Fear of Intimacy in the Interpersonal Process Model: A Multi-Modal Investigation

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Abstract

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The IPM posits that closeness develops in relationships that are characterized by one participant engaging in vulnerable self-disclosure and the other responding with warmth and understanding (responsiveness). Study 1 is a lab-based, clinical analogue randomized experiment, in which 146 high fear-of-intimacy participants engaged in hour-long "fast friends" interactions with research assistants trained to respond to participants' vulnerable disclosures with high responsiveness. We found support for the IPM even in this high fear of intimacy sample; vulnerable disclosure and responsiveness predict closeness. Unlike previous experiments with normal undergraduates documenting that high responsiveness in the fast-friends procedure predicts closeness with the researcher up to two weeks later, the current results with high fear of intimacy individuals found that this immediate effect was not sustained over time. Fear of intimacy was not significantly associated with IPM variables at any time point in study 1. Study 2 is a survey study with a

diverse sample, which examined the IPM across a range of relationships. In contrast to study 1, study 2 showed associations between fear of intimacy and each variable in the IPM; fear of intimacy was associated with less vulnerable self-disclosure, perceived responsiveness, and closeness. Taken together, these findings suggest that engaging in the IPM in real relationships may be more difficult for people high in fear of intimacy, but that people who engage in the IPM will experience improvements in relationship closeness regardless of their level of fear of intimacy.

Fear of Intimacy in the Interpersonal Process Model: A Multi-Model Investigation

The development and maintenance of intimate social relationships may be understood as an interpersonal process that unfolds over time between two people. Specifically, the Interpersonal Process Model (IPM; Reis & Shaver, 1988) states that when two people reciprocally exchange vulnerable self-disclosures, enact responses to each other's disclosures, and perceive the others' responses as responsive (defined as demonstrating understanding, validation, and care), close and trusting relationships are likely to develop.

The IPM has proven to be a valuable model for understanding the intimacy process. It is the framework for the fast-friends procedure, a laboratory-based experimental paradigm that provides support for the causal role of key elements of the process, including the importance of vulnerable self-disclosure (Aron, Melinat, Aron, Vallone, & Bator, 1997), enacted responsiveness to the disclosure (Haworth et al., 2015), and reciprocity in the disclosures (Sprecher, Treger, Wondra, Hilaire, & Wallpe, 2013). Structural models have supported the IPM in correlational and longitudinal research. This research established relations between key elements of the process, and documented that perceived responsiveness is a particularly strong driver of intimacy in naturalistic settings across multiple relationship types (Canevello & Crocker, 2010; Laurenceau, Barrett, & Pietromonaco, 1998; Laurenceau, Barrett, & Rovine, 2005).

One obvious characteristic that may affect the intimacy process is fear of intimacy (FOI; Descutner & Thelen, 1991). While early research found that people with high FOI end relationships sooner (Thelen, Vander Wal, Thomas, & Harmon, 2000) and are generally less satisfied in relationships (Greenfield & Thelen, 1997), the construct of FOI has not been explored with respect to other elements of the IPM. For example, experimental research on the

IPM shows that a brief positive interaction with a responsive stranger predicts closeness up to two weeks after the interaction for undergraduates (Haworth et al., 2015). We do not know, however, how such an interaction unfolds for those high in FOI. Examining differences in the IPM in a population high in FOI could help us understand how relationships go awry for this population and elucidate ways to help individuals overcome FOI and establish meaningful relationships.

The current research explores the role of FOI in the IPM. We first conducted an experimental study using the fast-friends procedure to test the effects of high-quality responsiveness on closeness and fear (measured by heart rate reactivity) in a high FOI sample. We then conducted a cross-sectional study of a diverse, multi-ethnic sample that allowed us to explore direct effects of FOI on all elements of the IPM.

The Interpersonal Process Model

The first step in any intimate interaction according to the IPM is for one or both of the interaction partners to engage in vulnerable self-disclosure. The seminal experimental test of the IPM, now known as the fast-friends procedure, involved pairs of strangers reciprocally exchanging self-disclosures in response to 36 questions that pulled for increasingly vulnerable self-disclosures for 45 minutes (Aron et al., 1997). Compared to participants in a small talk condition that did not prompt vulnerable self-disclosure, participants in the fast-friends condition reported greater post-interaction closeness. Haworth et al. (2015) found that feelings of closeness generated by a single fast-friends interaction with a stranger were maintained for at least two weeks without any further interaction, and Slatcher (2010) found that closeness generated after a single interaction among dating couples lasted one month later. The importance of vulnerable self-disclosure to intimacy also has been confirmed in correlational and longitudinal studies of

multiple relationship types in naturalistic settings, including undergraduates across work, family, friendship, and romantic relationships (Laurenceau et al., 1998), college roommates (Canevello & Crocker, 2010), adults living together (Laurenceau et al., 2005), couples in which one member of the couple has a cancer diagnosis (Manne et al., 2004), and racially mixed undergraduates (Page-Gould, Mendoza-Denton, & Tropp, 2008).

According to the IPM, after one person's vulnerable self-disclosure, their partner enacts a response. The quality of the enacted response is associated with relational well-being longitudinally (Feeney & Collins, 2003; Gable, Gonzaga, & Strachman, 2006). Haworth et al. (2015) showed experimentally that enacted responsiveness leads to development of closeness: participants felt closer to research assistants (RAs) trained to respond to participant's self-disclosures with understanding and validating responsiveness, even while reciprocal self-disclosure was minimized. This is relevant to therapeutic interactions; therapists most frequently utilizes responsiveness of this nature following client disclosures (Peterson, 2002). Closeness was maintained until at least 2 weeks after the experiment. High-quality enacted responsiveness also increased the depth of participants' self-disclosures across the interaction, suggesting that responsiveness may function as a reinforcer within the intimacy process, increasing the frequency and depth of self-disclosure over time.

The final major component of the intimacy process is the discloser's perception of their interaction partner's responsiveness as demonstrating understanding, validation, and caring. Perceived responsiveness is a particularly critical component of intimacy (Reis, 2007; Reis, Clark, & Holmes, 2004; Reis, Collins, & Berscheid, 2000). While the quality of the disclosure itself is a factor in the perception of responsiveness (Canevello & Crocker, 2010), multiple dispositional variables bias perceptions of responsiveness, including social anxiety (Bar-Kalifa et

al., 2015) and low self-esteem (Murray, Holmes, & Griffen, 2000). When multiple elements of the IPM are measured, perceived responsiveness reliably emerges as the strongest predictor of intimacy outcomes across multiple relationship types (Debrot, Cook, Perrez, & Horn, 2012; Gadassi et al., 2016; Laurenceau et al., 1998; Laurenceau et al., 2005; Manne et al., 2004; Reis et al., 2008; Shelton, Trail, West, & Bergsieker, 2010).

Fear of Intimacy

According to the IPM, a person's motives, needs, goals, and fears influence how they engage in the intimacy process and perceive their partner's responses (Reis & Shaver, 1988), yet we know little about the influence of FOI. Early characterizations of FOI suggested involvement of a variety of specific fears, including fears of exposure, attacks, abandonment, or loss of control (Hatfield, 1984). Descutner and Thelen (1991) formalized FOI in a manner more consistent with the IPM, as "the inhibited capacity of an individual, because of anxiety, to exchange thoughts and feelings of personal significance with another individual who is highly valued" (p. 219). Defined this way, FOI has been associated with fewer intimate interactions, less comfort with self-disclosure (Descutner & Thelen, 1991; Doi & Thelen, 1993), less satisfaction across multiple relationship contexts (Brunell, Pilkington, & Webster, 2007; Descutner & Thelen, 1991; Doi & Thelen, 1993; Greenfield & Thelen, 1997) and, for women, more likelihood of terminating relationships by 6 months (Thelen et al., 2000).

