Hostile attribution bias and psychological distress as predictors of relationship (dis)satisfaction

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Abstract:

Relationship satisfaction is a central component of general life satisfaction and therefore understanding what factors affect it, either positively or negatively, is important. Past studies have suggested that cognitive factors, particularly certain attribution patterns, are useful predictors of relationship dissatisfaction. Another risk factor for relationship dissatisfaction also associated with attributional biases is psychological distress. Past studies on relationship satisfaction have mainly explored relationship-specific attribution patterns however, leaving it unclear whether general patterns are relevant as well. Hostile attribution bias (HAB) is a general cognitive bias characterized by a tendency to misinterpret other's motives as hostile. The aim of this study was, therefore, to explore the cross-sectional and longitudinal associations (within a 5-year time span) between HAB, psychological distress, and relationship dissatisfaction. Two path analysis models were created to explore these associations, one cross-sectional ($N = 2175$) and one longitudinal ($n = 711$), with both samples taken from a population-based sample of Finnish female twins and their sisters. HAB was shown to have cross-sectional associations with relationship dissatisfaction and with psychological distress. HAB also predicted relationship dissatisfaction and psychological distress 5 years later. No association between HAB and relationship termination was found, suggesting termination may be caused by other factors. Finally, even though psychological distress and relationship satisfaction were correlated cross-sectionally, psychological distress did not predict later relationship satisfaction or vice versa, which contradicts past findings. The findings indicate that even general (not relationship-specific) hostile attribution processes are relevant in understanding relationship satisfaction, which could have implications for couple therapy practices.

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Abstrakt:

Tillfredställelse med parförhållande är en viktig komponent av allmän livstillfredställelse och därmed är det viktigt att förstå vilka faktorer som påverkar det. Tidigare forskning har tytt på att kognitiva faktorer, särskilt vissa attributionsmönster, kunde vara användbara prediktorer av tillfredställelse med parförhållandet. En annan riskfaktor för låg tillfredställelse med parförållandet är psykisk ohälsa. Tidigare studier har huvudsakligen utforskat hur parförhållandespecifika attributionsmönster påverkar förhållandet, vilket har lämnat det oklart huruvida allmänna attributionsmönster också är relevanta. Fientlig attributionsbias (HAB) är en kognitiv bias som kännetecknas av en tendens att tolka andras motiv som hotande. Syftet med denna studie var att utforska det tvärsnittliga och longitudinella associationerna (inom ett femårs span) mellan HAB, tillfredställelse med parförhållandet och psykisk ohälsa. Två stiganalysmodeller skapades för att utforska dessa associationer, en tvärsnittlig modell (N=2175) och en longitudinell modell (*n*=711). Båda samplen togs från en populationsbaserad studie om finska kvinnliga tvillingar och deras systrar. HAB visade sig ha tvärsnittliga associationer med både tillfredställelse med parförhållandet och psykisk ohälsa. HAB predicerade även tillfredställelse med parförhållandet och psykisk ohälsa fem år senare. Samband mellan HAB och upphörande av parförhållandet hittades inte, vilket tyder på att det orsakas av andra faktorer. Avslutningsvis predicerade psykisk ohälsa inte longitudinellt tillfredställelse eller vice versa, trots att de hade ett tvärsnittligt samband, vilket bestrider tidigare studiers resultat. Dessa fynd typer på att även allmänna (inte förhållandespecifika) fientliga attributionsprocesser är relevanta för att förstå tillfredställelse med parförhållandet, vilket har implikationer för praxis inom parterapier.

Nyckelord: Fientlig attributionsbias, tillfredställelse med parförhållande, psykisk ohälsa, longitudinella associationer, social informationsprocesseringsteori, ångest, depression	
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Jannik Andelin

Introduction

Interpersonal relationships play a vital role in shaping the quality of peoples' lives and few do so more so than intimate relationships. People in intimate relationships tend to report greater overall well-being than people who are not (Dush & Amato, 2005; Kim & McKenry, 2002; Soons, Liefbroer & Kalmijn, 2009) and high relationship satisfaction has been associated with benefits such as greater life satisfaction (Carr, Freedman, Cornman & Schwarz, 2014; Proulx, Helms & Buehler, 2007), higher sexual satisfaction (McNulty, Wenner & Fisher 2016), health benefits such as improved blood pressure and lowered risk of mortality (Holt-Lunstad, Birmingham & Jones, 2008; Robles, Slatcher, Trombello & McGinn, 2014) as well as greater resilience toward distress (Røsand, Slinning, Eberhard-Gran & Tambs, 2012).

However, not all are satisfied with their relationship. According to the 2008 National Survey of Married Couples (Olson, Olson-Sigg & Larson, 2008) approximately 41% of couples report being unhappy with their marriage. In contrast to the multiple benefits of high relationship satisfaction, low relationship satisfaction has been associated with a number of negative outcomes, including lower life satisfaction (Ruvolo, 1998), greater risk for depression (Hollist, Miller, Falceto & Fernandes, 2007), higher levels of stress (Bodenmann, Ledermann & Bradbury, 2007; Randall & Bodenmann, 2009) and lower levels of overall health (Hawkins & Booth, 2005). Because relationship satisfaction seems to be a significant factor in determining a relationship's effect on personal well-being, identifying factors that predict relationship satisfaction has been an area of great interest within relationship research.

Previous studies have identified a plethora of factors that predict both high and low relationship satisfaction. Factors such as experience of trust (Anderson & Emmers-Sommer, 2006; Atta, Adil, Shujja & Shakir, 2013), high sexual satisfaction (Fallis, Rehman, Woody & Purdon, 2016) and physical affection (Jakubiak & Feeney, 2017) have been found to be predictive of high relationship satisfaction. By contrast, factors like low socioeconomic status (Dakin & Wampler, 2008; Maisel & Karney, 2012), childhood maltreatment (DiLillo et al., 2009; Peterson, Peugh,

Loucks & Shaffer, 2018) and lack of constructive communication in the relationship (Trillingsgaard, Baucom & Heyman, 2014) are predictive of low relationships satisfaction. Beyond these factors, psychological distress in the form of depression and anxiety has been identified as having a corrosive effect on relationship satisfaction (Caughlin, Huston & Houts, 2000; Kronmüller et al., 2011; Whisman, Uebelacker & Weinstock, 2004). Depression has been found to have a longitudinal bidirectional predictive association with relationship satisfaction, where higher levels of depression are predictive of lower levels of relationship satisfaction at future points and vice versa (Davila, Karney, Hall & Bradbury, 2003; Mamun et al., 2009; Whisman & Uebelacker, 2009). Similar findings have been found for neuroticism, a personality trait characterized by recurrent feelings of anxiety, where higher levels of neuroticism have been associated with lower ratings of relationship satisfaction in cross-sectional and longitudinal studies alike (Heidari & Latifnejad, 2010; Lavee & Ben-Ari, 2004; Malouff, Thorsteinsson, Schutte, Bhullar & Rooke, 2010; McLeod, 1994; Rogge, Bradbury, Hahlweg, Engl & Thurmaier, 2006). These findings suggest that psychological distress plays an important role in understanding relationship satisfaction, particularly when relationship satisfaction is low.

