


# Breakup Likelihood Following Hypothetical Sexual or Emotional Infidelity: Perceived Threat, Blame, and Forgiveness

Trond Viggo Grøntvedt<sup>1,2</sup> , Leif Edward Ottesen Kennair<sup>1</sup> and Mons Bendixen<sup>1</sup>

## Research Article

**Cite this article:** Grøntvedt TV, Kennair LEO, Bendixen M (2020). Breakup Likelihood Following Hypothetical Sexual or Emotional Infidelity: Perceived Threat, Blame, and Forgiveness. *Journal of Relationships Research* **11**, e7, 1–9. <https://doi.org/10.1017/jrr.2020.5>

Received: 19 December 2019

Revised: 26 April 2020

Accepted: 5 May 2020

### Keywords:

forgiveness; sexual infidelity; emotional infidelity; heterosexual relationships; couple data

Address for correspondence: Trond Viggo Grøntvedt, Department of Psychology, Dragvoll Campus, 7491 Trondheim, Norway. Email: [trond.v.grontvedt@ntnu.no](mailto:trond.v.grontvedt@ntnu.no)

<sup>1</sup>Department of Psychology, Norwegian University of Science and Technology, Trondheim, Norway and

<sup>2</sup>Department of Public Health and Nursing, HUNT Research Center, Norwegian University of Science and Technology, Levanger, Norway

### Abstract

Infidelity represents a major threat to relationships, often resulting in dissolution of couples. The process from infidelity to potential breakup was studied in 92 couples using questionnaires concerning hypothetical scenarios of sexual and emotional infidelity. Structural equation model analyses using couple data for both infidelity types suggest that the level of perceived threat to the relationship was the main predictor of likelihood of breakup for men and women. Following each type of imagined infidelity, this effect was partly mediated by forgiveness. For emotional infidelity, level of blame was associated with forgiveness and breakup. The effect of blame on breakup was fully mediated by keeping less distance. The mechanisms involved in these processes were highly similar for women and men.

It is hard to imagine romantic and committed relationships devoid of transgressions of some kind. Despite the best intentions not to cause any harm or disappointment to one's partner, breaking rules and promises are largely inevitable in long-term relationships. Some transgressions are trivial, like arriving late to an appointment or forgetting to buy an item on a shopping list. They may cause annoyance in the partner, but are usually easily forgiven (Friesen, Fletcher, & Overall, 2005) — and maybe even forgotten. Other transgressions are more severe and may have a strong negative effect on the relationship. Grave betrayals of trust, such as cheating on a partner or lying about financial issues can be much more difficult to forgive (Bendixen, Kennair, & Grøntvedt, 2018; Sheldon, Gilchrist-Petty, & Lessley, 2014). Any form of infidelity from either party may potentially instigate a breakup. When couples retrospectively report on reasons for breaking up, infidelity is the most common (Amato & Previti, 2003). This finding is not restricted to Western cultures, as across 160 cultures, a spouse's infidelity was the most frequently cited cause of breakup (Betzig, 1989). It is important to note that infidelity does not always lead to dissolution of couples; some are able to forgive the transgression and continue the relationship (Abrahamson, Hussain, Khan, & Schofield, 2012). As such, we need a better understanding the psychology of forgiveness following severe transgressions, and few studies have investigated forgiveness of severe transgressions in couples. In the current study we therefore address the novel issue of how couples respond to infidelity vignettes (or scenarios) and what aspects of the relationship influence probability of forgiveness or breakup following emotional and sexual infidelity.

There are individual differences in how people respond to infidelity. The scorned party may selectively choose information about the infidelity that is either threatening or conciliatory to the relationship (Shrout & Weigel, 2019). In turn, such information can affect how they perceive key elements of the transgression, such as the relative role of internal and external causes, and to what extent the transgressor should be held responsible and blamed for what has happened. These processes have been termed 'causal attributions' (Hewstone, 1989). Similarly, relationship satisfaction can affect the attributional process (Fincham, 2000; Fincham & Bradbury, 1987). For example, less satisfied individuals may selectively choose information that is more threatening to the relationship and form more nonbenign attributions that increase the likelihood of relationship dissolution following a partner's infidelity.

As dissolution is not always the outcome following infidelity, the scorned party may try to continue the relationship by forgiving the transgression. Forgiveness has been conceptualised as a transformation from avoidance and revenge motives toward relationship enhancing motives (McCullough et al., 1998; McCullough, Worthington, & Rachal, 1997) and distinctions between the internal, intrapsychic dimension and the external, interpersonal dimension of forgiveness are often made (Baumeister, Exline, & Sommer, 1998). Further, forgiveness is contingent on attribution (Weiner, 1995), and studies indicate that judgment of responsibility and/or blameworthiness, and perceived intentions, seems to influence one's willingness to forgive (McCullough et al., 1998). For low-level relational transgressions, such as sharing a secret

© The Author(s), published by Cambridge University Press on behalf of Australian Academic Press Pty Ltd 2020. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.

entrusted by romantic partner, Boon and Sulsky (1997) found a moderate negative correlation between blame and forgiveness. They suggest that blaming the transgressor predicts less willingness to forgive. However, investigations of forgiveness and blame related to severe transgressions, such as infidelity, remain scarce.

Relationships are less likely to dissolve if transgressions are forgiven (Hall & Fincham, 2006). Further, Hall and Fincham (2006) reported that level of internal forgiveness fully accounted for the association between blaming partner and relationship dissolution. The mediating effect of forgiveness on relationship dissolution is also supported in a recent study on the effect of partner blame and forgiveness after either (1) *hypothetical* sexual infidelity (a vignette describing a scenario), or after (2) *actual* infidelity (emotional, sexual, or both; Shrout & Weigel, 2019). In line with findings from Hall and Fincham (2006), the individuals who made more internal attributions (blaming the transgressor) also reported less forgiveness and more certainty in ending the relationship following the hypothetical sexual infidelity scenario. In actual infidelity cases, participants reported on actual breakup (no/yes) with transgressor. As in the hypothetical scenarios study, a higher proportion of participants who blamed their partner more and who were less forgiving had decided to leave the relationship following the experienced infidelity (but the effect of blame on breakup was accounted for by forgiveness). Despite being hypothetical, the infidelity scenario in Shrout and Weigel (2019) was rated as realistic, and the participants rated the likelihood of breakup following the hypothetical scenario as high. These findings further suggest that the mechanisms that come into play are very similar for hypothetical and actual infidelity.