Some experts describe FOI as clinically relevant, classifying FOI as a subset of social anxiety (Richardson & Tasto, 1976) or a mediator of the relation between social anxiety and relational satisfaction (Montesi et al., 2013). In addition to social anxiety, FOI has been associated with loneliness (Descutner & Thelen, 1991), depression (Reis & Grenyer, 2004), and sexual offending, particularly child molestation (Bumby & Hansen, 1997). Thus, understanding

the role of FOI in the IPM may have pragmatic implications and inform clinical interventions, both to reduce FOI and help people improve relationships directly (e.g., Maitland et al., 2016b) and to improve other related psychiatric problems.

The Current Research

To date, the role of FOI has not been assessed in either experimental or naturalistic research on the IPM, though there is preliminary evidence that targeting the IPM increases closeness between relationship partners high in FOI (Kanter, Kuczynski, Tsai, & Kohlenberg, 2018). Thus, we asked how FOI impacted elements of the IPM with both an experimental and naturalistic study. Because no previous research considers how responsiveness influences closeness in people with high FOI, the experimental study (Study 1) employed the fast-friends procedure to establish if high-quality responsiveness produces closeness with a high FOI sample as it does in normative samples. We examined the effects of high-quality responsiveness on vulnerability after an interaction and closeness immediately and two days after an interaction in a high FOI sample.

To the extent FOI may be considered an anxiety condition, it is also possible that fear may decrease over time with exposure to the IPM. Specifically, consistent with the principles of exposure therapy for anxiety disorders (Abramowitz, Deacon, & Whiteside, 2011; Foa & Kozak, 1986), the fast-friends procedure may function as a form of exposure, involving repeated presentations of the feared stimulus (questions eliciting vulnerable self-disclosure), and repeated high-quality enacted responsiveness may offer corrective information that reduces a person's fear over the course of the session. To explore the possibility that the procedure would produce fear reduction, we measured participants' heart rate reactivity (Hodges & Spielberger, 1966;

Sartory, Rachman, & Grey, 1977) before and after the interaction. Such a finding would have direct clinical implications and offer ideas for optimal relating with high FOI people.

In the cross-sectional study (Study 2), we explored impacts of FOI on elements of the IPM in natural interactions with a racially diverse sample. We first tested the IPM in a path model without including FOI, to ensure that the relations of the IPM were supported in this sample. Next, we added FOI as a predictor of each element of the model, hypothesizing that FOI has direct, negative effects on vulnerable self-disclosure, perceived responsiveness, and closeness.

Study 1

In Study 1, we conducted a replication and extension of Haworth et al. (2015) with a high FOI sample. In addition to changes to the sample, several other changes addressed previous limitations. First, in Haworth et al. (2015), participants in the high-responsiveness condition spent more time with their RAs than did participants in the low-responsiveness condition. In the current study we controlled the amount of time spent with the RA, such that closeness differences could not be attributed to time alone. We also included a standardized pre-experiment and post-experiment assessment with heart-rate measurement. We believe this to be the first experimental examination of the IPM in a sample with high FOI, and of changes in heart rate in this context.

Methods

Participants. The sample comprised 146 undergraduate students at a large, Northwestern U.S. university who participated in this study for extra credit. Three participants experienced technical difficulties (e.g., surveys not loading) and their data were excluded. Potential participants were prescreened and only those who scored one standard deviation or more above

the mean on the Fear of Intimacy Scale (FIS; Descutner & Thelen, 1991) were invited to participate. The mean FIS score of the final sample was 2.95 (*SD* = 0.53), which was one standard deviation above the mean of all students who participated in the prescreen survey (lower than expected, possibly because some students guessed our prescreen requirements and artificially inflated their scores, or because FOI decreased as the quarter progressed and friendships formed). The majority of the sample (73.30%) were women, 18-20 years old (82.90%), and single (81.5%). Racial distribution was relatively similar to the breakdown of the broader University population (see Table 1).

Procedure. Eligible participants were paired one-on-one with a research assistant (RA) who took them to a private experiment room. Participants provided informed consent, completed pre-experiment measures on an iPad, and were randomized into one of three conditions: High Responsiveness (HR; *n* = 59), No Responsiveness (NR; *n* = 57), and Control Condition (CC; *n* = 29). Assignment was unequally weighted by over-assigning into the HR and NR conditions, such that each individual participant had a higher chance of being assigned to the HR or NR conditions. After random assignment, the participant engaged in the pre-experiment standardized assessment, followed by the experimental condition to which they had been randomized. All experimental conditions lasted 45 minutes, took place in the same room as the standardized assessments, and occurred with the RA with whom the participant had already been interacting (though the RA was not in the room during the CC). After completing the experimental protocol, the post-experiment standardized assessment and surveys commenced. Two days later, participants were emailed a link to the follow-up online survey.

Standardized assessments. The pre-experiment and post-experiment standardized assessments followed similar protocols across conditions. First, heart-rate recording equipment

was affixed (described below). The participant was instructed to sit still for three minutes while resting heart-rate data were collected. Next, the RA conducted a standardized four-question fast-friends procedure. The questions increased in vulnerability required, starting with "What do you value most in a friendship? What about this is particularly important to you?" and ending with, "If you were to die this evening with no opportunity to communicate with anyone, what would you most regret not having told someone? Why haven't you told them?" Questions at post-experiment were different, but matched for degree of vulnerability. Participants were instructed to think about responses for 15 seconds and take two minutes to respond (per Kirschbaum, Pirke, & Hellhammer, 1993). After each participant response, the RA offered a brief, scripted response, such as "I can see why you like this person. Thanks for sharing." After each question was completed, the participant provided self-report responses evaluating the vulnerability of their self-disclosures. The protocol for the standardized assessment changed after 54 participants to make minor adjustments to improve heart-rate data collection (e.g. sitting still baseline collection phase added). Heart rate analyses were conducted using the final 90 participants, but missing data in this sample resulted in a final sample size of 71. This sample size is comparable with other heart-rate research (e.g. Kelly, Tyrka, Anderson, Price, & Carpenter, 2008); other analyses were conducted using the full sample.

Experimental conditions.

High Responsiveness. The HR condition closely followed the HR protocol of Haworth et al. (2015), which is a variant of the original fast-friends procedure (Aron et al., 1997). In the original procedure, the questions were reciprocally answered by two research participants, while in Haworth et al. (2015) and the current procedure, a trained RA interacted with the participant by asking the questions and then providing a response to the participant's response. The

questions were asked in random order to ensure equal numbers of low, medium, and high intensity questions were asked. A total of 63 questions were available to the RA. Sample questions included: "Tell me about something you have done in your life which you feel ashamed of. Why do you feel ashamed of this?" and "In general, when you begin new relationships, do you jump in quickly or move in cautiously? How has this worked for you in the past?" Participants were asked to respond in whatever way felt authentic and for any length of time. Following the participant's response, the RA provided an unscripted, natural response focused on demonstrating understanding, validation, and care for the participant while minimizing reciprocal disclosure.