With these findings in mind, focus has increasingly shifted from pinpointing predictive factors to understanding why these factors have predictive value. As researchers have explored how certain factors, such as psychological distress, exert their influence on relationship satisfaction, the role of cognitive processes has become increasingly emphasized. For example, a study by Heene, Byusse and van Oost (2005) found that attribution, the cognitive process of interpreting the causes for actions and behaviors, mediated the negative effect of depression on relationship satisfaction. In a similar vein, Finn, Mitte and Neyer (2013) found that a relationship-specific interpretation bias mediated the negative effect of neuroticism on relationship satisfaction. In addition, the tendency to overtly focus on negative or threatening stimuli is a common characteristic of both anxiety and depression (Cisler & Koster, 2010; Peckham, McHugh & Otto, 2010) and there is some evidence suggesting that certain attributional patterns, such as attributing negative events to oneself or interpreting the behavior of others as hostile in intent, is also associated with higher levels of psychological distress (Ellison, Kouros, Papp & Cummings, 2016; Muris, Schmidt, Lambrichs, & Meesters, 2001; Smith, Summers, Dillon,

Macatee & Cougle, 2016). In light of these findings, it could be hypothesized that cognitive biases related to processing of social information, such as a tendency to misinterpret relationship events in an overtly negative or hostile manner, would be associated with both some of the predictive factors of relationship dissatisfaction (such as psychological distress) as well as with relationship satisfaction itself. For example, a spouse might interpret a partner being unusually quiet as a sign that they are mad or upset, even if that is not the case. This misinterpretation of the partner's social cues might lead the spouse to react in a negative manner (e.g., get mad or sad and withdrawn) which in turn might lower the spouse's experienced satisfaction with the relationship. Furthermore, the negative or hostile behavior caused by this misinterpretation might lead the partner to also react in a negative or hostile manner, potentially perpetuating a vicious cycle of misunderstanding that might lower both parties' satisfaction with the relationship. Considering this, further research into how a person's cognitive patterns affect his or her relationship satisfaction is warranted.

Attributional patterns and relationships satisfaction

One particular model that might be useful in the study of cognitive patterns and relationship satisfaction is the Social Information Processing model (SIP, Crick & Dodge, 1994), which proposes that interpersonal behavior is affected by a multi-step processing of social cues and that maladaptive behaviors are a result of biased processing of said cues. This process is theorized to occur in six steps, during which a person encodes cues in a situation, interprets meaning from these cues, decides what his/her goal in the situation is, contemplates different forms of response, chooses one and enacts that response. Though originally created to explain the interpretational and behavioral patterns of children, SIP has been shown to be a useful model for explaining various maladaptive adult behaviors as well, particularly ones pertaining to aggression (Bailey & Ostrov, 2008; Chen, Coccaro & Jacobson, 2012). The interpretation of social cues and information (i.e., attribution), has consistently been identified as an important mechanism in the processing of social information. While attribution as a process has mostly been studied in terms of its connection to aggression within the SIP model, the manner in which people interpret the social cues of others is one of the most extensively studied cognitive factors related to relationship satisfaction.

The connection between attributional patterns and relationship satisfaction was first investigated by a number of studies conducted in the 1980s (see Bradbury & Fincham, 1990 for a review) which found that the tendency to interpret a partner's behavior as more negative in intent was more common among spouses experiencing marital distress than among spouses who were not. This connection was further explored in a longitudinal study conducted by Fincham and Bradbury (1987), in which hierarchical regression analyses were used to explore whether relationship satisfaction and negative relationship-specific attributional patterns predicted one another over the course of 10-12 months. The results of the study revealed that attributional patterns did significantly predict later relationship satisfaction (though only for women), while relationship satisfaction did not significantly predict later attributional patterns. These results were replicated by a later study, also by Fincham and Bradbury (1993), which further showed that this connection was not explained by depression. Furthermore, this study clarified the specific attributional style that was associated with marital distress as "maladaptive attribution", in which a spouse interprets a partner's negative relational behaviors as intentional and characteristic of said spouse (e.g. "She wouldn't have sex with me because she's trying to get back at me for what I said at the party. Typical her."), while positive relational behaviors are seen as circumstantial and uncharacteristic of the spouse (e.g. "He only brought me flowers because his friends are buying gifts for their wives"). The association between this type of attributional style and relationship dissatisfaction has been further supported by both cross-sectional studies (Graham & Conoley, 2006; Karney, Bradbury, Fincham & Sullivan, 1994) and a longitudinal study (Fincham, Harold & Garo-Phillips, 2000). Taken together, these studies suggest that certain attributional patterns in a relationship can negatively influence an individual's satisfaction with said relationship.

However, while the results from previous research on attributional patterns and relationship satisfaction are promising, there remain queries in the field that have gone unexplored. Many of the abovementioned studies have relied on a measure known as Relationship Attribution Measure (RAM, Fincham & Bradbury, 1992), which measures attributional patterns by asking the participant to determine the most likely explanation for a partner's explicitly negative behavior (e.g. *"your husband criticizes something you say"*). Because of this form of measurement, the RAM only

captures a person's attributional pattern as it pertains to the relationship, not their general attributional patterns. This leaves it unclear whether a person's attributions for negative relationship events are solely limited to that one relationship or whether they are an expression of more general attributional patterns. The reason this distinction is important is that if a general tendency to misattribute another person's intent were to affect relationship satisfaction, it seems reasonable to assume that that effect could carry over to other relationships as well. Exploring this line of inquiry is of interest as it could have substantial implications for our understanding of how attributions in relationships should be addressed in, for example, couples therapy; not simply as a flaw in the interaction between partners but also as an expression of individual biases. Therefore, exploring how a person's general attributional patterns affect relationship satisfaction is warranted.

Another related knowledge gap left by past studies is that they have only explored how attributions for explicitly negative partner behaviors (e.g. getting ignored by one's partner) affect relationship satisfaction. However, not all relationship events are this explicit and there are several relationship behaviors that are ambiguous in nature (e.g. one's partner choosing to spend an evening with their friends rather than with their partner). In order to understand the full extent to which a person's attribution style affects relationship satisfaction, it is central to also explore how they interpret situations where another's motive is ambiguous and prone to interpretation.

Finally, a mention of sample size is in order. The aforementioned studies on relationship satisfaction and attributional processes have usually researched couples, with samples stretching from as few as 39 couples (Fincham & Bradbury, 1987) to upwards of 130 couples (Fincham, Harold & Garo-Phillips, 2000), giving a total sample size of 78 and 260 individuals respectively. While perfectly serviceable for their respective analyses, these sample sizes do leave the studies with fairly low statistical power and therefore warrant studies that explore whether the patterns they identified are present in larger samples as well.

Hostile attribution bias

A specific cognitive bias that has garnered attention from researchers interested in interpersonal relations is hostile attribution bias (HAB), which is a

tendency to interpret the behaviors of others as hostile in intent, even when the situations themselves are ambiguous or even benign (Dodge & Milich, 1984; Crick & Dodge, 1994). Based upon the six-step SIP model, this bias is believed to affect the second step of social information processing, the interpretation of cues (Crick & Dodge, 1994). Studies have shown that people with higher reported HAB tend to interpret various sorts of social information as more hostile than people with lower HAB, including the interpretation of facial expressions (Schönenberg & Jusyte, 2014) and the motives of other people's actions (Yeager, Miu, Powers & Dweck, 2013). The consequences of the distorted interpretation pattern of HAB are generally negative, as it has been associated with several negative behaviors and outcomes in adults, with aggression being the most extensively studied of these (see Tuente, Bogaerts & Veling, 2019 for a review). HAB has been associated with various aggressive responses, including physical aggression, such as intimate partner violence (Finkel, 2007; Fite et al., 2008) and relational aggression, such as rumor-spreading (Bailey & Ostrov, 2008). Furthermore, a number of studies have found an association between hostile interpretations of ambiguous situations characteristic of HAB and increased rates of psychological distress, in the form of both depression (Everaert, Podina & Koster, 2017; Lee, Mathews, Shergill & Yiend, 2016; Smith et al., 2016) and anxiety (Amir, Beard & Bower, 2005; Kanai, Sasagawa, Chen, Shimada & Sakano, 2010). However, though the association between HAB and a number of relation-related negative responses have been explored, the association between HAB and relationship satisfaction has not. Considering the fact that various past studies have identified attributional styles as a relevant component in understanding low relationship satisfaction in conjunction with the fact that HAB has been associated with a number of negative behavioral outcomes in adults, it could be hypothesized that HAB would be associated with low relationship satisfaction. One hypothetical way in which this might occur is that a person that tends to make hostile attributions about his/her partner's behavior (e.g. interpreting the partner's unusual silence to be a sign that he/she wants to make me feel insecure) will interpret the relationship's quality as lower, even if that is not the case. Another possibility is that a person misattributing his/her partner's behavior in this hostile manner might prompt that person to react to the perceived hostility in a negative manner (e.g. by getting angry), which might lead to strife that does in fact lower the relationship's quality. To the best of my and my colleagues' knowledge, this is the first study to

investigate the potential association between HAB and relationship satisfaction, while also taking into account potential associations with psychological distress.