Shrout and Weigel (2019) did not perform analyses of couples, but only on individuals. As such, the way these processes work for each partner in a committed relationship remains unexamined. In addition, the hypothetical scenario describing infidelity focused solely on sexual infidelity, and the process for emotional infidelity was not investigated. Another study, Friesen et al. (2005), did investigate 39 heterosexual couples reporting on past transgressions that were identified by both partners. Similar to prior studies (e.g., Fincham, 2000; McCullough, 2000), they found that each party's subjective rating of their current relationship quality was independent of blame, and strongly and positively associated with both internal and expressed forgiveness. The positive association between forgiveness and relationship satisfaction has been found in several other studies as well (for a review, see Fehr, Gelfand, & Nag, 2010). Further, the more severe the transgression, the less forgiveness and more blame were expressed by each partner (Friesen et al., 2005). The above associations were similar for men and women. However, Friesen et al. (2005) did not report explicitly on infidelity, as they included past transgressions of any kind recognised by both parties in ongoing relationships. Compared to other forms of transgressions, infidelity is more severe, less likely to be forgiven, and hence potentially more likely to result in breakup. Combining severe transgressions as in Shrout and Weigel (2019) and couple data as in Friesen et al. (2005), we aim to investigate the mechanisms leading to breakup following infidelity within relationships. However, there are sex differences in what kind of infidelity (sexual vs. emotional) people find most distressing, and there might be different mechanisms involved in decisions to dissolve relationships for sexual versus emotional infidelity.

While both women and men find infidelity a major threat to their relationship, there is a relative sex difference in what aspect

of infidelity individuals find most disturbing. Women report being more upset than men about the emotional aspect than about the sexual aspect of the infidelity (e.g., Bendixen, Kennair, & Buss, 2015; Buss, 2013; Buss, Larsen, Westen, & Semmelroth, 1992; Sagarin et al., 2012), and men find it more difficult to forgive sexual infidelity than women (Shackelford, Buss, & Bennett, 2002). From an evolutionary perspective this has been ascribed to the asymmetries between the sexes in parental certainty and parental investment in the joint offspring (Buss, 2013; Sagarin et al., 2012). In a study of coupled students responding to hypothetical infidelity vignettes, women found it harder to express forgiveness than men did, and they wanted to keep more distance after imagining their partner falling in love with someone else as opposed to imagining their partner having sex with them (Bendixen et al., 2018). In addition, men seem to be less concerned about own or partner's emotional infidelity and would both forgive more and expect more forgiveness following infidelity that does not involve sex (Bendixen et al., 2018). While there has been some debate over the use of scenarios for measuring jealousy responses (e.g., Harris, 2003; Sagarin, 2005), sex differences in jealousy are found regardless of real or hypothetical infidelity, study design, and sample characteristics. For instance, Sagarin and colleagues (2012) found no differences when comparing hypothetical infidelity scenario responses with responses to actual infidelity, while Edlund, Heider, Scherer, Farc, and Sagarin (2006) found sex differences in responses to actual infidelity experiences. In a very large dataset, Frederick and Fales (2016) found that sex differences in responses to hypothetical scenarios were not influenced by age, length of relationship, history of infidelity, or history of being cheated on in a large heterosexual sample. Also, sex differences were only found among heterosexuals. Finally, Bendixen et al. (2015) found that history of partner infidelity did not influence jealousy ratings of hypothetical infidelity scenarios, and that continuous and force choice methods provided highly comparable effect sizes. However, few studies that investigate forgiveness have considered sex differences in responses to different types of infidelity — emotional or sexual (see Bendixen et al., 2018; Shackelford, Buss, & Bennett, 2002).

### The Current Study

While sex differences in *levels of distress* to emotional and sexual infidelity, perceived transgression severity (level of threat), forgiveness and breakup have been addressed in prior studies, the underlying psychological *mechanisms* for breakup following infidelity have received scant attention. Clearly missing from the forgiveness literature is an examination of mechanisms that may influence breakup following infidelity, and whether these mechanisms are different for men and women across different types of infidelity. In this study we use data from 92 romantically involved heterosexual couples, specifically examining how current relationship quality, level of threat (i.e., perceived transgression severity), blame (i.e., nonbenign attributions), and likelihood of forgiving one's partner's imagined infidelity affects each partner's likelihood of breaking up. Similar to Shrout and Weigel (2019), we consider the most severe form of transgression, infidelity. However, unlike Shrout and Weigel, the current study will consider sexual and emotional forms of infidelity in separate models using couple data. Our main prediction is that forgiveness will be the primary predictor of breakup, and that the effect of partner blame will be fully mediated by forgiveness (Hall & Fincham,

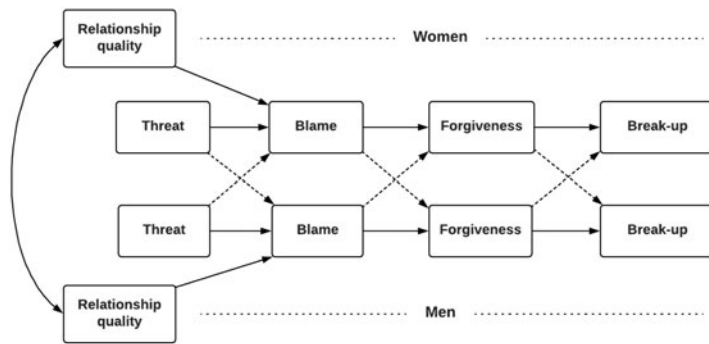


Fig. 1. The tested model for likelihood of relationship breakup.

2006). Friesen et al. (2005) did ask participants to recall transgressions, and the couples participating in the study had been able to work through the problems. As such, there could be an effect on relationship quality and a self-selection bias in the sample, with couples dissolving as a consequence of the transgression not being investigated. But provided there are no studies to our knowledge that have investigated relationship quality in couples prior to transgressions, this is an open question. To the extent that imagined future transgressions activate similar psychological mechanisms as recalled past transgressions, we would expect that relationship quality will be negatively associated with blame and positively with forgiveness also for imagined transgressions. The tested model is outlined in Figure 1.

## Methods

### Design and Participants

We invited romantically involved heterosexual students and their partners to partake in a questionnaire-based, cross-sectional study. The questionnaire focused on various reactions to vignettes describing scenarios of hypothetical partner sexual or emotional infidelity. During recruitment, potential participants were instructed that the study involved couples, and only dyads that considered themselves as exclusive partners could participate. Ninety-two couples were recruited at different campuses of a Norwegian university. Age ranged from 19 to 30 years (women:  $M = 22.0$ ;  $SD = 1.8$ ; men:  $M = 22.9$ ;  $SD = 2.2$ ). We did not ask participants about ethnicity as the sample was from a highly ethnical homogeneous Scandinavian population. Relationship length ranged from 1 month to 9 years ( $M = 21$  months;  $SD = 19$  months), and there was near perfect agreement on relationship length ( $r = .988$ ) within couples.