RAs were trained in responding by the second author, an expert in relational science and Functional Analytic Psychotherapy (FAP), a therapy focused on therapeutic responsiveness as a key mechanism of change (Kanter et al., 2017), using training techniques empirically established to improve therapeutic responsiveness (Kanter, Tsai, Holman, & Koerner, 2013; Keng et al., 2017; Maitland et al., 2016a). Trainings occurred weekly for two months before the first experimental interaction, and meetings were ongoing throughout the research. A sample response might be, "I can see how special your grandmother is to you; her love lives in you."

No responsiveness. The NR condition followed the same protocol as the HR condition, except instead of responding to the participant after each participant response, RAs were instructed to simply thank the participant and move on to the next question.

Control condition. In the passive control condition, participants watched a 45-minute nature documentary alone.

Measures.

Fear of intimacy. The Fear of Intimacy Scale (FIS) is a 35-item measure assessing fear of intimate behavior in dating relationships (Descutner & Thelen, 1991). Items include, "I might be afraid to confide my innermost feelings to [my romantic partner]" and "There are people who think that I am not an easy person to get to know." Scores range from 1 (*not characteristic of me at all*) to 5 (*extremely characteristic of me*). This scale has been validated in college students (Descutner & Thelen, 1991). Internal consistency in the current sample was high (α =. 90).

Vulnerable self-disclosure. Vulnerable Self-Disclosure (VSD) was measured using 10-items (designed by this research group) assessing how vulnerable a person made themselves during an interaction. Participants responded to items such as, "In this interaction, I talked about things that brought up strong feelings" on a 7-point scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*) such that higher scores indicate greater VSD by the participant. Participants completed the VSD after each of the four pre-experiment assessment fast-friends questions and after each of the four post-experiment assessment fast-friends questions. Composite pre-experiment and post-experiment VSD scores were computed. Internal consistency was adequate (αs > .76)

Connectedness with research assistant. The Connectedness-Research Assistant Scale (CRA) is 6 self-report items adapted from the CRA used in Haworth et al. (2015). This scale was originally adapted from the Social Connectedness Scale-Campus (SCS-C; Lee & Davis, 2000) to measure participants' feelings toward the RA with whom they were paired in the fast-friends procedure. Participants responded to questions such as "I feel that I can share personal concerns with the research assistant I am with" on a 6-point scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*) such that higher scores indicate greater feelings of connection with the RA. The SCS-C had high internal consistency and predictive validity in the initial validation sample

(Summers, Beretvas, Svinicki, & Gorin, 2005), and our modified scale had adequate internal consistency ($\alpha = .73$). The CRA was given to participants at the pre- and post-experiment assessments and at the 2-day follow-up.

*Heart rate reactivity***.** Heart-rate data were collected during the pre- and post-experiment standardized assessments during each of the four questions. The resting recording was 3 minutes long and occurred before the fast-friends recording. Heart-rate data were not collected during the middle experimental interaction.

To collect heart-rate data, disposable Ag-AgCl snap electrodes (Biopac Technologies Model EL503) were applied to both ribs and the right collar bone to collect tachogram data. Participants were instructed to sit as still as possible while data were collected as to prevent discrepancies in data that may be recorded as ectopic heart beats. Data were digitally recorded at 500 samples per second onto a laptop computer via USB connection.

Kubios HRV Premium version 3.1 was used to collect and clean data. The software adds markers to each heart beat; researchers visually inspected beats to correct for any artifacts or incorrect beat alignment. A heart-rate reactivity score was derived by subtracting initial resting heart-rate from heart rate during the fast-friends assessments, to control for between-subjects differences in baseline rates. Positive numbers indicate an increased heart rate during the fast-friends assessment compared to resting, suggesting increased anxiety.

Statistical approach. We predicted that the basic IPM process would hold for participants with high FOI. Consistent with other studies, we hypothesized that participants in the HR condition would report more VSD and more CRA at post-experiment than would participants in NR or CC, and we hypothesized that closeness would remain significantly higher at the 2-day follow-up. Consistent with the notion that the full fast-friends interaction may

function as exposure and facilitate fear reduction, we hypothesized that that participants in the HR condition would show greater reductions in heart rate from pre- to post-interaction than would participants in either control condition.

To test these hypotheses, we conducted two-way mixed ANOVAs with each dependent variable (VSD, CRA, and heart rate) at post-experiment, two within-subjects levels of Time (pre-experiment and post-experiment), and three between-subjects levels of Condition (HR, NR, CC). Significant interactions were followed with specific planned contrasts examining simple within-subjects effects of time for each condition, using MS error from the ANOVA as the denominator. A similar strategy was employed to examine change in CRA scores from pre-experiment to 2-day follow-up, with follow-up CRA as the dependent variable, two within-subjects levels of time (pre-experiment and follow-up), and three between-subjects levels of Condition (HR, NR, CC). Additional post-hoc exploratory analyses are described below.

Results

Preliminary analyses. Primary variables showed significant kurtosis (ranging from 2.44 to 3.29) but no skew (ranging from -.53 to -.01). Visual examination suggested that linearity assumptions were not violated (Cohen, Cohen, West & Aiken, 2003). Analysis of variance (ANOVA) are relatively robust to departures from normality (Kline, 2016; Pearson, 1931) therefore no data transformations were applied. Means and standard deviations for all variables by condition and time are presented in Table 2. No pre-experiment differences by condition were observed.

Primary results.

VSD. For VSD, results indicated a main effect of Time and a significant Time × Condition interaction, but no main effect of condition (see table 3). Planned within-subject

contrasts revealed that participants in the HR condition showed significant increases in VSD from pre-experiment to post-experiment, $t(58) = 3$, $p = .002$, but participants in the NR, $t(56) = 1.18$, $p = .12$, and CC, $t(28) = .95$, $p = .18$ did not.

Heart Rate. We observed a main effect of Time and a main effect of Condition, but no Time × Condition interaction (see table 3). Visual inspection showed that all three conditions showed decreased heart rate from pre-experiment to post-experiment, with CC participants demonstrating higher heart rate at both time points.

CRA. For analyses of post-experiment changes in CRA, results indicated statistically significant main effects of Time and Condition, and a significant Time × Condition interaction (table 3). Planned within-subject contrasts revealed that participants in the HR condition showed significant increases in CRA from pre- to post-experiment, $t(57) = 2.63$, $p = .005$, but participants in NR, $t(56) = .24$, $p = .41$, and CC, $t(28) = .07$, $p = .47$ did not.

Analyses of 2-day follow-up changes in CRA revealed a main effect of time, but no main effect of condition nor time × condition interaction (table 3).

Exploratory analyses. Consistent with previous studies (Haworth et al., 2015), we predicted that the full IPM process (i.e., the HR condition) would produce increased CRA which would be maintained at the 2-day follow-up. Results indicated, however, that for the high FOI sample, the full IPM process produced immediate increases in CRA but these increases were not maintained two days later. We hypothesized that FOI might not exert significant effects on the immediate process but might disrupt the maintenance of feelings of closeness over time. To explore this hypothesis, we fit two regression equations exploring FOI as a predictor of post-experiment and 2-day follow-up CRA. We also included VSD, Condition, and pre-experiment CRA in the regressions as additional predictors; for 2-day follow-up CRA we also included post-

experiment CRA. Under our hypothesis, FOI would predict CRA at 2 days but not at post-experiment.