Hypotheses and purpose of study

The purpose of this study was to expand the knowledge concerning the relationship between attributions and relationship satisfaction by using a large sample of women to explore the cross-sectional as well as longitudinal associations between HAB and relationship satisfaction over a five-year span, while also taking into account the influence of psychological distress. Based on earlier findings, the following hypotheses were formulated:

1. There is a negative cross-sectional association between HAB and relationship satisfaction;
2. HAB has a longitudinal negative effect on relationship satisfaction that is not accounted for by psychological distress;
3. HAB predicts positively whether a person ends their relationship
4. There is a positive cross-sectional association between HAB and psychological distress;
5. HAB has a longitudinal positive effect on psychological distress when accounting for relationship satisfaction;
6. There is a negative cross-sectional association between relationship satisfaction and psychological distress;
7. There is a bidirectional longitudinal effect between psychological distress and relationship satisfaction, so that high psychological distress predicts lower relationship satisfaction and vice versa.

Method

Participants

The sample for the present study were collected by the Finnish population-based Genetics of Sexuality and Aggression (GSA) project. The GSA project has to date conducted three data collections of women: the original data collection in 2006, a follow-up in 2013 and a second follow-up in 2018. The data collection conducted in 2006 targeted all Finnish-speaking twins aged 18-33 years and their siblings of at least 18 years of age, residing in Finland at the time of data collection (for a detailed description of the sample, see Johansson et al., 2013). Out of the 6200 women who responded to the 2006 survey, 5197 indicated willingness to be contacted again in the future for additional data collections. A total of 2175 of these women completed the 2013 follow-up online questionnaire, resulting in a response rate of 41.85 %. The 2175 women who participated in the 2013 follow-up were further contacted in 2018 to partake in the second follow-up (the data collection started in the autumn of 2018 and ended in January 2019). Out of these women, 1301 completed the 2018 follow-up questionnaire, resulting in a response rate of 59.82%. An ethical research permit was obtained for all data collections from the Board of Research Ethics at the Åbo Akademi University, in accordance with the Helsinki Declaration. Written informed consents from the participants were obtained at all three data collections.

The present study was based on two main analyses. The sample for the first analysis consisted of the 2175 women who participated in the GSA data collection conducted in 2013 (mean age 33.24 years, $SD = 6.43$). Four participants were excluded from the analyses due to missing data on relevant variables. For the second analysis, only women who participated in both the GSA 2013 data collection (mean age 33.37; $SD = 5.00$) and the follow-up conducted in 2018 (mean age 38.81 years; $SD = 4.99$) were included. Furthermore, in order to enable assessment of changes in relationship satisfaction, only participants who had stayed in the same relationship during both data collections were included. The final sample for this part of the analysis consisted of 711 women. It should be noted that the GSA project does include men as well, but the 2013 follow-up that included HAB as a variable only included women. Because of this, male participants in the GSA project did not have data on HAB and were consequently excluded from this study.

Measures

Hostile attribution bias

Hostile attribution bias (HAB) was assessed using the Social Information Processing–Attribution and Emotional Response Questionnaire (SIP–AEQ; Coccaro. Noblett, McCloskley, 2009). The questionnaire contains eight vignettes depicting socially ambiguous situations towards the participant, which are either classified as direct aggression (e.g., *someone hits you*) or relational aggression (e.g., *someone rejects you*). Each vignette (e.g., "*Why do you think s/he bumped your arm making you spill your coffee?*") has four different statements that describe possible motives behind the action: hostile intent (e.g. "*S/he wanted to burn me with the hot coffee*"), indirect hostile intent (e.g. "*S/he wanted to make me look bad to the customer*"), instrumental non-hostile intent (e.g. "*S/he was focused on the meeting*") and neutral or benign intent (e.g. "*S/he did this by accident*"). Each statement is rated on a Likert-type scale from 1 to 4 (1 meaning "*not likely at all*" and 4 meaning "*very likely*"). Information about HAB was collected in 2013. A mean composite score was calculated based on ratings of the response options measuring hostile intent and the response options measuring indirect hostile intent (measures of HAB), and used in the analyses. The internal consistency for the current sample was good (Cronbach's α = .88). The questionnaire has shown both good discriminant and convergent validity, as well as good internal reliability (Coccaro et al., 2009).

Relationship satisfaction

A shortened six-item version of the Perceived Relationship Quality Components (PRQC; Fletcher, Simpson & Thomas 2000) was used to assess relationship satisfaction. The PRQC is a Likert-format questionnaire that measures six facets of the current relationship's quality: satisfaction ("*how satisfied are you with your relationship*"); commitment ("*how committed are you to your relationship*"); intimacy ("*how intimate is your relationship*"); trust ("*how much do you trust your partner*"); passion ("*how passionate is your relationship*"); and love ("*how much do you love your partner*"). Each statement is rated on a scale from 1 to 7 (1 meaning "*not at all*" and 7 meaning "*extremely*"). Information about relationship satisfaction was collected in 2013 and 2018. A mean composite score for the six

items was calculated for both 2013 and 2018 and used in the analyses. The internal consistency for the current samples was excellent (2013: Cronbach's α = .90; 2018: Cronbach's α =.89).

Psychological distress

The anxiety and depression subscales of the Brief Symptom Inventory 18 (BSI-18; Derogatis, 2001) were used to assess psychological distress. The depression and anxiety subscales consist of six items each, describing related physical and emotional complaints (e.g., *"Feeling hopeless about the future"* for depression and *"Feeling tense"* for anxiety) and are rated on a scale from 0 (*"not at all"*) to 4 (*"very much"*). Information about depression and anxiety was collected in 2013 and 2018. Mean composite scores for the 12 items was calculated for both 2013 and 2018 and used in the analyses. The BSI-18 has been shown to be a reliable and concise tool for assessing anxiety and depression in the general population (Franke et al., 2017; Petkus et al., 2010). The internal consistency for the current samples was excellent (2013: Cronbach's α = .90; 2018: Cronbach's α = .92).

Relationship status

To assess whether a participant had stayed in the same relationship during the 2013 and 2018 data collections, a dichotomous variable was calculated from the participants' answers to the 2018 question "how long have you been in your current relationship?" Participants who answered six years or more were coded as having remained in the same relationship, whereas participants who had answered less than six years were assumed to no longer be in the same relationship as in the 2013 data collection. There was approximately 5.5 years between the two data collections, and therefore, six years was chosen as the cut-off to minimize the risk of falsely coding a participant as having remained in the same relationship.

Statistical analyses

Composite variables were calculated using IBM SPSS Statistics version 24.0 for Windows (IBM Corp., 2016). Structural equation modeling (SEM), specifically path analysis, was conducted using Mplus version 7.4 (Muthén & Muthén, 2015) to estimate regressive and correlational paths between HAB,

relationship satisfaction and psychological distress. Results from standardized two-tailed tests were reported including 95% confidence intervals for the regression and correlation coefficients. Interdependency between members of the same family was taken into account using the "CLUSTER" and TYPE=COMPLEX options together with the MLR-estimator. This yields maximum likelihood parameter estimates with standard errors and χ^2-test statistics that are robust to non-normality as well as non-independence due to participants being from the same family. The analysis was conducted in two parts.

The first part of the analysis sought to explore whether HAB could predict within-time relationship satisfaction, psychological distress and whether a participant would stay in the same relationship between the two waves. This was done by regressing relationship satisfaction and psychological distress at Time 1 (i.e., 2013) as well as relationship status on HAB. In addition, relationship satisfaction and psychological distress at Time 1 were allowed to correlate with one another. Correlations between relationship status and other variables were not allowed due to the inability of Mplus to perform correlations with dichotomous variables during these specific conditions. Age was included as a covariate.