### Procedure

Study assistants recruited participants on the university campus by flyers handed out that provided a short description of the study and by providing short oral presentations during breaks in lectures. The information included directions to the lab areas where data were collected, and specified that participants needed to be in a committed romantic relationship and that they should bring their partner in order to participate. Upon arrival, couples were given both written and oral information about the study. They then responded to the questionnaire separately in different rooms. After completion, the questionnaires were returned in sealed envelopes. Research assistants were available for questions

during the whole process, including debriefing after completion. Each couple received two cinema tickets at completion.

### Measurements

**Relationship quality.** Following their responses to their sex, age and relationship length, participants provided answers to questions concerning the current relationships quality, which was measured using the 18-items Perceived Relationship Quality Components (PRQC) inventory developed by Fletcher, Simpson, and Thomas (2000). The inventory covers six intercorrelated domains of relationship quality: Satisfaction ('How happy are you in your relationship?'), Commitment ('How dedicated are you in your relationship?'), Intimacy ('How close is your relationship?'), Trust ('How dependable is your partner?'), Passion ('How sexually intense is your relationship?'), and Love ('How much do you cherish your partner?'). For more information on the full inventory see the Appendix in Fletcher et al. (2000). Internal consistency (Cronbach's alpha) for the 18-item scale was excellent for both women ( $\alpha = .89$ ) and men ( $\alpha = .90$ ). Item scores were averaged for each sex.

Following the PRQC inventory, participants read two separate vignettes (scenarios) describing their partner having been (1) sexually unfaithful and (2) emotionally unfaithful (see Appendix for details on the wording used).<sup>1</sup> The vignettes were developed specifically to point out that (a) infidelity had happened, (b) distinct infidelity (sexual or emotional) was clear, (c) the infidelity had been discovered and admitted, and (d) the transgressor shows remorse and apologises. We developed these two vignettes as other similar vignettes (or scenarios) used in studies of jealousy reactions (e.g., Buss et al., 1992; Shrout & Weigel, 2019; Tortoriello & Heart, 2019) did not include one or more of these important aspects of infidelity or forgiveness. Following each infidelity vignette, participants were asked to rate how threatening the transgression would be to their relationship assuming it happened, level of blame (nonbenign attributions), internal forgiveness, and likelihood of a breakup.

**Perceived threat.** Participants were asked 'How threatening or damaging would you consider this being for your relationship?' They rated their perceived level of threat on a 7-point Likert-type scale with anchors 1 (*not at all*) and 7 (*extremely*).

**Blame.** We applied the three nonbenign attribution items from Friesen et al. (2005) to measure partner blame. The items were 'My partner is to blame for what happened', 'My partner's behaviour was motivated by selfish concerns', and 'My partner's

behaviour was intentional and planned'. The participants rated their level of blame on a 7-point Likert-type scale with anchors 1 (*strongly disagree*) and 7 (*strongly agree*). Internal consistency was good and identical for sexual and emotional infidelity (females:  $\alpha = .74$ ; males:  $\alpha = .85$ ). Item scores were averaged for each sex.

**Internal forgiveness.** We translated four items reflecting keeping distance and three items reflecting revenge from the modified version of the Transgression-Related Interpersonal Motivations (TRIM) inventory (McCullough et al., 1998) as described by Friesen et al. (2005). Keeping distance captures conceptually different processes than wanting revenge. While keeping distance involves avoidance (e.g., 'I find it difficult to act warm and kind and I keep as much distance between us as possible'), revenge involves confronting the partner (e.g., 'I want to get even and I want to make my partner pay'). Confirmatory factor analyses structural equation modelling (SEM) demonstrated that a model with two underlying dimensions fit the data far better than a model with one underlying dimension for both the sexual and the emotional infidelity vignette.<sup>2</sup> For these reasons, these two dimensions of forgiveness were treated as separate measures in the analysis. The Likert-type scale used for ratings was identical to those applied for blame. Internal consistency for keeping distance was excellent for both sexual infidelity (females:  $\alpha = .85$ ; males:  $\alpha = .90$ ) and emotional infidelity (females:  $\alpha = .89$ ; males:  $\alpha = .93$ ). Alphas for the three revenge items for sexual infidelity (women:  $\alpha = .66$  and men:  $\alpha = .66$ ), and emotional infidelity (women:  $\alpha = .75$  and men:  $\alpha = .64$ ) were lower. Importantly, item scores were reversed and averaged so that higher scale scores reflect more forgiveness (keeping less distance and wanting less revenge).

**Breakup likelihood.** Finally, each participant rated for each vignette their likelihood of breaking up on a 7-point Likert-type scale with anchors 1 (*very unlikely*) and 7 (*very likely*).

## Analyses

Path analyses were performed on distinguishable dyads using SEM. Couple is the unit of analysis, with  $N$  being equal to the number of dyads. Interdependent data like this need to account for interpersonal correlations to avoid serious biases (Gonzalez & Griffin, 2012). For identifying good-fitting models, the following a priori criteria fit statistics were applied: root mean square error of approximation (RMSEA)  $< 0.06$ , comparative fit index (CFI) and Tucker Lewis index (TLI)  $\geq 0.95$ , and standardised root mean square residual (SRMR)  $< 0.08$  (Hu & Bentler, 1999; Schreiber, Nora, Stage, Barlow, & King, 2006). In addition, we performed path analyses with robust standard errors. Following the advice of Kenny and Ledermann (2010), means, variances, and covariances were included in the models. We also performed direct comparisons of parameters (betas) for women and men (Cook & Kenny, 2005). All statistical tests were performed using Stata/MP 15.1 for Mac (StataCorp, 2017). Mediation analyses were performed using the MEDSEM package in Stata (Mehmetoglu, 2017) that applies Zhao, Lynch, and Chen's (2010) approach to mediation and performs a Monte Carlo test with 5000 replications.