We found that pre-experiment CRA and HR condition predicted closeness at post-experiment. FOI and NR condition did not predict closeness at post-experiment (Table 4). At the 2-day follow-up, FOI was the only significant predictor of closeness (Table 5).

Discussion

Study 1 experimentally demonstrated that vulnerability paired with enacted responsiveness increases closeness even in a high FOI sample. Consistent with the normative sample of Haworth et al. (2015), at post-experiment, participants in the high responsiveness condition reported more closeness with the RA compared to those in the low responsiveness or control conditions. However, unlike the normative sample for whom the effects of enacted responsiveness on intimacy with the RA were maintained at 2-day and even 2-week follow-up, for the current sample the immediate effects of enacted responsiveness on intimacy with the RA were not maintained; exploratory regression revealed that FOI predicted follow-up, but not immediate, closeness. Analyses of heart rate suggested that all participants' heart rates decreased over the course of the experiment, suggestive of a general anxiety reduction effect, with no specific evidence that fear reduction for high FOI people, as indexed by heart rate, is a function of responsiveness.

Study 2

With respect to fully exploring the role of FOI in the IPM, Study 1 had several limitations. First, because we were interested in the effects of experimentally manipulated enacted responsiveness on closeness within a high FOI sample, the range of FOI scores was restricted to only those with high scores. This allowed us to explore how the IPM operates in a

high FOI sample, but did not permit us to directly explore the effects of FOI on elements of the IPM. Second, the experimental protocol involved a lab-based interaction with a stranger who was trained to provide high-quality responsiveness. This allowed for strong causal inferences but limited external validity. Thus, in Study 2, consistent with previous research (e.g., Debrot et al., 2012), we evaluated a structural model relating vulnerable self-disclosure, perceived responsiveness, and closeness in a sample representative of the full range of FOI, with participants reporting on discrete interactions within natural, ongoing social relationships. A final limitation of Study 1 was that it involved a convenience sample of undergraduates that was limited, especially in terms of racial diversity, and may only generalize to other White and Asian college students. This limitation is consistent with much IPM research; in fact, we know of few studies in which the IPM has been evaluated with diverse samples (c.f., Page-Gould et al., 2008; Shelton et al., 2010). Thus, in Study 2 we recruited a racially and ethnically diverse sample with roughly equal numbers of Black, Asian, Latinx, and White participants. Though our sample size is too small to meaningfully examine group differences, this research allowed us to generalize findings without the limitation of a largely White and Asian sample.

Methods

Participants. We recruited participants through Amazon Mechanical Turk (AMT), a globally accessible survey administration platform. To address questions about the quality of AMT datasets, we followed recommendations for assessing data quality including asking attention check questions in which participants are instructed to choose a specific answer (Goodman, Cryder, & Cheema, 2013; Kees, Berry, Burton, & Sheehan, 2017). We took a conservative approach to data quality, eliminating anyone who missed more than one check. Of the 1,325 eligible respondents, 409 appeared to skim or only partially complete the surveys and

were excluded, and an additional 533 participants completed all survey items but failed the attention checks and were excluded (discussed more below). Finally, the data from the first 167 participants who completed the survey were excluded due to an administrative error that resulted in failure to administer the VSD. This resulted in a final sample of 216 participants.

Participants were paid $1.50 for completing the survey and passing attention checks. Our sample was intentionally diverse, including participants who identified as White (32.9%), Asian (31.0%), Black (26.4%), and other (9.80%). Of these, 22% identified as Hispanic. After providing consent, participants completed a demographic screening questionnaire asking for racial and ethnic identity. If they qualified (i.e. quota for endorsed racial and ethnic groups had not been filled), they proceeded to report on their experiences during three recent social interactions. Participants specifically were asked to "consider the most recent interaction in which YOU shared a positive or negative event or emotion" when answering questions. Then, participants answered questions about their feelings toward the others in general and took a battery of personality assessments. Data were collected over 4 months.

Measures.

Fear of intimacy. The FIS is described in Study 1, and demonstrated high internal consistency in this sample ($\alpha = .94$).

Vulnerable self-disclosure. The VSD is described in Study 1. Participants in Study 2 completed the VSD three times, once for each of the three most recent interactions on which they reported. Internal consistency in this sample was high ($\alpha s > .80$)

Perceived partner responsiveness. The Perceived Partner Responsiveness (PPR) scale was adapted from scales used by Reis (2003) and Laurenceau et al. (2005). The current scale included 4 items assessing the extent to which participants felt (a) understood, (b) valued, (c)

cared for, and (d) accepted in each of the three interactions on which they reported. Internal consistency in this sample was high (αs > .84).

Inclusion of the other in the self scale. The Inclusion of the Other in the Self Scale (IOS) is a single-item that asks participants to select which of a series of overlapping circles best represents their relationship with another person as an indicator of closeness (Aron, Aron, & Smollan, 1992). IOS was assessed for each of the three interactions.

Statistical approach. We conducted multilevel structural equation modeling (SEM). We created latent variables representing each repeated measure (VSD, PPR, and IOS), and fixed loadings of the three manifest indicators to 1. We correlated and held constant residual error within each measure across time, to represent within-person nesting of scores. We also accounted for the effects of relationship type on closeness, dummy-coding relationship type as close (consisting of family interactions, close romantic partners, and close friends) or not close (coworkers, new friends, or casual romantic partners). This division was supported by *t*-tests showing significant differences in closeness between close and not close relationship types ($p <$ .0001).We chose to make this relationship type variable binary because an SEM model is easier to fit if the covariance matrix is smaller.

We tested the fit of our models using χ^2, Comparative Fit Index (CFI), Standardized Root Mean Square Residual (SRMR), and Root Mean Square Error of Approximation (RMSEA). We used robust estimators to account for the categorical IOS variable. These fit measures test how well the model reproduces the observed sample covariance (Hooper, Coughlan, & Mullen, 2008); including multiple fit measures is the gold standard (Steiger & Lind, 1980). We consider χ^2 with *p*-value > .05, CFI > .9, SRMR < .08, and Robust RMSEA < .08 as adequate fit to

indicate support for the model. Analyses were conducted in R with the lavaan package (Rosseel, 2012).

Results

Preliminary analyses. We found significant kurtosis for all variables (ranging from 2.24 to 6) but no significant skew (ranging from -.17 to -1.44). No variables had kurtosis greater than 10, which Kline (2016) suggests is the cutoff for appropriate SEM estimation. Linearity was confirmed by visual inspection. Thus no data transformations were performed. Means, standard deviations, and correlations are presented in Table 6.

Participants reported on the following types of interaction partners in the below analyses: siblings, parents, long-time and new friends, casual and close romantic partners, live-in partners, coworkers, children, other relatives, and other acquaintances such as ex-partners and neighbors. The modal interaction partner (28%) was long-time friends. An additional 21% of interactions involved close romantic partners, 13% were with siblings or parents, 9% with coworkers, 8% with a new friend, and 5% with a casual romantic partner. The remainder reported on another type of relationship; these reports were excluded for a final sample size of 196 due to inability to statistically determine which relationship category they should be sorted into.

Structural equation modeling.