The second part of the analysis aimed to explore to what extent HAB could predict relationship satisfaction and psychological distress five years later. This was done by regressing relationship satisfaction and psychological distress at Time 2 (i.e., 2018) on relationship satisfaction, HAB and psychological distress at Time 1, as depicted in the schematic model shown in Figure 2. Correlations between the variables were allowed and estimated within time-points. Age was included as a covariate.

<div align="center">

Results

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Descriptive statistics

Descriptive statistics are shown in Table 1. Relationship status was a dichotomous variable (yes/no) and is not included in the table. Out of the 1081 participants who had data available for both time points, and who were in a relationship in 2013, 711 were in the same relationship in 2018 whereas 370 were not. Overall, the participants reported fairly high relationship satisfaction and fairly low psychological distress.

Table 1

Descriptive Statistics of Age, HAB, Relationship Satisfaction and Psychological Distress at Time Point 1 (2013) and Time Point 2

(2018)

| | | | | Cross-sectional | | | Longitudinal | | | | | |
| | | | | 2013 (N= 2171) | | | 2013 (n=711) | | | 2018 (n=711) | | |
Measure	Variable	Range	No. of items	α	*M*	*SD*	α	*M*	*SD*	α	*M*	*SD*
-	Age	25-56	1	-	33.24	6.43	-	33.37	5.00	-	38.81	4.99
SIP-AEQ	HAB	1-4	16	.88	1.86	0.41	.88	1.86	0.41	-	-	-
PRQC	Rel. Sat.	1-7	6	.90	5.87	1.05	.87	6.09	0.80	.89	5.72	1.00
BSI-18	Psy. Dis.	0-4	12	.90	0.66	0.64	.91	0.56	0.58	.92	0.72	0.66

Note. α = *Cronbach's Alpha; HAB = Hostile attribution bias; Rel.Sat. = Relationship satisfaction; Psy.Dis. = Psychological distress; SIP-AEQ = Social information processing-attribution and emotional response questionnaire; PRQC = Perceived relationship quality components; BSI-18 = Brief symptom inventory 18 (Anxiety and depression subscales)*

Associations between relationship satisfaction, hostile attribution bias and psychological distress

Cross-sectional associations

The results of the cross-sectional path analysis with the standardized regression and correlation coefficients are presented in Figure 1. The results show that hostile attribution bias had a significant negative association with relationship satisfaction and a significant positive association with psychological distress, but no significant association with relationship status. In other words, people who reported higher HAB tended to rate their relationship satisfaction as lower and their experienced distress as higher, but the level of HAB had no clear association with whether the participant's relationship had ended between the two measurement periods or not. Furthermore, there was a significant negative correlation between relationship satisfaction and psychological distress, indicating that higher levels of experienced distress were associated with lower reported relationship satisfaction. Finally, age had a significant association with relationship satisfaction and psychological distress but not with HAB or relationship status (see appendix table 1 for further details).
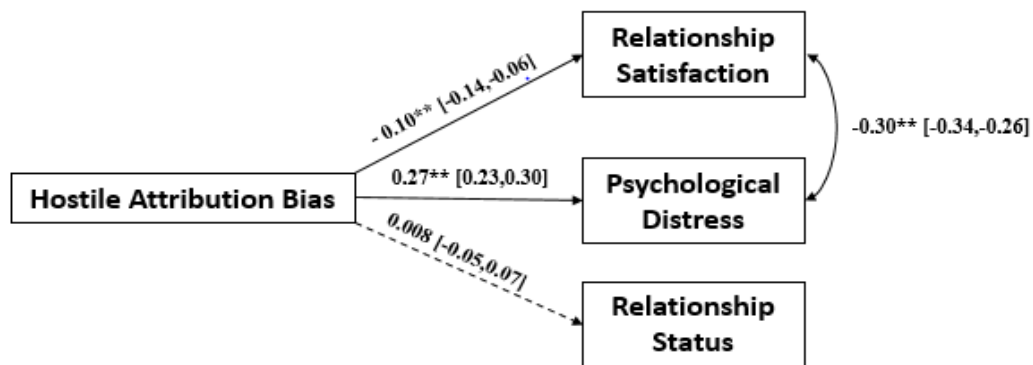
*Figure 1. Cross-sectional associations at Time 1 (2013) between hostile attributional bias, relationship satisfaction, psychological distress and relationship status (whether an individual's relationship ended between the two time points or not) with 95% CI within brackets. Note. *= p >.05; **= p >.01. The estimated correlation is pictured with a double-headed arrow, and regressions with one-headed arrows. Non-significant paths are indicated with dotted lines. Age was included as a covariate but is not included in the figure. For results on the effect of age kindly see appendix table 1.*

Longitudinal associations

The results for the longitudinal path analysis are presented with the standardized regression and correlation coefficients in Figure 2. The cross-sectional correlations between relationship satisfaction, HAB and psychological distress at time 1 were all significant and in line with the results of the cross-sectional model. The correlation between relationship satisfaction and psychological distress at time 2 (2018) was also significant and comparable with the correlation of said variables at time 1 (2013).

The longitudinal regressions revealed a significant association between HAB at time 1 and both relationship satisfaction and psychological distress at time 2, with the former being negative and the latter positive. Both effects were in line with the hypotheses. Relationship satisfaction at time 1 had a moderately strong effect on relationship satisfaction at time 2, indicating stability in relationship satisfaction, but no significant effect on psychological distress at time 2. A similar pattern emerged for psychological distress at time 1, with a moderately strong effect on its time 2 counterpart and no significant effect on relationship satisfaction at time 2. Age only had a significant effect on relationship and psychological distress at time 1 (see appendix table 2 for further details).
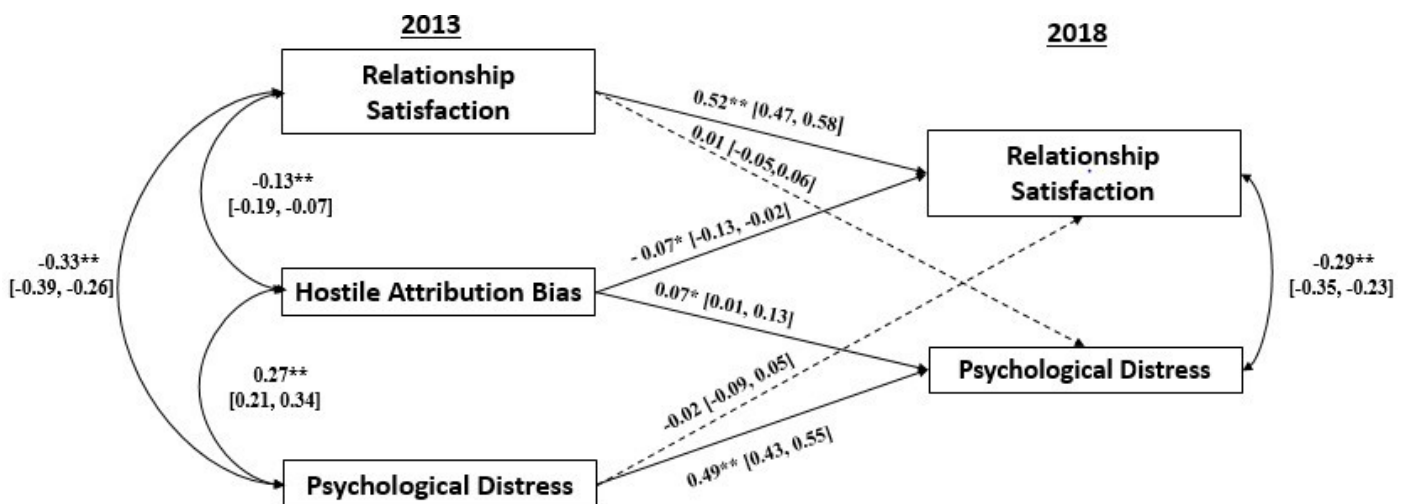
Figure 2. Longitudinal associations between hostile attribution bias, relationship satisfaction and psychological distress at time 1 (2013) and 2 (2018), with 95% CI within brackets. Note. *= p >.05; **= p >.01. The estimated correlation is pictured with a double-headed arrow, and regressions with one-headed arrows. Non-significant paths are indicated with dotted lines. Age was included as a covariate but is not included in the figure. For results on the effect of age kindly see appendix table 2.

