntryValue} \${q://QID4/ChoiceTextEntryValue}	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My relationships with friends and family members would be complicated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are things that are now tied to our relationship that I would lose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B7. *Relationship Satisfaction Romantic Partner*

Please answer the following questions with $\{q://QID4/ChoiceTextEntryValue\}$ in mind.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
I am committed to maintain a relationship with $\{q://QID5/ChoiceTextEntryValue\}$ $\{q://QID4/ChoiceTextEntryValue\}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want our relationship to last for a very long time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very attached to our relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is likely I will desire other media figures than $\{q://QID4/ChoiceTextEntryValue\}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would not feel very upset if this relationship were to end	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am orientated toward the long-term future of my relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our relationship is likely to end in the near future	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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 (other peoples crushes)	<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 $\{q://QID4/ChoiceTextEntryValue\}$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My alternatives are attractive to me (desiring others, watching others, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

My alternatives to this relationship are close to ideal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I weren't fantasizing about \${q://QID5/ChoiceTextEntryValue} \${q://QID4/ChoiceTextEntryValue}, I would do fine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Media figures other than \${q://QID5/ChoiceTextEntryValue} \${q://QID4/ChoiceTextEntryValue}, are very appealing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My needs for intimacy, companionship, etc., could easily be fulfilled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have put a great deal into our relationship that I would lose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to other people I know, I have invested a great deal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very involved in our relationship	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Many aspects of my life have become linked to \${q://QID5/ChoiceTextEntryValue} \${q://QID4/ChoiceTextEntryValue}	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My relationships with friends and family members would be complicated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There are things that are now tied to our relationship that I would lose	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B8. *Relationship Satisfaction Celebrity Crush*

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 B9. *Subjective Happiness Scale*

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

I feel lonely

Not at all | ○ ○ ○ ○ ○ ○ ○ | Very much

Figure B10. *Loneliness Question*

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 B11. *PANAS-X*

Below are five statements that you may agree or disagree with. Using the 1 - 7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
In most ways my life is close to my ideal.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The conditions of my life are excellent.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am satisfied with my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
So far I have gotten the important things I want in life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If I could live my life over, I would change almost nothing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure B12. *Satisfaction with Life Scale*

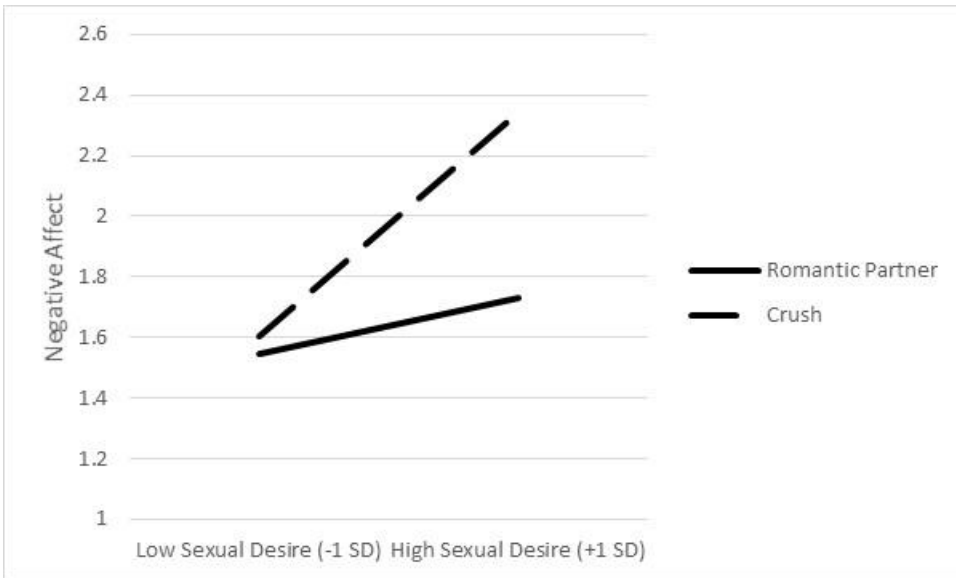


Figure B13. *Negative Affect as a function of Condition and Sexual Desire Frequency*