As per Debrot et al. (2012; Figure 1), we first evaluated a mediation model in which PPR mediated the relationship between VSD and IOS, without including FOI. Fit was good (Robust $\chi^2(41, n = 196) = 35.14$, $p = .73$, CFI = 1.0, SRMR = .04, RMSEA < .001 [0, .04]). VSD had a significant, positive effect on PPR, $\beta = .53$, $p < .001$, and PPR had a significant, positive effect on IOS, $\beta = .42$, $p < .001$, but there was no significant direct effect of VSD on IOS. The indirect effect of VSD on IOS through PPR was computed by multiplying the VSD to PPR path

coefficient by the PPR to IOS path coefficient (Greene, 1977); the indirect effect of VSD on IOS was β = .22.

We then added FOI as a predictor of PPR, VSD, and IOS. Figure 2 shows the final model (Figure 2). Model fit was excellent (Robust $\chi^2(50, n = 196) = 50.39$, $p = .46$, CFI = 1.0, SRMR = .05, RMSEA = .01 [0, .05]). Results indicated that VSD had a significant, positive effect on PPR, β = .39, p < .05, PPR had a significant, positive effect on IOS, β = .56, p < .05, and FOI had significant negative effects on VSD, β = -.40, p < .05 and PPR, β = -.36, p < .05, and a significant, positive effect on IOS, β = .32, p < .05. VSD did not have a significant direct effect on IOS. We found an indirect effect of VSD on IOS of β = .22, and an indirect effect of FOI on IOS, through VSD and PPR, of B = -.34. We found that 50% of variance in IOS was predicted by VSD, PPR, and FOI.

Discussion

In the current research, we conducted a multi-modal investigation of the role of fear of intimacy in the IPM. In Study 1, we showed experimentally that high-quality responsiveness impacted closeness for participants with high fear of intimacy immediately after an interaction with an RA, but not two days later. In Study 2, we explored the role of fear of intimacy in each element of the IPM in everyday interactions.

In both studies, the interpersonal process unfolded as predicted by the IPM (e.g., Debrot et al., 2012; Laurenceau et al., 1998; 2005). In Study 1, high quality enacted responsiveness from the RA was associated with greater closeness, and in Study 2, perceived responsiveness was associated with greater closeness across a variety of interaction types and partners. Study 2 gives us increased confidence that the IPM holds across types of relational dyads and across racial groups, though moderation analyses are still needed. Consistent with previous literature that

perceived responsiveness is the most important predictor of closeness among the IPM process variables (Reis, Clark, & Holmes, 2004), in Study 2 perceived partner responsiveness was the strongest predictor of closeness, stronger than vulnerable self-disclosure. To put this numerically, a 1 standard deviation increase in perceived responsiveness was associated, on average, with a 0.56 standard deviation increase in closeness, and vulnerable self-disclosure was not significantly directly related to intimacy—its effects operated through perceived responsiveness.

Fear of intimacy had a variety of disruptive effects on the IPM process in both studies. In Study 1, FOI had no significant immediate impact on the IPM process, in that high-quality responsiveness generated an increase in closeness as expected, but FOI exerted a strong subsequent influence, such that the increase in closeness was eliminated two days later. Fear of intimacy was the only significant predictor of closeness after two days. This reduction in closeness after two days resembles a phenomenon Brown (2010) described as a "vulnerability hangover" that people may suffer after engaging in intimate exchanges. It may be that people high in FOI are particularly susceptible to such a hangover. From this perspective, people high in fear of intimacy engage in the normative intimacy process, and people feel closer with those with whom they interacted. After the interaction—when the interaction partner is gone—self-consciousness and fear kick in. Distancing from the relationship after the interaction may serve as a protective response.

This is particularly interesting clinically. One basic tenant of exposure therapy is that exposures decrease fear across time, even if fear is high during the exposure. If we conceptualize vulnerable disclosure as an exposure for people with fear of intimacy, we would expect fear to be higher during the exposure, and decrease over time. Instead, we see lower closeness over time, perhaps indicative of *increased* fear.

Study 2 showed that FOI has negative direct effects on both vulnerable self-disclosure and perceived responsiveness, but a *positive* direct effect on closeness. This could indicate that the rebound effect seen in Study 1 is reversed through repeated interactions, or may reflect different expectations for closeness or an insecure attachment style in people with high fear of intimacy.

Several additional limitations to these studies are noted. Data from Study 2 are cross-sectional, and thus causal inferences cannot be made. Though causality depicted in the structural model (Figure 2) is supported by theory, experimental control of fear of intimacy and other variables (besides enacted responsiveness) would be required to make causal claims with confidence. That said, it makes intuitive sense that people who share vulnerably are more likely to trigger others to be responsive, leading to greater perceived responsiveness and subsequent closeness benefits.

Future research should focus on the IPM in racially diverse samples, which would have broad relevance to bias reduction efforts and attempts to forge cross-group friendships. It would also be useful to determine what drives the reduction in closeness from post-experiment to follow-up for the high fear-of-intimacy sample, and to explore if more frequent or repeated contact can buffer against decreases in intimacy, perhaps by reducing opportunities for self-conscious emotions to disrupt the beneficial outcomes of the process.

References

Abramowitz, J. S., Deacon, B. J., & Whiteside, S. P. (2011). *Exposure therapy for anxiety: Principles and practice*. New York, NY: Guilford Press.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*(4), 596–612. https://doi.org/10.1037/0022-3514.63.4.596

Aron, A., Melinat, E., Aron, E. N., Vallone, R. D., & Bator, R. J. (1997). The experimental generation of interpersonal closeness: A procedure and some preliminary findings. *Personality and Social Psychology Bulletin*, *23*(4), 363–377. https://doi.org/10.1177/0146167297234003

Bar-Kalifa, E., Hen-Weissberg, A., & Rafaeli, E. (2015). Perceived partner responsiveness mediates the association between social anxiety and relationship satisfaction in committed couples. *Journal of Social and Clinical Psychology*, *34*(7), 587-610. https://doi.org/10.1521/jscp.2015.34.7.587

Brown, B. (2010). The power of vulnerability [Video file]. Retrieved from https://www.ted.com/talks/brene_brown_on_vulnerability#t-270392

Brunell, A. B., Pilkington, C. J., & Webster, G. D. (2007). Perceptions of risk in intimacy in dating couples: Conversation and relationship quality. *Journal of Social and Clinical Psychology, 26*(1)*,* 92–119. https://doi.org/10.1521/jscp.2007.26.1.92

Bumby, K. M., & Hansen, D. J. (1997). Intimacy deficits, fear of intimacy, and loneliness among sexual offenders. *Criminal Justice and Behavior*, *24*(3), 315–331. https://doi.org/10.1177/0093854897024003001

Canevello, A., & Crocker, J. (2010). Creating good relationships: Responsiveness, relationship quality, and interpersonal goals. *Journal of Personality and Social Psychology*, *99*(1), 78–106. https://doi.org/10.1037/a0018186

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). Applied multiple regression/correlation analysis for the behavioral sciences (3rd ed.). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Debrot, A., Cook, W. L., Perrez, M., & Horn, A. B. (2012). Deeds matter: Daily enacted responsiveness and intimacy in couples' daily lives. *Journal of Family Psychology*, *26*(4), 617–627. https://doi.org/10.1037/a0028666

Descutner, C. J., & Thelen, M. H. (1991). Development and validation of a Fear-of-Intimacy Scale. *Psychological Assessment*, *3*(2), 218–225. https://doi.org/10.1037/1040-3590.3.2.218