Discussion

   The attributional styles of partners has been suggested by several studies to be a central component in understanding romantic relationship satisfaction. However, past studies have only explored relationship-specific attributional styles, leaving it unclear as to whether more general attributional patterns are of importance as well. Furthermore, these studies have only explored attributional styles to explicitly negative partner behaviors, raising the question of whether attributions to more ambiguous situations are also relevant. The present study sought to fill in these gaps in the field of romantic interpersonal relationships by exploring the relationship between relationship satisfaction, psychological distress and hostile attribution bias (HAB), a well-defined and general cognitive bias related to attribution. While past research has explored these factors in various other contexts, this study is to our knowledge the first of its kind to explore the specific relationship between the three. In order to gain a comprehensive overview of the relationships between these variables, two models were constructed using data from a population based sample of Finnish female twins and their sisters ($N =$): the first including cross-sectional associations from the 2013 data while the other incorporated both cross-sectional and longitudinal associations from the 2013 and 2018 data.

   As hypothesized, path analyses revealed a significant negative association between HAB and relationship satisfaction in both the cross-sectional and the longitudinal model. The relationship between these specific variables has not been explored before, which limits the ability to directly compare them to past research. However, the findings of this study do align with similar studies that have explored the connection between maladaptive attributions and relationship satisfaction (see e.g. Fincham & Bradbury, 1993, Fincham, Harold & Garo-Phillips, 2000, Karney et al., 1994). Like the aforementioned studies, we found that negative attributions, in our case hostile attributions, were negatively associated with relationship satisfaction.

   With our results suggesting an association between HAB and relationship satisfaction, this raises the question about what the underlying mechanisms of this association are. How could a tendency to attribute the behavior of others as hostile affect relationship satisfaction? Based on the SIP model (Crick & Dodge, 1994), we suggest a hypothetical three-part process as a potential explanation. The three parts can be described as:

1. Misinterpretation of social cues in a situation
2. Emotional reaction to said misinterpretation
3. Biased choice of response to the situation

Based on this process, we assume that a person with HAB would tend to misconstrue their partner's ambiguous behavior as hostile. For example, a person might interpret their partner arriving late for a date as a sign that they wanted to humiliate the person by making them wait, even if the real reason is more benign, for example that the partner got stuck in traffic. This tendency to misinterpret events might be a relevant factor, seeing as perceived quality of relationship interactions has been shown to be predictive of relationship satisfaction (Schmitt, Kliegel & Shapiro, 2007) and misinterpreting ambiguous relationships events, such as arriving late for a date, as hostile in intent could reasonably affect the long-term perceived quality of relationship interactions. The hostile (mis)interpretation of the situation might then trigger an emotional reaction in the person, such as anger or sadness, which could in turn affect the response the person chooses to the perceived transgression. For example, returning to our date example, the person might get angry that the partner came late and therefore choose to be accusative, which might affect their enjoyment of the evening. This tendency of people with HAB to choose more negative responses to ambiguous situations is partially supported by findings that have associated HAB with tendencies to choose angry and aggressive responses (Willkowski & Robinson, 2010). To summarize, we posit that people with HAB tend to interpret ambiguous partner behaviors as more hostile in intent than people who do not have HAB, which influences their reactions and leads to more negative responses, such as getting angry or hurt. This could lead to more conflicts, which over the course of the relationship might contribute to lower relationship satisfaction.

Of course, this is merely a hypothetical model for what the underlying mechanics behind the relationship between HAB and relationship satisfaction might be, and further studies are needed to explore what these mechanics are. One possible alternative explanation for the relationship between HAB and low relationship satisfaction might for example be that because people with HAB interpret ambiguous situations as more hostile, it leads them to view the relationship as lower in quality than it actually is. In the context of the date example, this would manifest itself in that the person misinterpreting their partner's behavior leads them to consider that they are in a relationship where their partner wants to humiliate them. This could

reasonably affect their perception of their relationship's quality even if the person does not react to the situation in a hostile manner. However, further studies are needed to determine whether either of these explanations are tenable.

One interesting find in our study concerning HAB was that despite it being negatively associated with relationship satisfaction, HAB did not predict whether a participant ended their relationship between the two time points or not, contrary to our hypothesis. Though the hostile interpretations related to HAB were negatively associated with one's satisfaction with a relationship, this association might not be so strong as to push one to terminate the relationship. This result is not wholly surprising, considering that the relationship between HAB and later relationship satisfaction, though significant, was fairly weak. The lack of an association between HAB and relationship termination suggests that the mechanics of relationship termination are more complicated, and could differ somewhat from those affecting relationship satisfaction. A meta-analysis evaluating predictive factors for relationship dissolution by Le and colleagues (2010) showed that factors such as low levels of love, commitment and dependence were the strongest predictors of relationship dissolution. The relationship between these variables and HAB has not been explored in research. It is however not implausible to think that HAB could for example be associated with lower levels of commitment to relationship and thereby have an indirect effect on relationship termination. Another way of looking at this might be that things such as high levels of love and dependence might function as protective factors against relationship termination for people with high HAB.

Beyond relationship satisfaction, we also found significant cross-sectional and longitudinal associations between HAB and psychological distress, in accordance with our hypotheses. These associations were positive, suggesting that people who report higher HAB tend to report higher psychological distress. These findings are in line with past studies that have shown a connection between psychological distress and negative interpretation biases (Everaert, Podina & Koster, 2017; Lee et al., 2016) and extend this relationship to concern HAB as well. We could surmise that HAB was predictive of later psychological distress, supporting the notion that HAB can be a detriment to peoples' wellbeing. This connection is understandable, as having a pattern of perceiving the motives of others' as more hostile could reasonably cause a person to experience more anxiety and symptoms of depression compared to a person who makes more lenient judgements.

Unfortunately, it was beyond the reach of this study to explore whether the longitudinal relationship between these variables was bidirectional, as this might have some interesting implications for how HAB develops.

While most associations between HAB and other variables were significant, it bears mentioning that the effect sizes of these associations were overall fairly small in both the cross-sectional and the longitudinal model. The size of these effects can partially be attributed to the sample being population-based, which can be presumed to display smaller effects than a clinical sample would. Furthermore, long time-spans between measurement points tend to produce smaller effects and it is therefore possible that the effect sizes would be larger were the time-span shorter. Nonetheless, the fact that these effects are present and significant even with a five-year span speaks for their importance. Our findings support the idea that certain cognitive biases can have long-term ramifications for relationships if they are not accounted for, which has implications for both individuals in a relationship as well as couples alike.

Finally, we found a significant negative association between psychological distress and relationship satisfaction in the cross-sectional model, which is in line with our hypothesis and past findings (Heidari & Latifnejad, 2010; Whitton & Kuryluk, 2012). However, there was no significant longitudinal effect of psychological distress on relationship satisfaction or vice versa, which contradicts both our hypotheses as well as findings from past research (Kronmüller et al., 2011; Mamun et al., 2009; Rogge et al., 2006). This finding is rather perplexing, as psychological distress as well as relationship satisfaction were both fairly stable between the time points and correlated with each other within both time points. One possible reason for this divergence from earlier findings might be that our model included HAB, a variable that has not been included in past studies on the subject. It is conceivable that there could exist indirect paths from psychological distress to later relationship satisfaction and vice versa via HAB. This hypothesis is supported by a number of studies that have found that attributional styles and interpretation biases in a relationship either moderate or mediate the effect of depressive symptoms and anxiety on relationship satisfaction (Finn et al., 2013; Gordon, Friedman, Miller & Gaertner, 2005; Heene, Byusse & van Oost, 2005, 2007). An alternative explanation for the lack of a longitudinal relationship between psychological distress and relationship satisfaction might be that the overall reported psychological distress

in this sample was fairly low. A model based on a sample with higher levels of psychological distress might potentially display a stronger relationship between the two variables.