## Results

### Within Couple Difference in Means and Within-Individual Associations

As can be seen from Table 1 and Table 2, both women and men reported very high and equal levels of relationship quality ( $M \geq 6.1$  on a 7-point Likert-type scale). For the sexual infidelity vignette, both sexes reported very high levels of perceived threat following imagined infidelity in their partner ( $M \geq 6.3$ ). There were no sex differences in level of blame, forgiveness (not keeping distance and not wanting revenge), or likelihood of breakup. In comparison, men reported lower levels of threat ( $t = -2.75$ ,  $d = -0.29$ ), more forgiveness (distance:  $t = 3.39$ ,  $d = 0.37$ ), and less likelihood of breakup ( $t = -2.45$ ,  $d = -0.26$ ) than women imagining their partner's *emotional* infidelity. In general, likelihood of forgiveness was relatively low with regard to keeping distance ( $M \approx 3.0$ ), whereas forgiveness as not wanting revenge was relatively high ( $M \approx 5.0$ ) for both vignettes.

Within each couple, men and women agreed moderately on the level of relationship quality ( $r = .40$ ). However, across both types of imagined partner infidelity and for each sex, relationship quality was unrelated to perceived threat, level of blame and forgiveness, and likelihood of breakup. Threat was moderately associated with blame and wanting revenge, and strongly associated with keeping distance. Blame had a somewhat stronger association with keeping distance and wanting revenge when imagining one's partner's *emotional* infidelity ( $r$ s ranging from  $-.34$  to  $-.42$ ) compared to sexual infidelity ( $r$ s ranging from  $-.17$  to  $-.27$ ). Blame and wanting revenge were both moderately associated with breakup, while forgiveness in terms of not keeping one's distance and level of threat evinced particularly strong associations with likelihood of breakup for both infidelity types and both sexes ( $r$ s ranging from  $-.58$  to  $-.68$ ).

### Likelihood of Breakup: Imagining One's Partner's Sexual Infidelity

In the path models, women and men in each pair were treated as distinguishable dyads. Despite the imaginative nature of the infidelity, we allowed for cross-loadings between men and women within each dyad (none were significant). We first tested the outlined model (Figure 1). This model demonstrated poor fit to the data,  $\chi^2(31) = 164.52$ ,  $p < .001$ , RMSEA = 0.218, CFI = 0.521, TLI = 0.073). Relationship quality had no effect on blame or forgiveness (not keeping distance and not wanting revenge) for either sex. For this reason, we omitted relationship quality from the model and let perceived threat be the first predictors allowing for indirect and direct effects on breakup. Blame and level of forgiveness (i.e., keeping *less* distance and wanting *less* revenge) were mediating factors. The residuals for these two dimensions of forgiveness were allowed to correlate within each sex (these were moderately correlated; see Table 1).

The path model for sexual infidelity (Figure 2) suggests that perceived threat clearly increased the likelihood of breakup. Threat was positively associated with blame, but blame did not have a knock-on effect on forgiveness. The pattern of associations was essentially similar for women and men. The model accounted for 57% of the variance of likelihood of breakup for women, and 47% of the variance in likelihood of breakup for men. The model also accounted for a sizeable amount of variance in forgiveness; larger for keeping less distance (women: 41%; men: 36%), but less so for wanting less revenge (women: 12%; men: 14%).

**Table 1.** Zero-Order (Pearson's *r*) Correlations, Means, and Standard Deviations for Women (Upper Panel) and Men (Lower Panel) for the Sexual Infidelity Vignette

Variable	1	2	3	4	5	6
1. Relationship quality	–					
2. Perceived threat	.02	–				
3. Blame	.05	.32*	–			
4. Forgiveness (Distance)	.01	–.64*	–.27*	–		
5. Forgiveness (Revenge)	.02	–.34*	–.17	.41*	–	
6. Breakup	–.15	.64*	.35*	–.68*	–.44*	–
Mean	6.16	6.32	5.10	2.90	4.95	5.45
SD	0.48	0.90	0.92	1.21	1.15	1.59
1. Relationship quality	–					
2. Perceived threat	–.01	–				
3. Blame	.14	.28*	–			
4. Forgiveness (Distance)	–.05	–.60*	–.19	–		
5. Forgiveness (Revenge)	.00	–.33*	–.23*	.45*	–	
6. Breakup	–.03	.62*	.25*	–.56*	–.19	–
Mean	6.12	6.32	5.21	3.13	4.84	5.32
SD	0.50	1.06	0.90	1.47	1.29	1.74

Note: \* $p < .05$ . All variables were measured using 7-point Likert-type scales.

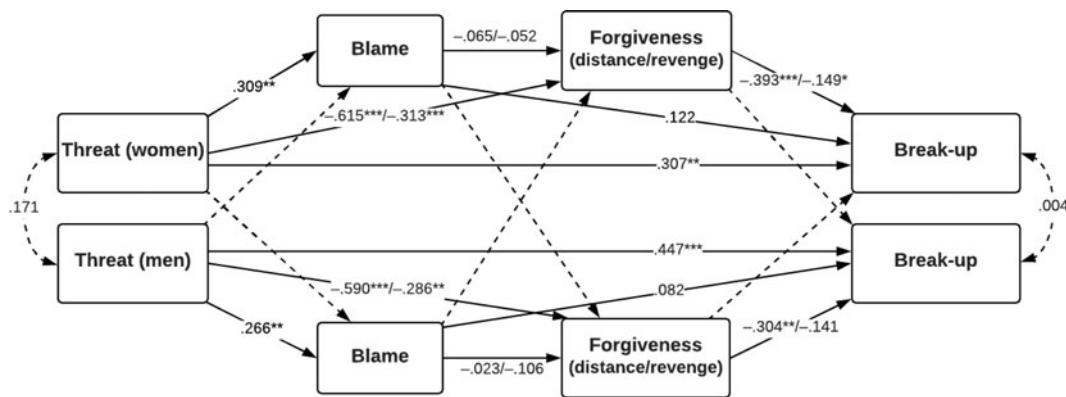
**Table 2.** Zero-Order (Pearson's *r*) Correlations, Means, and Standard Deviations for Women (Upper panel) and Men (Lower Panel) for the Emotional Infidelity Vignette

Variable	1	2	3	4	5	6
1. Relationship quality	–					
2. Perceived threat	.00	–				
3. Blame	.17	.13	–			
4. Forgiveness (Distance)	–.04	–.47*	–.34*	–		
5. Forgiveness (Revenge)	.10	–.23*	–.38*	.37*	–	
6. Breakup	.08	.62*	.27*	–.67*	–.32*	–
Mean	6.16	6.28	5.28	2.80	5.15	5.23
SD	0.48	1.00	1.35	1.44	1.37	1.60
1. Relationship quality	–					
2. Perceived threat	.16	–				
3. Blame	.17	.30*	–			
4. Forgiveness (Distance)	–.06	–.55*	–.42*	–		
5. Forgiveness (Revenge)	.04	–.25*	–.36*	.50*	–	
6. Breakup	.00	.64*	.35*	–.68*	–.39*	–
Mean	6.12	5.85	5.24	3.51	5.15	4.72
SD	0.50	1.17	1.57	1.62	1.29	1.73

Note: \* $p < .05$ . All variables were measured using 7-point Likert-type scales.