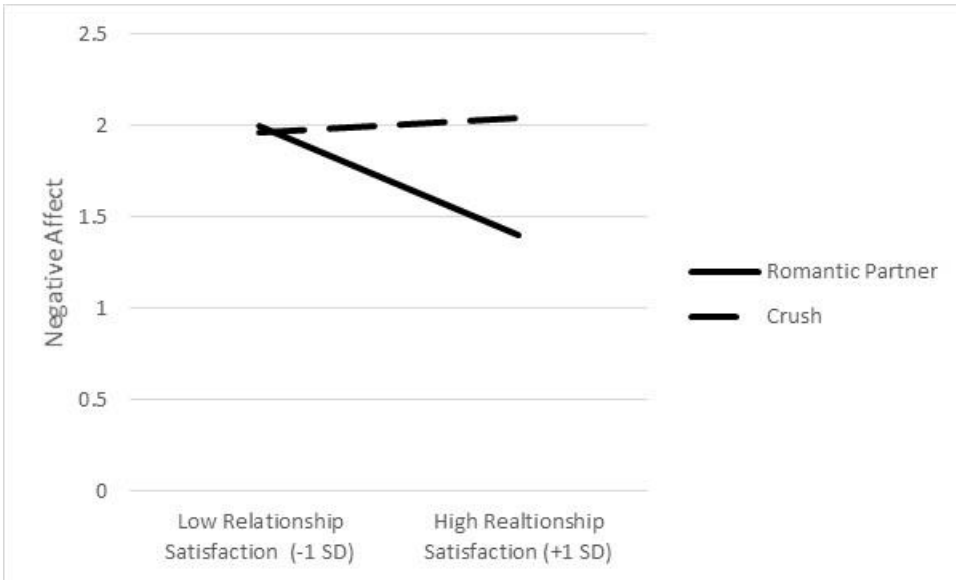


Figure B14. *Negative Affect as a function of Condition and Relationship Satisfaction*

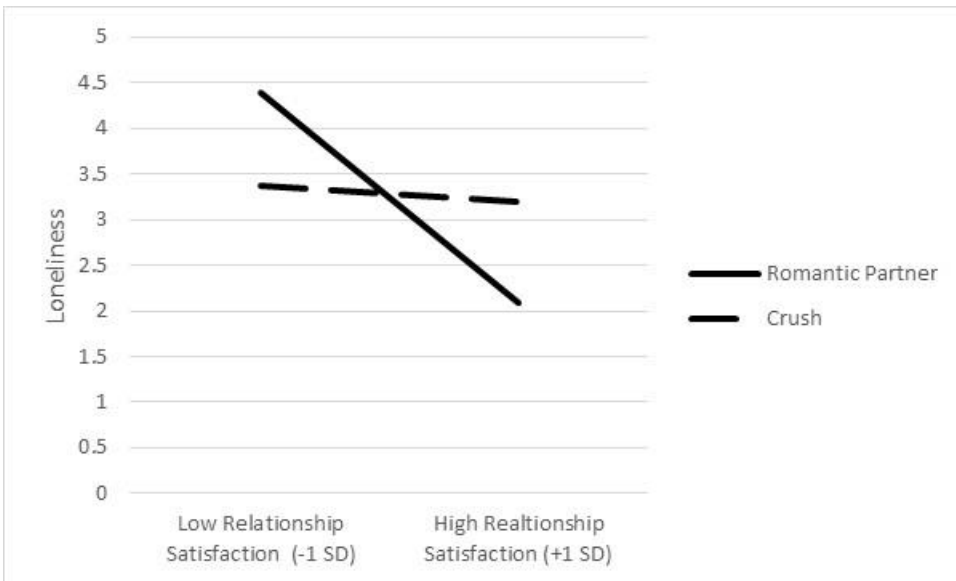


Figure B15. *Loneliness as a function of Condition and Relationship Satisfaction*