Strengths and Limitations

As the first study exploring the associations between HAB, relationship satisfaction and psychological distress, this study boasts a number of strengths. First, it reaffirms past findings that have suggested that biased attributional processes are associated with low relationship satisfaction and expands these findings by demonstrating that this can also be the case when the attributional patterns are general and not relationship-specific. Second, this study demonstrates that HAB specifically is associated with low relationship satisfaction, expanding the literature on the potential negative outcomes of HAB among adults. Third and final, this study used a large, representative population-based sample, in contrast to past studies on the subject, which have mostly relied on fairly small convenience samples. This study therefore fills a gap in the scientific literature by expanding the understanding of both HAB and its role in romantic relationships.

However, though an important first step in deciphering the relationship between HAB and relationship satisfaction, the findings of this study are constrained by a number of limitations. First and foremost, HAB was only measured at the first time point and it was thus beyond the reach of this study to explore temporal stability of the trait as well as whether psychological distress and relationship satisfaction have a longitudinal effect on HAB, similar to that of HAB on relationship satisfaction and psychological distress.

Another limitation of this study is that only participants who remained in the same relationship during both time points were included in the longitudinal model. This was done to ensure that the changes in relationship satisfaction were not due to a change in relationship, but rather the predictors of the model. This methodological choice, combined with fairly high mean scores on relationship satisfaction, makes it likely that our sample tended to rate their current relationship quite favorably. It is possible that the effects of HAB might therefore be different in this sample than they would be in a sample where participants who rated their relationship as lower in quality were also included. Furthermore, due to the

participants being in a fairly long-term relationship, the results of this study cannot necessarily be generalized to more short-term relationships.

The sample of this study was composed of women and the results can therefore not be generalized to people of other genders. There is mixed evidence about whether the effects and expressions of HAB are similar among men and women. A number of studies have found gender differences, such as a study by Mathieson et al. (2011), which showed that the association between HAB and relational aggression was moderated by relational risk factors (e.g., emotional sensitivity) in girls, but not in boys. The results of another study by Godleski and Ostrov (2010) indicated that girls showed more HAB in relational situations compared to boys, while a study by Cillessen, Lansu and Van Den Berg (2014) showed that the relationship between HAB and aggression was stronger among boys than girls. However, a systematic review by Martinelli, Ackermann, Bernhard, Freitag and Schwenck (2018) found no notable gender differences in the relationship between HAB and aggression among adolescents. Because of these contradictory findings and a lack of clear consensus, potential gender differences in the associations between HAB and relationship satisfaction as well as psychological distress should be studied in future research. This study also only explored one partner's relationship satisfaction, which excludes the satisfaction of the participants' partners. Future research could explore to what extent the changes in relationship satisfaction between partners correlate and whether they are equally affected by one partner having high HAB scores.

Finally, our sample was drawn from a population-based study of twins and their sisters, which means our findings cannot directly be generalized to non-twin populations. However, there are several studies that have indicated that findings from twin studies can be generalized to non-twin populations (e.g., Andrew et al., 2001; Johnson, Krueger, Bouchard, & McGue, 2002). The response rates for the data collections were 42% and 60% respectively, which are comparable to the response rates of other sexuality related surveys (e.g., Bailey, Dunne, & Martin, 2000; Långström & Zucker, 2005).

Conclusions

This study contributes to the scientific literature by reaffirming past findings of attribution processes as an important component in understanding relationship satisfaction by showing that HAB, a well-defined attributional bias, is a useful predictor for relationship satisfaction. This has implications for couples therapy, as it suggests that accounting for certain individual biases may be an important process in working through experiences of low relationship satisfaction, and that individual therapy alongside the couples therapy could be beneficial in some instances. Our findings also suggest that HAB predicts higher rates of psychological distress, and is therefore potentially a worthwhile focus of intervention in individual therapies as well. While the findings of this study should be interpreted cautiously, as it is the first of its kind to explore these specific variables, they do support the hypothesis that HAB affects how content people are with their relationships both in the short-term and long-term of the relationship.

Summary in Swedish
Fientlig attributionsbias och psykisk ohälsa som prediktorer för
tillfredställelse med parförhållande

Inledning

Tillfredställelse med parförhållande är en betydande del av allmän livstillfredställelse. Personer som rapporterar hög tillfredställelse med sitt parförhållande tenderar även att rapportera högre sexuell tillfredställelse (McNulty, Wenner & Fisher 2016), högre tolerans mot stress (Røsand, Slinning, Eberhard-Gran & Tambs, 2012) samt en rad positiva hälsoeffekter, till exempel förbättrat blodtryck och lägre dödsrisk (Holt-Lunstad, Birmingham & Jones, 2008; Robles, Slatcher, Trombello & McGinn, 2014). I motsats så har låg tillfredställelse med parförhållande associerats med ett antal negativa utfall, bland annat högre nivåer av stress (Bodenmann, Ledermann & Bradbury, 2007; Randall & Bodenmann, 2009), högre risk för depression (Hollist, Miller, Falceto & Fernandes, 2007) samt allmänt sämre hälsa (Hawkins & Booth, 2005). I och med att dessa kopplingar identifierats så är det ytterst viktigt att förstå vilka variabler som påverkar och predicerar upplevd tillfredställelse av parförhållande.

Tidigare studier har identifierat ett flertal prediktorer för låg tillfredställelse med parförhållande, bland annat låg socioekonomisk status (Dakin & Wampler, 2008; Maisel & Karney, 2012), upplevelser av misshandel i barndomen (DiLillo m.fl., 2009; Peterson, Peugh, Loucks & Shaffer, 2018) samt bristfällig kommunikation i parförhållandet (Trillingsgaard, Baucom & Heyman, 2014). Utöver dessa så har psykologisk ohälsa i form av depression och ångest visat sig ha ett starkt samband med låg tillfredställelse med parförhållande (Caughlin, Huston & Houts, 2000; Kronmüller et al., 2011; Whisman, Uebelacker & Weinstock, 2004). Fokus har dock skiftat från att identifiera predicerande faktorer till att förstå varför dessa faktorer har ett samband med låg tillfredställelse med parförhållande. I denna kontext har en rad studier antytt på att kognitiva processer, till exempel en tendens att misstolka andras motiv eller en tendens att fokusera på negativ stimuli (Ellison, Kouros, Papp & Cummings, 2016; Muris, Schmidt, Lambrichs, & Meesters, 2001; Smith, Summers, Dillon, Macatee & Cougle, 2016), kunde ha en central roll i hur

psykisk ohälsa inverkar på tillfredställelse med parförhållandet. Vissa sorters attributionsprocesser, till exempel en tendens att attribuera negativa utfall till en själv eller en tendens att tolka andras motiv som hotande, har visat sig vara associerade med högre nivåer av psykisk ohälsa (Ellison, Kouros, Papp & Cummings, 2016; Muris, Schmidt, Lambrichs, & Meesters, 2001; Smith, Summers, Dillon, Macatee & Cougle, 2016).

En användbar modell för att förstå kopplingen mellan kognitiva processer och tillfredställelse med parförhållandet är den sociala informationsprocesseringsteorin (SIP, Crick & Dodge, 1994). Teorin proponerar att mellanmänsklig interaktion påverkas av en sexdelad processering av sociala tecken och har använts för att förklara ett antal negativa utfall hos både vuxna och barn, särskilt aggression. Särskilt processens andra del, tolkning av sociala tecken, har identifierats som en viktig mekanism och är nära associerat med attributionsprocesser som verkar vara ytterst relevanta för tillfredställelse med parförhållande.