Doi, S. C., & Thelen, M. H. (1993). The Fear-of-Intimacy Scale : Replication and extension, *Psychological Assessment, 5*(3), 377–383. http://dx.doi.org/10.1037/1040-3590.5.3.377

Feeney, B. C., & Collins, N. L. (2003). Motivations for caregiving in adult intimate relationships: Influences on caregiving behavior and relationship functioning. *Personality and Social Psychology Bulletin*, *29*(8), 950–968. https://doi.org/10.1177/0146167203252807

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin,* 99, 20–35. https://doi.org/10.1037/0033-2909.99.1.20

Gable, S. L., Gonzaga, G. C., & Strachman, A. (2006). Will you be there for me when things go right? Supportive responses to positive event disclosures. *Journal of Personality and Social Psychology*, *91*(5), 904–917. https://doi.org/10.1037/0022-3514.91.5.904

Gadassi, R., Bar-Nahum, L. E., Newhouse, S., Anderson, R., Heiman, J. R., Rafaeli, E., & Janssen, E. (2016). Perceived partner responsiveness mediates the association between sexual and marital satisfaction: A daily diary study in newlywed couples. *Archives of Sexual Behavior*, *45*(1), 109–120. https://doi.org/10.1007/s10508-014-0448-2

Goodman, J. K., Cryder, C. E., & Cheema, A. (2013). Data collection in a flat world: The strengths and weaknesses of mechanical turk samples. *Journal of Behavioral Decision Making*, *26*(3), 213–224. https://doi.org/10.1002/bdm.1753

Greene, V. L. (1977). An algorithm for total and indirect causal effects. *Political Methodology*, 369-381.

Greenfield, S., & Thelen, M. (1997). Validation of the fear of intimacy scale with a lesbian and gay male population. *Journal of Social and Personal Relationships*, *14*(5), 707–716. https://doi.org/10.1177/0265407597145007

Hatfield, E. (1984). The dangers of intimacy. In V. Derlaga (Ed.), *Communication, Intimacy, and Close Relationships* (pp. 207-220). New York, NY: Academic Press.

Haworth, K., Kanter, J. W., Tsai, M., Kuczynski, A. M., Rae, J. R., & Kohlenberg, R. J. (2015). Reinforcement matters: A preliminary, laboratory-based component-process analysis of Functional Analytic Psychotherapy's model of social connection. *Journal of Contextual Behavioral Science*, *4*(4), 281–291. https://doi.org/10.1016/j.jcbs.2015.08.003

Hodges, W. F., & Spielberger, C. D. (1966). The effects of threat of shock on heart rate for subjects who differ in manifest anxiety and fear of shock. *Psychophysiology*, *2*(4), 287-294.

https://doi.org/10.1111/j.1469-8986.1966.tb02656.x

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*(1), 53-60. https://doi.org/10.21427/D7CF7R

Kanter, J. W., Kuczynski, A. M., Tsai, M., Kohlenberg, R. J. (2018). A brief contextual behavioral intervention to improve relationships: A randomized trial. *Journal of Contextual Behavioral Science, 10,* 75-84. https://doi.org/10.1016/j.jcbs.2018.09.001

Kanter, J. W., Manbeck, K. E., Kuczynski, A. M., Maitland, D. W. M., Villas-Bôas, A., & Reyes Ortega, M. A. (2017). A comprehensive review of research on Functional Analytic Psychotherapy. *Clinical Psychology Review*, *58*, 141–156. https://doi.org/10.1016/j.cpr.2017.09.010

Kanter, J. W., Tsai, M., Holman, G., & Koerner, K. (2013). Preliminary data from a randomized pilot study of web-based functional analytic psychotherapy therapist training. *Psychotherapy*, *50*(2), 248–255. https://doi.org/10.1037/a0029814

Kees, J., Berry, C., Burton, S., & Sheehan, K. (2017). An analysis of data quality: Professional panels, student subject pools, and amazon's mechanical turk. *Journal of Advertising*, *46*(1), 141–155. https://doi.org/10.1080/00913367.2016.1269304

Kelly, M. M., Tyrka, A. R., Anderson, G. M., Price, L. H., & Carpenter, L. L. (2008). Sex differences in emotional and physiological responses to the Trier Social Stress Test. *Journal of behavior therapy and experimental psychiatry*, *39*(1), 87-98. https://doi.org/10.1016/j.jbtep.2007.02.003

Keng, S. L., Waddington, E., Lin, X. B., Tan, M. S. Q., Henn-Haase, C., & Kanter, J. W. (2017). Effects of Functional Analytic Psychotherapy therapist training on therapist factors among

therapist trainees in Singapore: A randomized controlled trial. *Clinical Psychology and Psychotherapy*, *24*(4), 1014–1027. https://doi.org/10.1002/cpp.2064

Kirschbaum, C., Pirke, K. M., & Hellhammer, D. H. (1993). The 'Trier Social Stress Test'–a tool for investigating psychobiological stress responses in a laboratory setting. *Neuropsychobiology*, *28*(1-2), 76-81. https://doi.org/10.1159/000119004

Kline, R. B. (2016). *Principles and Practice of Structural Equation Modeling*. *Methodology in the social sciences*. New York, NY: The Guilford Press.

Laurenceau, J.-P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology*, *74*(5), 1238–1251. https://doi.org/10.1037/0022-3514.74.5.1238

Laurenceau, J.-P., Barrett, L. F., & Rovine, M. J. (2005). The interpersonal process model of intimacy in marriage: A daily-diary and multilevel modeling approach. *Journal of Family Psychology*, *19*(2), 314–323. https://doi.org/10.1037/0893-3200.19.2.314

Lee, R. M., & Davis III, C. (2000). Cultural orientation, past multicultural experience, and a sense of belonging on campus for Asian American college students. *Journal of college student development, 41*(1), 110-115.

Maitland, D. W. M., Kanter, J. W., Tsai, M., Kuczynski, A. M., Manbeck, K. E., & Kohlenberg, R. J. (2016a). Preliminary findings on the effects of online Functional Analytic Psychotherapy training on therapist competency. *Psychological Record*, *66*(4), 627–637. https://doi.org/10.1007/s40732-016-0198-8

Maitland, D. W., Petts, R. A., Knott, L. E., Briggs, C. A., Moore, J. A., & Gaynor, S. T. (2016b). A randomized controlled trial of functional analytic psychotherapy versus watchful waiting:

Enhancing social connectedness and reducing anxiety and avoidance. *Behavior Analysis: Research and Practice, 16*(3), 103. http://dx.doi.org/10.1037/bar0000051

Manne, S., Rini, C., Goldstein, L., Ostroff, J., Fox, K., & Grana, G. (2004). The interpersonal process model of intimacy: The role of self-disclosure, partner disclosure, and partner responsiveness in interactions between breast cancer patients and their partners. *Journal of Family Psychology*, *18*(4), 589–599. https://doi.org/10.1037/0893-3200.18.4.589

Montesi, J. L., Conner, B. T., Gordon, E. A., Fauber, R. L., Kim, K. H., & Heimberg, R. G. (2013). On the relationship among social anxiety, intimacy, sexual communication, and sexual satisfaction in young couples. *Archives of Sexual Behavior, 42*(1), 81-91. https://doi.org/10.1007/s10508-012-9929-3

Murray, S. L., Holmes, J. G., & Griffin, D. W. (2000). Self-esteem and the quest for felt security: How perceived regard regulates attachment processes. *Journal of personality and social psychology*, *78*(3), 478. https://doi.org/10.1037//0022-3514.78.3.478

Murray, S. L., Holmes, J. G., & Collins, N. L. (2006). Optimizing assurance: The risk regulation system in relationships. *Psychological Bulletin*, *132*(5), 641–666. https://doi.org/10.1037/0033-2909.132.5.641

Page-Gould, E., Mendoza-Denton, R., & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology*, *95*(5), 1080–1094. https://doi.org/10.1037/0022-3514.95.5.1080

Pearson, E. S. (1931). The analysis of variance in cases of non-normal variation. *Biometrika*, *23*, 114–133. https://doi.org/10.2307/2333631

Peterson, Z. D. (2002). More than a mirror: The ethics of therapist self-disclosure.