Perceived threat was the major predictor of breakup for both sexes. For women, the total effect of threat on breakup was  $\beta = .549$ , but mediation analysis (MEDSEM) suggests that 44% of the total effect of perceived threat on breakup was accounted for by forgiveness, as measured by keeping less distance ( $z = 3.78$ ,  $p < .001$ ; partial mediation). For men, the total effect of threat on

breakup was  $\beta = .627$ . Again, this effect was partly mediated (29%) by keeping less distance ( $z = 2.60$ ,  $p = .009$ ). The level of perceived threat related to one's partner's sexual infidelity seemed to have a more direct effect on breakup for men than for women, but a direct comparison of men and women's threat–breakup paths showed no statistical difference,  $\chi^2(1) = 0.65$ ,  $p = .422$ . In contrast



**Fig. 2.** Likelihood of break-up imagining partner being sexually unfaithful. Standardized path coefficients, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Coefficients are presented separately for the two dimensions of forgiveness (keeping distance before the slash, wanting revenge after the slash). Model fit:  $\chi^2(13) = 25.48$ ,  $p = .020$ , RMSEA = 0.102 [0.040, 0.161],  $p_{close} = .076$ , CFI = 0.954, TLI = 0.844, SRMR = 0.071.

Note: RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI < Tucker Lewis index; SRMR, standardised root mean square residual.

to keeping distance, wanting revenge did not significantly mediate the total effect of perceived threat on breakup for either sex ( $z_{women} = 1.94$ ,  $p = .052$ ;  $z_{men} = -1.29$ ,  $p = .196$ ). Similarly, blame did not affect breakup and did not mediate the effect of perceived threat on breakup for neither sex. Noteworthy, blame was unrelated to both dimensions of forgiveness (keeping less distance and wanting less revenge) in the sexual infidelity vignette. Only two of the four fit indices (CFI and SRMR) met the criteria for a good-fitting model. A trimmed model with blame omitted demonstrated a significantly better fit to the data.

In summary, for the sexual infidelity vignette, perceived threat leads to likelihood of breakup. The effect of perceived threat was partially mediated by a pathway through forgiveness (mainly distancing) and slightly more so for women. Perceived threat also leads to blame, but that does not have a knock-on effect on forgiveness. The path coefficients were not significantly different for men and women within dyads.

### Likelihood of Breakup: Imagining One's Partner's Emotional Infidelity

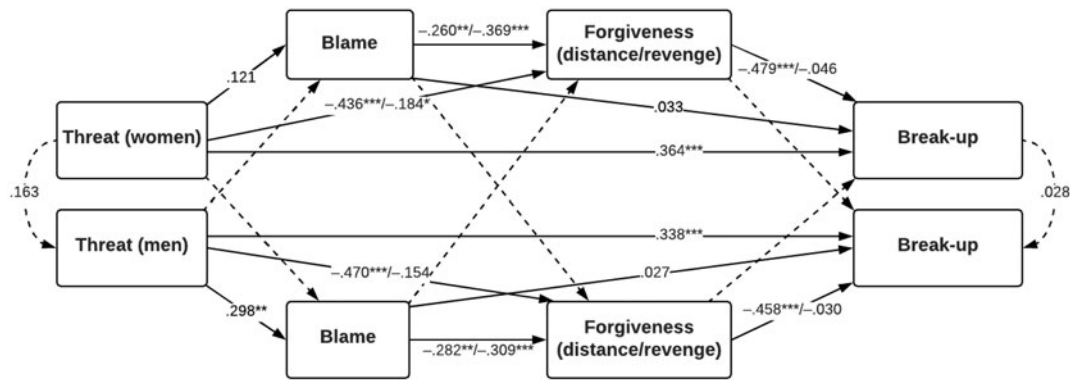
Similar to the sexual infidelity vignette, we first tested the outlined model (Figure 1). This model demonstrated poor fit to the data,  $\chi^2(31) = 136.99$ ,  $p < .001$ , RMSEA = 0.194, CFI = 0.530, TLI = 0.089. Relationship quality had no effect on either blame nor forgiveness for either sex imagining their partner being emotional unfaithful. For this reason, men's and women's reports of relationship quality were omitted as predictors in the remaining analyses, and we tested a model that was identical to the sexual infidelity vignette model (Figure 3). The analysis suggests that higher perceived threat strongly increased the likelihood of breakup when imagining one's partner's emotional infidelity. The total effect (direct and indirect) was substantial ( $\beta_{women} = .604$ ;  $\beta_{men} = .622$ ). Further, forgiveness (keeping less distance) had a strong and direct effect on breakup for men and women. The model accounted for 57% of the variance of likelihood of breakup for women, and 58% of the variance in likelihood of breakup for men. Perceived threat and blame also accounted for a sizeable amount of variance in forgiveness; again, relatively more for the distance dimension (women: 32%; men: 37%) than for the revenge dimension (women: 19%; men: 15%).

The effect of perceived threat on breakup was partially mediated by forgiveness (keeping less distance) for both women,  $z = 3.11$ ,  $p = .002$ , and men,  $z = 2.76$ ,  $p = .006$ . The distance dimension of forgiveness accounted for 37% and 39% of the variance of perceived threat on breakup for women and men respectively. In contrast to the sexual infidelity vignette, blame was significantly associated with forgiveness for men and women. Blame was moderately associated with keeping less distance for both sexes ( $\beta_{women} = -.260$ ,  $\beta_{men} = -.282$ ). The mediation analysis suggests that the effect of blame on breakup was indirect only, and fully mediated by the effect of keeping less distance for both sexes ( $z_{women} = 2.20$ ,  $p = .028$ ;  $z_{men} = 1.96$ ,  $p = .050$ ). The distance dimension of forgiveness accounted for 79% and 83% of the variance of blame on breakup for women and men respectively. Although blame was moderately associated with wanting less revenge for both sexes ( $\beta_{women} = -.369$ ,  $\beta_{men} = -.309$ ), this did not have a knock-on effect on the likelihood of breakup for either men or women in the emotional infidelity vignette. All four fit indices indicate a good-fitting model.