Kopplingen mellan attributionsprocesser och tillfredställelse med parförhållande etablerades av en rad studier om ämnet från 1980-talet (se Bradbury och Fincham, 1990 för en översikt). Denna koppling utvecklades vidare av en rad studier (Fincham & Bradbury, 1987, 1993), vars fynd tydde på att låg tillfredställelse med parförhållande kunde longitudinellt prediceras av att en person attribuerar negativa händelser i förhållandet som avsiktliga och karaktäristiska för ens partner. Denna association har stötts av senare studier, både tvärsnittsstudier (Graham & Conoley, 2006; Karney, Bradbury, Fincham & Sullivan, 1994) och en longitudinell studie (Fincham, Harold & Garo-Phillips, 2000). Sammantaget tyder dessa studiers resultat på att vissa typers attributionsprocesser kan negativt inverka på en persons upplevelse av tillfredsställelse med parförhållandet. Dessa studier har dock enbart utforskat hur förhållandespecifika attributioner påverkar parförhållandet, vilket har lämnat det oklart huruvida allmänna attributionsstilar, det vill säga hur man allmänt tenderar att tolka andras motiv, också påverkar tillfredställelse med parförhållandet. Utöver detta har tidigare studier enbart studerat hur personer attribuerar explicit negativa händelser (t.ex. att ens partner kritiserar en), fastän parförhållanden innehåller en massa händelser där partnerns motiv är oklara och tvetydiga (t.ex. partner väljer att spendera en kväll med sina vänner istället för med sin partner). För

att fullständigt kunna förstå attributioners inverkan på tillfredställelse med parförhållandet, så är det viktigt att även utforska hur tendenser att tolka denna typ av tvetydiga händelser påverkar tillfredställelse med parförhållandet. En sista begränsning med tidigare studier som utforskat sambandet mellan attributionsprocesser och tillfredställelse med parförhållandet är att deras sampel varit relativt små, med sampel som varierat från 39 deltagare (Fincham & Bradbury, 1987) till 260 deltagare (Fincham, Harold & Garo-Phillips, 2000). Detta har begränsat studiernas statistiska styrka och det är av intresse huruvida dessa associationer också kunde hittas i större populationssampel.

Fientlig attributionsbias (HAB) kan definieras som en tendens att överdrivet tolka andras motiv som fientliga eller hotande mot en själv, även då andras motiv egentligen är tvetydiga eller till och med godartade. HAB har associerats med en rad negativa utfall hos vuxna, bland annat aggression (se Tuente, Bogaerts & Veling, 2019 för en översikt) samt högre nivåer av depression (Everaert, Podina & Koster, 2017; Lee, Mathews, Shergill & Yiend, 2016; Smith m.fl., 2016) och ångest (Amir, Beard & Bower, 2005; Kanai, Sasagawa, Chen, Shimada & Sakano, 2010). Huruvida HAB har någon association med tillfredställelse med parförhållande har inte ännu utforskats, men det finns skäl att hypotisera att en sedan koppling existerar. I och med att tidigare studier har tytt på att attributionsprocesser är associerade med låg tillfredställelse med parförhållandet och HAB har associerats med ett antal negativa utfall hos vuxna, så är det inte orimligt att anta att det kan finnas ett samband mellan HAB och låg tillfredställelse med parförhållande. Våra hypoteser för denna studie var att: 1) HAB har en negativ tvärsnittlig association med tillfredställelse med parförhållande, 2) HAB har en negativ longitudinell effekt på tillfredställelse med parförhållande, 3) HAB predicerar positivt huruvida en person avslutat sitt parförhållande mellan mättillfällen, 4) Det finns en positiv tvärsnittlig association mellan HAB och psykisk ohälsa, 5) HAB har en positiv longitudinell effekt på psykisk ohälsa 6) Det finns en negativ tvärsnittlig association mellan tillfredställelse med parförhållande och psykisk ohälsa och 7) Det finns en positiv dubbelriktad longitudinell effekt mellan tillfredställelse och psykisk ohälsa.

Metod

Samplet i denna studie bestod av kvinnor som deltog i Genetics of Sexuality and Aggression (GSA), en populationsbaserad finsk studie om tvillingar. Alla deltagare rekryterades från finska befolkningsregistercentralen och var över 18 år gamla. Studien har genomfört tre omfattande datainsamingar och denna studie använde data från den första och andra uppföljningen (2013 respektive 2018). Samplet för tvärsnittsanalysen bestod av de 2175 kvinnor som deltog i uppföljningen 2013 (medelålder 33,24 år, *SD*= 6,43), medan samplet för den longitudinella analysen bestod av de 711 kvinnor som deltog i båda uppföljningarna och var i samma parförhållande under båda mätningarna (medelålder 33,37 år, *SD*= 5,00 vid tidpunkt 1, medelålder 38,81 år, *SD*= 4,99 vid tidpunkt 2).

HAB mättes med Social Information Processing–Attribution and Emotional Response Questionnaire (SIP–AEQ; Coccaro m.fl., 2009). Frågeformuläret mäter flera aspekter gällande social informationsprocessering men i denna studies analyser användes enbart de frågor som mätte fientlig avsikt och indirekt fientlig avsikt (båda är mått på HAB). Ett gemensamt medeltal räknades ut för alla frågor som mätte dessa två kategorier. Tillfredställelse med parförhållande mättes med Perceived Relationship Quality Components (PRQC; Fletcher, Simpson & Thomas 2000), medan psykisk ohälsa mättes med depression- och ångestsunderskalorna från Brief Symptom Inventory 18 (BSI-18; Derogatis, 2001). En dikotom variabel räknades ut för huruvida en deltagare varit i samma parförhållande under båda mätningarna genom att räkna ut hur längre de varit i sitt nuvarande parförhållande. Deltagare som rapporterade att deras nuvarande förhållande varat under 6 år ansågs ha avslutat sitt parförhållande. Kompositvariabler räknades ut med hjälp av IBM SPSS version 24.0 för Windows (IBM Corp., 2016). Strukturell ekvationsmodellering (SEM), specifikt stiganalys, genomfördes i Mplus version 7.4 (Muthén & Muthén, 2015) för att estimera regression- och korrelationsbanor mellan HAB, tillfredställelse med parförhållandet och psykisk ohälsa. Studiens analyser utfördes i två steg. I det första steget analyserades banor mellan HAB, tillfredställelse med parförhållandet, psykisk ohälsa samt huruvida en deltagare avslutat sitt tidigare parförhållande i 2013 samplet (*N*= 2175). I det andra steget analyserades potentiella tvärsnittliga samt longitudinella banor mellan ovannämnda variablerna från 2013 och 2018 (*n*=711).

Resultat

Den tvärsnittliga SEM-modellen uppvisade ett signifikant negativt samband mellan HAB och tillfredställelse med parförhållande (β=-.098, SE=0.024, p <.001), samt ett positivt samband med psykisk ohälsa (β=.267, SE=0.023, p <.001), vilket bekräftade hypotes 1 och 4. Det fanns även ett negativt samband mellan psykisk ohälsa och tillfredställelse med parförhållande (r=-.296, SE=0.025, p <.001), vilket bekräftade hypotes 6. Däremot så fanns det inget signifikant samband mellan HAB och huruvida deltagarna avslutat sitt parförhållande mellan de två mättillfällen (β=.008, SE=0.036, p=.832), vilket gick förkastade hypotes 3.

Den longitudinella SEM modellen visade en signifikant negativ effekt av HAB vid tidpunkt 1 på tillfredställelse med parförhållandet vid tidpunkt 2 (β= -.072, SE=0.04, p= .038) samt en signifikant positiv effekt på psykisk ohälsa vid tidpunkt 2 (β= .072, SE=0.04, p= .045) vilket var enligt våra förväntningar (hypoteser 2 respektive 5). Däremot bekräftades inte hypotes 7, då tillfredställelse med parförhållande vid tidpunkt 1 inte predicerade psykisk ohälsa vi tidpunkt 2 (β= .005, SE=0.03, p= .868) eller vice versa (β= -.022, SE=0.043, p=.607).