Psychotherapy: Theory, Research, Practice, Training, *39*(1), 21. http://dx.doi.org/10.1037/0033-3204.39.1.21

Reis, H. T. (2003). A self-report measure of perceived partner responsiveness. *Unpublished data*, *University of Rochester*.

Reis, H. T. (2007). Steps toward the ripening of relationship science. *Personal Relationships*, *14*(1), 1–23. https://doi.org/10.1111/j.1475-6811.2006.00139.x

Reis, H. T., Clark, M. S., & Holmes, J. G. (2004). Perceived partner responsiveness as an organizing construct in the study of intimacy and closeness. In D. J. Mashek & A. P. Aron (Eds.), *Handbook of closeness and intimacy* (pp. 201–255). Mahwah, NJ: Erlbaum. https://doi.org/10.1037/13486-002

Reis, H. T., Clark, M. S., Pereira Gray, D. J., Tsai, F.-F., Brown, J. B., Stewart, M., & Underwood, L. G. (2008). Measuring responsiveness in the therapeutic relationship: A patient perspective. *Basic and Applied Social Psychology*, *30*(4), 339–348. https://doi.org/10.1080/01973530802502275

Reis, H. T., Collins, W. A., & Berscheid, E. (2000). The relationship context of human behavior and development. *Psychological Bulletin*, *126*(6), 844–872. http://dx.doi.org/10.1037/0033-2909.126.6.844

Reis, H. T., & Shaver, P. (1988). Intimacy as an interpersonal process. In S. W. Duck, D. F. Hay, S. E. Hobfoll, W. Ickes, B. M. Montgomery (Eds.), Handbook of Personal Relationships: Theory, Research and Interventions (pp. 367–389). Oxford, England: John Wiley & Sons.

Reis, S., & Grenyer, B. F. S. (2004). Fear of intimacy in women: Relationship between attachment styles and depressive symptoms. *Psychopathology*, *37*(6), 299–303. https://doi.org/10.1159/000082268

Richardson, F. C., & Tasto, D. L. (1976). Development and factor analysis of a social anxiety inventory. *Behavior Therapy, 7*(4), 453-462. https://doi.org/10.1016/S0005-7894(76)80164-5

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. Journal of Statistical Software, 48(2), 1-36.

Sartory, G., Rachman, S., & Grey, S. (1977). An investigation of the relation between reported fear and heart rate. *Behaviour Research and Therapy, 15*(5), 435-438. http://dx.doi.org/10.1016/0005-7967(77)90048-1

Shelton, J. N., Trail, T. E., West, T. V., & Bergsieker, H. B. (2010). From strangers to friends: The interpersonal process model of intimacy in developing interracial friendships. *Journal of Social and Personal Relationships*, *27*(1), 71–90. https://doi.org/10.1177/0265407509346422

Slatcher, R. B. (2010). When Harry and Sally met Dick and Jane: Creating closeness between couples. *Personal Relationships*, *17*(2), 279–297. https://doi.org/10.1111/j.1475-6811.2010.01276.x

Sprecher, S., Treger, S., Wondra, J. D., Hilaire, N., & Wallpe, K. (2013). Taking turns: Reciprocal self-disclosure promotes liking in initial interactions. *Journal of Experimental Social Psychology*, *49*(5), 860–866. https://doi.org/10.1016/j.jesp.2013.03.017

Steiger, J. H. & Lind, J. C. (1980). Statistically-based tests for the number of common factors. Paper presented at the annual Spring Meeting of the Psychometric Society in Iowa City. May 30, 1980.

Summers, J. J., Gorin, J. S., Beretvas, S. N., & Svinicki, M. D. (2005). Evaluating collaborative learning and community. *The Journal of Experimental Education*, *73*(3), 165-188.

https://doi.org/10.3200/JEXE.73.3.165-188

Thelen, M. H., Vander Wal, J. S., Thomas, A. M., & Harmon, R. (2000). Fear of intimacy among dating couples. *Behavior Modification, 24*(2), 223-240. https://doi.org/10.1177/0145445500242004

Table 1

Racial breakdown of participants in each study compared to the demographics of the University of Washington at large.

Ethnicity	*N* (%) in study 1	*N* (%) at University of Washington, 2016	*N* (%) in study 2
Asian	71 (48.6)	8,126 (27.6)	57 (26.4)
White	42 (28.8)	12,769 (43.3)	71 (32.9)
Hispanic	8 (5.5)	2,082 (7.1)	48 (22.2)
Black	5 (3.4)	1,026 (3.5)	67 (31.0)
Pacific Islander	4 (2.7)	319 (1.1)	---
Native American	1 (.7)	394 (1.3)	---
Middle- Eastern	3 (2.1)	Not available	---
Southeast Asian	5 (3.4)	Not available	---
Other	7 (4.8)	419 (1.4)	21 (9.8)

Table 2

Means, Standard Deviations, Correlations, and Covariances of all Variables in Study 1

	HR (n=59; HR n=24)	NR (n=57; HR n=29)	CC (n=29; HR n=15)	Total Sample
FOI				
Pre (n=146)	3.01 (.57)	2.95 (.51)	2.83 (.49)	2.95 (.53)
VSD				
Pre (n=145)	3.82 (.73)	3.93 (.65)	4.0 (.60)	11.54 (7.10)
Post (n=145)	4.15 (.67)	4.06 (.73)	4.10 (.63)	7.30 (6.46)
HR				
Pre (n=75)	9.46 (7.16)	11.38 (4.76)	15.49 (9.82)	11.54 (7.10)
Post (n=68)	3.55 (6.24)	5.37 (4.82)	10.05 (9.56)	5.72 (6.88)
CS-RA				
Pre (n=144)	3.45 (.89)	3.41 (.79)	3.53 (.79)	3.45 (.83)
Post (n=146)	4.51 (.77)	3.51 (1.03)	3.56 (1.03)	3.92 (1.05)
2-day follow up (n=144)	3.87 (1.02)	3.56 (1.02)	3.76 (1.07)	3.72 (1.03)