### Discussion

Previous research on transgressions in relationships and forgiveness has either not used couple data nor addressed the most serious kinds of transgression, such as infidelity. The forgiveness literature has also only to a very slight degree been coupled to the extant jealousy literature. By combining couple data with hypothetical emotional and sexual infidelity scenarios, the current study shed light on the psychological processes affecting breakup likelihood. Further, by measuring relationship quality before introducing the vignettes, the measure is not biased by recall of conflict, as could be a potential problem when asking about past transgressions.

Based on the standardised path coefficients, the model for imagined *sexual* infidelity was highly similar for men and women. For both sexes, the likelihood of breakup was directly related to perceived level of threat to the relationship and to lack of internal forgiveness (keeping distance and wanting revenge). The strong effect of perceived threat on breakup was only partly accounted for by keeping distance. Blame was unrelated to dimensions of forgiveness and breakup, and a model



**Fig. 3.** Likelihood of breakup imagining partner being emotionally unfaithful. Standardised path coefficients, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ . Coefficients are presented separately for the two dimensions of forgiveness (keeping distance before the slash, wanting revenge after the slash). Model fit:  $\chi^2(13) = 15.65$ ,  $p = .269$ , RMSEA = 0.047 [0.000, 0.119],  $p_{close} = .472$ , CFI = 0.991, TLI = 0.969, SRMR = 0.055.

Note: RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI < Tucker Lewis index; SRMR, standardised root mean square residual.

omitting blame provided much better fit to the data. Despite sex differences in level of threat, forgiveness, and likelihood of breakup for imagined *emotional* infidelity, the path coefficients were highly similar for men and women. Perceived threat was the major predictor for breakup and the effect of perceived threat on breakup was partly accounted for by keeping distance. The two infidelity models differed somewhat, though. Only when imagining emotional infidelity was blame moderately associated with both dimensions of forgiveness for men and women, but the effect of blame on breakup was fully accounted for by keeping distance. Relationship quality showed no association with blame, forgiveness or breakup for imagined sexual or emotional infidelity for either sex. Unlike Friesen et al. (2005), we analysed the two dimensions of forgiveness separately, as originally suggested by McCullough et al. (1998). The keeping distance and the wanting revenge dimensions of forgiveness were moderately associated, but only the former had any impact on breakup. It might be that wanting revenge reflects a continued emotional tie to the partner, while keeping distance and breaking up are steps along the same dimension of disengaging emotionally from one's partner. Further, in the description of the two vignettes, there was a conceptual difference beyond having had sex and falling in love. There was only one sexual encounter in the sexual infidelity vignette; whereas the emotional infidelity described a scenario of repeated meetings with someone outside of the relationship. Although the level of blame was not higher in the emotional vignette, a repeated, sustained behaviour may be ascribed a different form of volition and deceit than a single, episodic transgression. In the process of making sense of the repeated meetings affair, the attributions for the partner's infidelity may more directly have affected the following forgiveness process. This might explain why attribution of blame was associated with keeping distance only in the emotional vignette. This blame-forgiveness association is in line with number of prior studies that have reported that blame (nonbenign attributions) reduces the likelihood of forgiveness (see Hall & Fincham, 2006, for a review).

In accordance with previous studies, the effect of blame on breakup was fully accounted for by the effect of keeping distance for both sexes. The effect of blame was restricted to the emotional vignette. However, we disagree with Friesen et al. (2005, p. 74) that the associations among the blame, likelihood of forgiveness, and breakup scales possibly reflect general attitudes

toward the relationship. It seems that relationship quality is highly disconnected to the above psychological processes. Further, we believe that differences in study designs between the two studies may help address the differences between our findings and Friesen and colleagues. First, the retrospective nature of Friesen et al.'s study suggests that there might be a greater link between relationship quality and transgression processing; further, they triggered memories of the transgression prior to measuring relationship quality. Since we asked about relationship quality before any other questions in the current study, relationship quality was not influenced by the hypothetical transgressions to the same extent as in Friesen et al. This may explain the disconnect between relationship quality, blame, and forgiveness in this study compared to Friesen et al. Second, our participants considered hypothetical, severe, and probable deal-breaking transgressions, while Friesen et al. considered historical transgressions that had not resulted in couples breaking up. Infidelity is found to be a potent deal-breaker for many relationships (Amato & Previti, 2003; Betzig, 1989); however, all couples in Friesen et al.'s study were intact, possibly because the transgressions were milder in general.

We further found that perceived threat was the major predictor also regardless of type of infidelity. The direct effect of perceived threat on breakup was particularly strong for men in the sexual infidelity vignette. Although the direct path was not significantly different for the two sexes, mediation analyses suggest that a smaller proportion of the total effect of threat was accounted for by forgiveness for men than for women. For men, little else matters when considering breakup than their perception of threat in imagining their partner having sex with another person. This dovetails neatly with the literature on sex differences in jealousy responses; men are more preoccupied with the sexual aspect of the infidelity than women (Bendixen et al., 2015; Buss, 2013). Our findings suggest that other mental processes weigh less for men when facing sexual infidelity.

A clinical application in couple therapy may consider how the perceived threat increases breakup, and address how threat is perceived and whether the threat is experienced by both parties. Further, addressing forgiveness and reducing related behaviours such as specifically keeping distance might be the most efficient intervention. Clinicians might want to focus less on the attributional process (blaming) or even prior relationship quality, based on the current findings.

### Limitations and Future Directions

The cross-sectional nature of this study limits the conclusions one may draw regarding causation. Further, future research needs to reconsider when and how relationship quality influences attributions, forgiveness and breakup following various transgressions. The current findings challenge some of the prior findings that found support for effects of relationship quality, which may be largely a result of the use of vignettes describing hypothetical scenarios. The hypothetical nature of our study design introduces a disconnect between actual dyadic relationship variables, thus the transgression, perception of threat and decision to break up are all hypothetical. Considering future transgressions might elicit mate-guarding tactics that inflate likelihood of preemptive threat (Bendixen et al., 2018). On the other hand, it is difficult to study these processes as research of actual breakup is often retrospective by design. Intact couples might have forgiven successfully, at least to such a degree that the dyad is not dissolved, which may have had a positive effect on relationship quality. Further insights into the predictive effect of relationship quality on the likelihood of breakup following serious transgression such as infidelity in real life would probably need a prospective design.

Our sample consisted mainly of relatively young couples from a highly egalitarian, secular and sexually liberal country (Grøntvedt & Kennair, 2013). It is therefore possible that there is less stigma and hindrance to breakup in our sample compared to more religious, conservative couple samples. Regardless, we expect many of the mechanisms identified in the current study to generalise across cultures and nations, as cross-cultural investigations find infidelity to be one of the leading causes of relationship dissolution (Betzig, 1989).