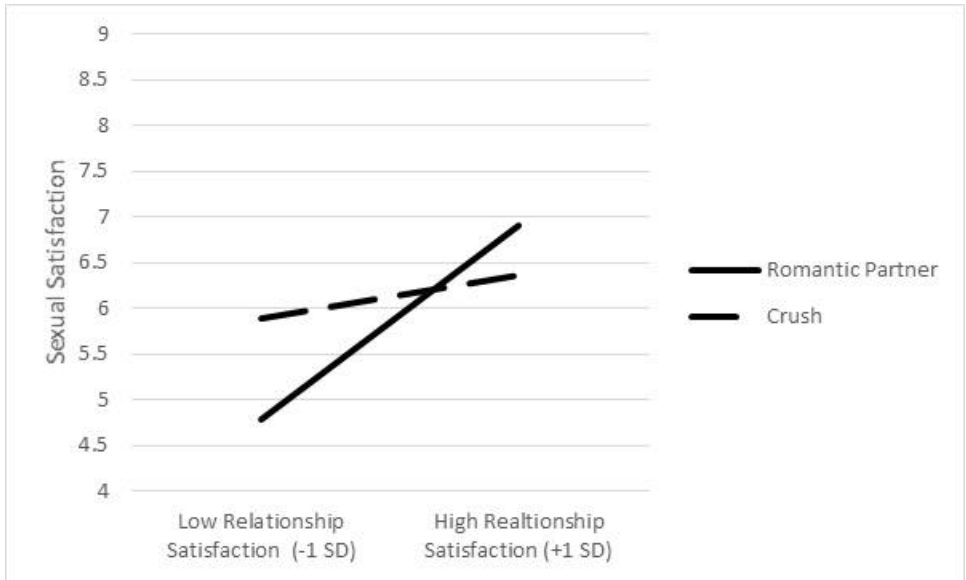


Figure B16. *Sexual Satisfaction as a function of Condition and Relationship Satisfaction*

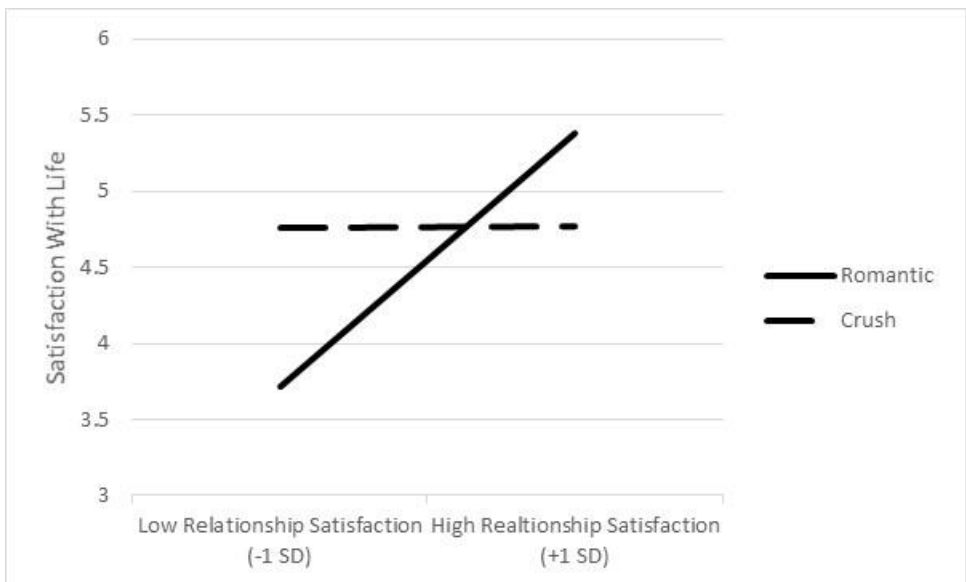


Figure B17. *Satisfaction with Life as a function of Condition and Relationship Satisfaction*

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 template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-20-367

PROJECT TITLE: Love or Desire, Sexual Desire Effects on Happiness and Well-Being

SCHOOL/PROGRAM: Psychology

RESEARCHER(S): Ryan Liu-Pham
Lucas Keefer

IRB COMMITTEE ACTION: Approved

CATEGORY: Expedited

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: September 8, 2020 to --

A handwritten signature in cursive script that reads "Donald Sacco".

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

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