Table 3

Mixed ANOVA results with VSD as the dependent

Predictor	Sum of Squares	df	Mean Square	F	p	partial η^2	η^2 90% CI
Time	2.28	1	2.28	21.66	<.0001	.13	[.00, .02]
Time x condition	.74	2	.37	3.53	.03	.05	[.01, .05]
Error (time)	14.97	142	.11				
(Intercept)	4196.51	1	4196.51	5083.38	<.0001	.97	[.95, .99]
Condition	.18	2	.09	.11	.90	.002	[.00, .00]
Error	117.23	142	.83				[.25, .57]
Mixed ANOVA results with SCS post as the dependent							
Time	10.50	1	10.50	25.22	<.0001	.15	[.02, .14]
Time x condition	17.35	2	8.67	20.82	<.0001	.23	[.10, .28]
Error (time)	58.73	141	.41				
(Intercept)	3477.15	1	3477.15	3029.45	<.0001	.96	[.95, .97]
Condition	16.77	2	8.39	7.31	.001	.19	[.10, .28]
Error	161.84	141	1.15				
Mixed ANOVA results with heart rate reactivity as the dependent							
Time	1003.45	1	1003.45	118.91	<.0001	.64	[.51, .71]
Time x condition	.60	2	.30	.04	.97	.001	[.00, .02]
Error (time)	573.85	68	8.44				
(Intercept)	10746.22	1	10746.22	130.27	<.0001	.66	[.54, .73]
Condition	769.28	2	384.64	4.66	.01	.12	[.02, .23]

Error	5609.49	68	82.49				
Mixed ANOVA results with SCS follow-up as the dependent							
Time	4.73	1	4.73	5.01	.03	.03	[.00, .09]
Time x condition	1.13	2	.57	.51	.60	.01	[.00, .06]
Error (time)	134.10	142	.94				
(Intercept)	3374.02	1	3374.02	4167.0	<.0001	.97	[.95, .97]
Condition	2.08	2	1.04	1.28	.28	.02	[.00, .08]
Error	114.98	142	.81				

Table 4

Statistics from the regression model with post-experiment closeness as the dependent variable

	B	*SE B*	β
FOI	-.05	.14	-.03
CRA: Pre-experiment	.43***	.09	.33
VSD	.47***	.09	.34
Condition	.55***	.09	.39

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

R^2=.46

FOI = fear of intimacy; CRA = closeness with the research assistant; VSD=vulnerable self disclosure

Table 5

Statistics from the regression model with 48-hour follow-up closeness as the dependent variable

	B	*SE B*	β
FOI	-.39*	.18	-.20
CRA: Pre-experiment	-.21	.13	-.17
CRA: Post-experiment	.13	.11	.14
VSD	-.03	.13	-.03
Condition	-.02	.13	-.02

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

$R^2 = .05$

FOI = fear of intimacy; CRA = closeness with the research assistant; VSD=vulnerable self disclosure

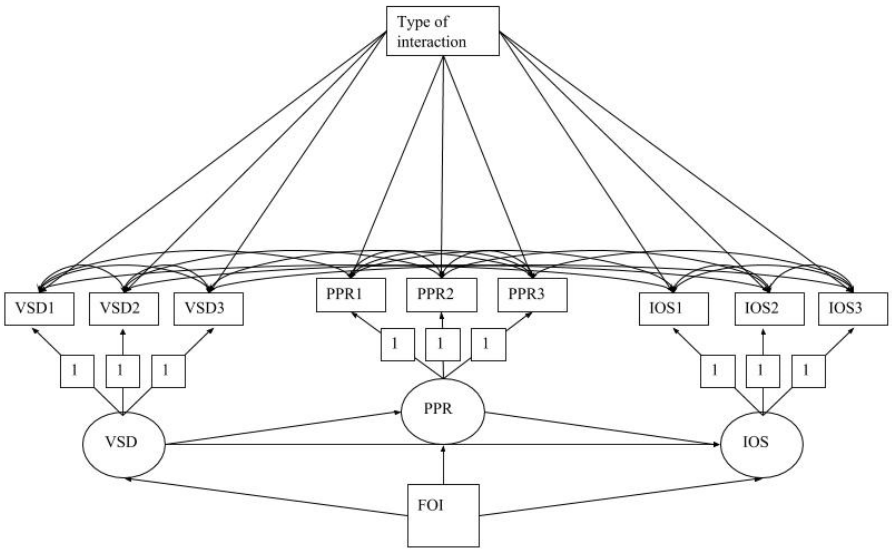

Figure 1. Hypothesized path model for Study 2

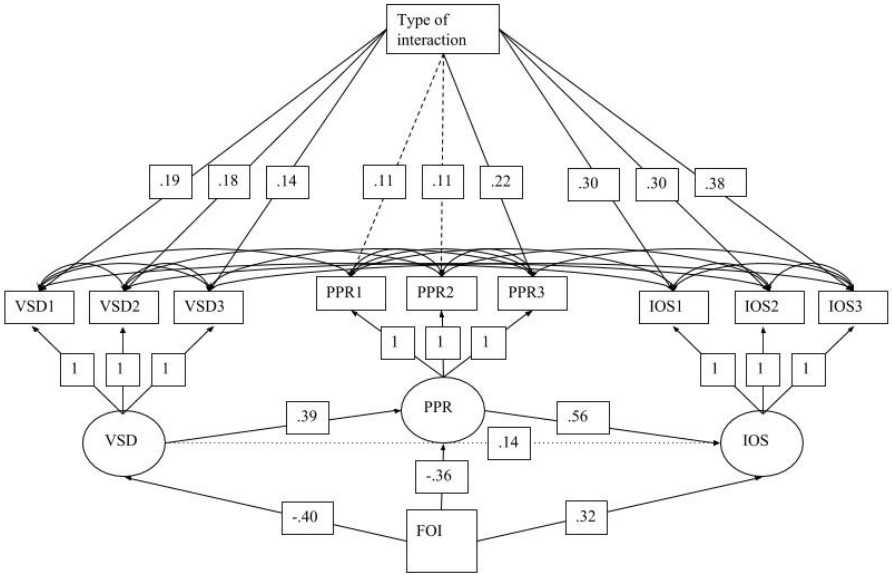

Figure 2. Final path models for Study 2. Non-significant hypothesized paths are represented by dashed lines ; marginally significant paths are represented by dashed lines. Values represent standardized coefficients. Not shown: correlations across time points; correlated residuals.

Table 6

Means, Standard Deviations, Correlations, and Covariances (diagonal) of all Variables in Study 2

Variable	Total M(SD)	1	2	3	4	5	6	7	8	9	10
1. VSD1	4.71 (.89)	.80									
2. VSD2	4.69 (.99)	.55 ***	.99								
3. VSD3	4.74 (1.06)	.48 ***	.55 ***	1.12							
4. PPR1	4.24 (.79)	.30 ***	.19 ***	.19 ***	.63						
5. PPR2	4.21 (.83)	.32 ***	.45 ***	.23 ***	.23 ***	.69					
6. PPR3	4.20 (.88)	.24 ***	.21 ***	.48 ***	.30 ***	.32 ***	.78				
7. PCS1	5.46 (1.58)	.36 ***	.15 **	.15 ***	.52 ***	.25 ***	.16 ***	2.49			
8. PCS2	5.01 (1.78)	.18 **	.31 ***	.16 **	.11 **	.51 ***	.19 **	.35 ***	3.18		
9. PCS3	5.22 (1.71)	.11	.15 **	.38 **	.15 ***	.18 ***	.48 ***	.35 ***	.36 ***	2.91	
10. FOI	2.58 (.66)	-.34 ***	-.32 ***	-.27 ***	-.23 ***	-.29 ***	-.33 ***	-.10 **	.03	-.05	.43

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

VSD = vulnerable self disclosure; PPR = perceived partner responsiveness; PCS = partner closeness scale; FOI = fear of intimacy.