Regarding methodological issues, the relatively low reliability of the revenge scales and unknown reliability of the single-item measures of threat suggest caution regarding interpreting some of the effects reported. Still, the strength of the associations with other variables in the model underscore the validity of these measures. Finally, as with many questionnaire-based surveys on sensitive topics, social desirability responding might be an issue (e.g., Tourangeau & Yan, 2007). However, this presupposes that there are clear social norms regarding how one is supposed to react to infidelity in one's partner. There is no indication that such norms exist, and it would be hard to evaluate in what direction social desirability concerns would affect the responses, and hence the results.

### Conclusion

Prior studies have documented robust sex differences in jealousy responses to specific types of infidelity (e.g., Bendixen et al., 2015; Buss et al., 1992) and to forgiveness of these (Bendixen et al., 2018; Shackelford et al., 2002). Still, this study suggests that the *mechanisms* involved in forgiveness, perception of threat of infidelity, and breakup seem to be highly similar for both men and women within dyads. This may in part be a product of assortative mating, couples being more similar than random individuals on a personality traits, attitudes, and various preferences. Researchers may want to examine this in future studies. Relationship regulating processes are complex, and several predictors, including sex differences in distress caused by types of infidelity and threat factor in this.

The current article expanded on Friesen et al. (2005) and Shrout and Weigel (2019) by considering couple data and specific types of infidelity, albeit hypothetical. Further, we focused on likelihood of

breakup, not just forgiveness. Also, by including two different types of infidelity, we are able to identify that while the processes are quite similar for the two sexes, there seem to be important differences in the mechanisms involved in processing the emotional and sexual vignette. Maybe the increased effect of blame for the emotional vignette is because of the repetitive nature of that transgression. Finally, by measuring relationship quality *before* introducing the transgressions — unlike Friesen et al. (2005) — we have not contaminated the scores; and in the current study, relationship quality was not associated with how one responded to infidelity. The current findings aid in differentiating the psychological mechanisms of different types of infidelity concerning threat perception, blame attribution, and breakup likelihood.

**Acknowledgments.** The authors thank Kyrre Svarva at the IT section at Norwegian University of Science and Technology (NTNU) for formatting machine-readable questionnaires and for his assistance in scanning the data. We acknowledge the assistance of students in the Bachelor Program in Psychology at NTNU for their recruitment of participants and scanning of data. We also thank Andrew Thomas for valuable and insightful comments on an earlier draft of this manuscript.

**Financial support.** This research received no specific grant from any funding agency, commercial or not-for-profit sectors

**Conflict of interest.** None.

**Ethics statement.** The study was carried out in line with the American Psychological Association's ethical principles of psychologists and code of conduct. Prior to the data collection, the Norwegian data protection agency (Personvernombudet, NSD) was consulted. Any formal notification of the research was deemed unnecessary. All project assistants signed a confidentiality form.

**Data Transparency Statement (Multiple uses of data collected from the same sample).** The data reported in this manuscript have been previously published and/or were collected as part of a larger data collection on student couples' relationship quality, reactions to infidelity, and sexual behaviour during spring semester 2016. Findings from the data collection have been reported in two separate manuscripts (MS): MS 1 (Bendixen, Kennair, & Grøntvedt, 2018) focused on negative biases in forgiveness in couples following imagined infidelity. The paper also reports on sex differences in level of perceived threat, forgiveness, and breakup for imagined sexual versus emotional infidelity. MS 2 (Grøntvedt, Kennair, & Bendixen, 2019) focuses on how couples' frequency of intercourse relates to various aspects of relationship quality, length of relationship, and sociosexual orientation.

### Endnotes

<sup>1</sup> They also reported on their own imagined infidelity in separate vignettes that described own sexual and emotional infidelity similar to that of their partner.

<sup>2</sup> Model Sexual (one dimension):  $\chi^2(76) = 138.18$ ,  $p = .001$ , RMSEA = 0.095, CFI = 0.884, TLI = 0.862. Model Sexual (two dimensions):  $\chi^2(75) = 90.76$ ,  $p = .104$ , RMSEA = 0.048, CFI = 0.971, TLI = 0.964. Model Emotional (one dimension):  $\chi^2(76) = 168.87$ ,  $p = .001$ , RMSEA = 0.116, CFI = 0.871, TLI = 0.845. Model Emotional (two dimensions):  $\chi^2(75) = 91.48$ ,  $p = .095$ , RMSEA = 0.049, CFI = 0.977, TLI = 0.972.

### References

- Abrahamson, I., Hussain, R., Khan, A., & Schofield, M.J. (2012). What helps couples rebuild their relationship after infidelity? *Journal of Family Issues*, 33, 1494–1519.
- Amato, P.R., & Previti, D. (2003). People's reasons for divorcing: Gender, social class, the life course, and adjustment. *Journal of Family Issues*, 24, 602–626.



- Baumeister, R.F., Exline, J.J., & Sommer, K.L. (1998). The victim role, grudge theory, and two dimensions of forgiveness. In E.L. Worthington, Jr. (Ed.), *Dimensions of forgiveness: Psychological research & theological perspectives* (pp. 79–104). Philadelphia, PA: Templeton Foundation Press.
- Bendixen, M., Kennair, L.E.O., & Buss, D.M. (2015). Jealousy: Evidence of strong sex differences using both forced choice and continuous measure paradigms. *Personality and Individual Differences*, *86*, 212–216.
- Bendixen, M., Kennair, L.E.O., & Grøntvedt, T.V. (2018). Forgiving the unforgivable: Couples' forgiveness and expected forgiveness of emotional and sexual infidelity from an error management theory perspective. *Evolutionary Behavioral Sciences*, *12*, 322–335.
- Betzig, L. (1989). Causes of conjugal dissolution: A cross-cultural study. *Current Anthropology*, *30*, 654–676.
- Boon, S.D., & Sulsky, L.M. (1997). Attributions of blame and forgiveness in romantic relationships: A policy-capturing study. *Journal of Social Behavior and Personality*, *12*, 19–44.
- Buss, D.M. (2013). Sexual jealousy. *Psychological Topics*, *22*, 155–182.
- Buss, D.M., Larsen, R.J., Westen, D., & Semmelroth, J. (1992). Sex differences in jealousy: Evolution, physiology, and psychology. *Psychological Science*, *3*, 251–256.
- Cook, W.L., & Kenny, D.A. (2005). The actor–partner interdependence model: A model of bidirectional effects in developmental studies. *International Journal of Behavioral Development*, *29*, 101–109.
- Edlund, J.E., Heider, J.D., Scherer, C.R., Farc, M.-M., & Sagarin, B.J. (2006). Sex differences in jealousy in response to actual infidelity. *Evolutionary Psychology*, *4*, 462–470.
- Fehr, R., Gelfand, M.J., & Nag, M. (2010). The road to forgiveness: A meta-analytic synthesis of its situational and dispositional correlates. *Psychological Bulletin*, *136*, 894–914.
- Fincham, F.D. (2000). The kiss of the porcupines: From attributing responsibility to forgiving. *Personal Relationships*, *7*, 1–23.
- Fincham, F.D., & Bradbury, T.N. (1987). The impact of attributions in marriage: A longitudinal analysis. *Journal of Personality and Social Psychology*, *53*, 510–517.
- Fletcher, G.J.O., Simpson, J.A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin*, *26*, 340–354.
- Frederick, D.A., & Fales, M.R. (2016). Upset over sexual versus emotional infidelity among gay, lesbian, bisexual, and heterosexual adults. *Archives of Sexual Behavior*, *45*, 175–191.
- Friesen, M.D., Fletcher, G.J.O., & Overall, N.C. (2005). A dyadic assessment of forgiveness in intimate relationships. *Personal Relationships*, *12*, 61–77.
- Gonzalez, R., & Griffin, D. (2012). Dyadic data analyses. In H.M. Cooper, P.M. Camic, D.L. Long, A.T. Panter, D. Rindskopf, & K.J. Sher (Eds.), *APA handbook of research methods in psychology, Vol 3: Data analysis and research publications* (pp. 439–450). Washington DC: American Psychological Association.
- Grøntvedt, T.V., & Kennair, L.E.O. (2013). Age preferences in a gender egalitarian society. *Journal of Social, Evolutionary, and Cultural Psychology*, *7*, 239–249.
- Grøntvedt, T.V., Kennair, L.E.O., & Bendixen, M. (2019). How intercourse frequency is affected by relationship length, relationship quality, and sexual strategies using couple data. *Evolutionary Behavioral Sciences*, *14*, 147–159.
- Hall, J.H., & Fincham, F.D. (2006). Relationship dissolution following infidelity: The roles of attributions and forgiveness. *Journal of Social and Clinical Psychology*, *25*, 508–522.
- Harris, C.R. (2003). A review of sex differences in sexual jealousy, including self-report data, psychophysiological responses, interpersonal violence, and morbid jealousy. *Personality and Social Psychology Review*, *7*, 102–128.
- Hewstone, M. (1989). *Causal attribution: From cognitive processes to collective beliefs*. Oxford, UK: Blackwell Publishers.
- Hu, L.T., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, *6*, 1–55.
- Kenny, D.A., & Ledermann, T. (2010). Detecting, measuring, and testing dyadic patterns in the actor–partner interdependence model. *Journal of Family Psychology*, *24*, 359–366.
- McCullough, M.E. (2000). Forgiveness as human strength: Theory, measurement, and links to well-being. *Journal of Social and Clinical Psychology*, *9*, 43–55.
- McCullough, M.E., Rachal, K.C., Sandage, S.J., Worthington, E.L., Jr., Brown, S.W., & Hight, T.L. (1998). Interpersonal forgiving in close relationships: II. Theoretical elaboration and measurement. *Journal of Personality and Social Psychology*, *75*, 1586–1603.
- McCullough, M.E., Worthington Jr, E.L., & Rachal, K.C. (1997). Interpersonal forgiving in close relationships. *Journal of Personality and Social Psychology*, *73*, 321–336.
- Mehmetoglu, M. (2017). Medsem: Stata module to perform mediation analysis using structural equation modelling (Version S458300): Boston College Department of Economics. <https://ideas.repec.org/c/boc/bocode/s458300.html>
- Sagarin, B.J. (2005). Reconsidering evolved sex differences in jealousy: Comment on Harris (2003). *Personality and Social Psychology Review*, *9*, 62–75.
- Sagarin, B.J., Martin, A.L., Coutinho, S.A., Edlund, J.E., Patel, L., Skowronski, J.J., & Zengel, B. (2012). Sex differences in jealousy: A meta-analytic examination. *Evolution and Human Behavior*, *33*, 595–614.
- Schreiber, J.B., Nora, A., Stage, F.K., Barlow, E.A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research*, *99*, 323–338.
- Shackelford, T.K., Buss, D.M., & Bennett, K. (2002). Forgiveness or breakup: Sex differences in responses to a partner's infidelity. *Cognition and Emotion*, *16*, 299–307.
- Sheldon, P., Gilchrist-Petty, E., & Lessley, J.A. (2014). You did what? The relationship between forgiveness tendency, communication of forgiveness, and relationship satisfaction in married and dating couples. *Communication Reports*, *27*, 78–90.
- Shrout, M.R., & Weigel, D.J. (2019). 'Should I stay or should I go?' Understanding the noninvolved partner's decision-making process following infidelity. *Journal of Social and Personal Relationships*, *36*, 400–420.
- StataCorp. (2017). Stata statistical software: Release 15. College Station, TX: StataCorp LLC
- Tortoriello, G.K., & Hart, W. (2019). Modeling the interplay between narcissism, relational motives, and jealousy-induced responses to infidelity threat. *Journal of Social and Personal Relationships*, *36*, 2156–2179.
- Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, *133*, 859–883.
- Weiner, B. (1995). *Judgments of responsibility: A foundation for a theory of social conduct*. New York, NY: Guilford Press
- Zhao, X., Lynch, J.G.J., & Chen, Q. (2010). Reconsidering Baron and Kenny: Myths and truths about mediation analysis. *Journal of Consumer Research*, *37*, 197–206.

## Appendix

### Vignette Scenario 1. Your Partner's Sexual Infidelity

Imagine that your partner met someone at a party. S/he felt a strong attraction to this person, and they danced intimately and flirted throughout the evening. You were not present but learnt through mutual friends a few weeks later that your partner slept with this person that night. This makes you very upset and you confront your partner with this. After being pressured and cornered your partner admits that s/he had sex that night, *but that s/he were not in love*. Your partner shows remorse, apologises, and promises that it will never happen again.

### Vignette Scenario 2. Your Partner's Emotional Infidelity

Imagine that your partner met someone at a party. S/he felt a strong attraction to this person, and they danced intimately and flirted throughout the evening. You were not present but learnt through mutual friends a few weeks later that your partner has met this person several times since the party, and that it looks like s/he has fallen in love. This makes you very upset and you confront your partner with this. After being pressured and cornered your partner admits that s/he has met this person secretly, *but that they have not had sex*. Your partner shows remorse, apologises, and promises to break all contact.