Diskussion

Tidigare studiers resultat har tytt på att attributionsprocesser har ett samband med tillfredställelse med det parförhållandet (Fincham & Bradbury, 1987, 1993; Graham & Conoley, 2006; Karney m.fl.,1994). Dessa studier har dock enbart utforskat hur förhållandespecifika attributioner för partners explicit negativa beteenden (t.ex. att ens partner ignorerar en) påverkar tillfredställelse med parförhållandet, vilket har lämnat det oklart huruvida tolkningar av mer tvetydiga beteenden också har en effekt. Till min vetskap är denna studie den första av sitt slag som har utforskat sambanden mellan fientlig attributionsbias (HAB), tillfredställelse med parförhållandet och psykisk ohälsa. Resultaten i denna studie visade att HAB predicerade lägre tillfredställelse med parförhållandet både i den tvärsnittliga och longitudinella modellen. Detta innebär att personer som rapporterar högt på HAB och därmed tenderar att tolka andras motiv som mer hotande tenderar att vara mindre nöjda med sina parförhållanden. Det är möjligt att detta samband orsakas av att en person som tenderar tolka andras motiv som fientliga också gör det för sin partner, vilket kan leda till att de reagerar på denna upplevda fientlighet negativt (t.ex. med

att bli arga eller ledsna), vilket påverkar parförhållandets kvalitet. Alternativt kan personens upplevelse av partnerns upplevda fientliga motiv få personen att bedöma parförhållandets kvalitet som lägre än vad den egentligen är. Trots att HAB verkar ha ett negativt samband med tillfredställelse med parförhållandet, så predicerade den dock inte huruvida en person avslutat sitt parförhållande mellan de två mätpunkterna, vilket gick emot vår hypotes. Detta tyder på att avslutande av parförhållanden orsakas av andra mekanismer än HAB. Utöver detta fann vi ett positivt samband mellan HAB och psykisk ohälsa i både den tvärsnittliga och longitudinella modellen, vilket tyder på att personer som tenderar tolka andras motiv som mer fientliga tenderar att rapportera högre nivåer av ångest och depression. Detta fynd är i linje med tidigare studiers resultat (Everaert m.fl., 2017; Lee m.fl., 2016) och tyder på att en tendens att tolka andras motiv som fientliga kan göra en person mer sårbar för ångest- och depressionsymptom.

Avslutningsvis så fann vi inget longitudinellt samband mellan tillfredställelse med parförhållande och psykisk ohälsa, vilket gick emot vår hypotes samt tidigare forskningsresultat (Kronmüller m.fl., 2011; Mamun m.fl., 2009; Rogge m.fl., 2006). En potentiell förklaring för denna diskrepans från tidigare forskning kunde vara det faktum att vår modell innehöll HAB, en variabel som inte funnits i tidigare studier om sambandet mellan tillfredställelse med parförhållandet och psykisk ohälsa. Det är möjligt att det finns indirekta effekter av dessa variabler på varandra via HAB, dock kunde vi inte på basis av våra analyser i denna studie fastställa om så är fallet. Framtida studier uppmanas dock utforska denna möjlighet.

Denna studie besitter en mängd styrkor. Den är den första av sitt slag att utforska sambanden mellan HAB, tillfredställelse med parförhållandet samt psykisk ohälsa och stöder tidigare fynd som tytt på att attributionsprocesser har en effekt på en persons upplevda tillfredställelse med parförhållandet och bidrar därmed till detta relativt outforskade forskningsområde. Denna studies resultat utvidgar också dessa fynd genom att påvisa att även mer generella attributionsprocesser som inte enbart är relaterade till parförhållandet har ett samband med tillfredställelse med parförhållandet. En vidare styrka hos denna studie var att den använde ett stort populationsbaserat sampel ($N=2175$ respektive $n=711$), vilket gör resultaten relativt representativa och generaliserbara till den kvinnliga populationen i Finland. Denna studie hade dock även ett antal begränsningar. För det första så mättes HAB endast

vid första mättillfället, vilket innebar att vi endast kunde utforska HAB:s effekt på tillfredställelse med parförhållande och psykisk ohälsa och inte vice versa. En annan begränsning var att endast personer som hade stannat i samma förhållande togs med i den longitudinella modellen. Detta gjordes för att garantera att förändringar i tillfredställelse med parförhållandet orsakades av prediktorerna och inte av att deltagaren bytt parförhållande. Detta beslut, i samband med de höga poängen på tillfredställelse med parförhållande innebar dock att deltagarna i vår studie verkade vara relativt nöjda med sitt parförhållande. Det är möjligt att sambanden mellan dessa variabler skulle se annorlunda ut hos personer som är mindre nöjda med sitt parförhållande. Slutligen, så bestod vårt sampel enbart av kvinnor som är tvillingar, vilket eventuellt kan begränsa möjligheten att generalisera fynden till andra grupper. Tidigare fynd har dock tytt på att resultat från studier med tvillingarsampel är jämförbara med icke-tvillingstudier (Andrew m.fl., 2001; Johnson, Krueger, Bouchard, & McGue, 2002). Däremot finns det väldigt motsägelsefulla fynd gällande potentiella könsskillnader i hur HAB uttrycker sig, där vissa studier har tytt på att det inte finns skillnader (se t.ex. Martinelli, Ackermann, Bernhard, Freitag & Schwenck, 2018), medan andra studier tytt på att det finns skillnader (t.ex. Godleski & Ostrov (2010). Dessa potentiella könsskillnader bör utforskas i framtida forskning.

Sammanfattningsvis, så bidrar denna studie med viktig information om parförhållanden genom att visa att HAB kan vara en relevant prediktor för tillfredställelse med parförhållande. Dessa resultat har implikationer för bland annat parterapi, i och med att de tyder på att vissa individuella biases kan vara något som bör beaktas under terapin. Våra resultat stöder även tidigare fynd om att psykisk ohälsa i form av ångest och depression kan predicera lägre tillfredställelse med parförhållande, vilket tyder på att även dessa bör beaktas i parterapier.

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Appendix

Table A1
Associations with the variable age in the cross-sectional model

Variable	β	β [95% CI]		SE	p
		LL	UL		
Rel.Sat	-.08	-.14	-.03	0.03	< .01
Psy.Dis	-.09	-.12	-.06	0.02	< .01
Stat	-.01	-.08	.07	0.05	.87

*Note. Rel.Sat = Relationship satisfaction; Psy.Dis = Psychological distress; Stat=
whether an individual's relationship ended between the two time points or not;
LL=Lower limit of 95% confidence interval; UL= Upper limit of 95% confidence
interval*

Table A2
Associations with the variable age in the longitudinal model

Variable	β	β [95% CI]		SE	p
		LL	UL		
Rel.Sat (T1)	-.14	-.21	-.08	0.04	< .01
Psy.Dis (T1)	-.05	-.12	.01	0.04	< .01
HAB	-.05	-.11	.02	0.04	.24
Rel.Sat (T2)	-.01	-.06	.04	0.03	.63
Psy.Dis (T2)	-.04	-.09	.01	0.03	.26

*Note. Rel.Sat = Relationship satisfaction; Psy.Dis = Psychological distress; HAB=
Hostile Attribution Bias; T1=Time 1 (2013); T2=Time 2 (2018); LL=Lower limit of
95% confidence interval; UL= Upper limit of 95% confidence interval*

Låg tillfredställelse med parförhållande prediceras av fientlig attributionsbias hos kvinnor

Pro gradu avhandling i psykologi

Fakulteten för humaniora, psykologi och teologi, Åbo Akademi

Resultaten från en pro-gradu avhandling i psykologi vid Åbo Akademi tyder på att fientlig attributionsbias, en tendens att tolka andras motiv som fientliga, predicerar låg tillfredställelse med parförhållandet hos kvinnor. Avhandlingen utforskade associationer mellan HAB, tillfredställelse med parförhållandet och psykisk ohälsa i form av ångest och depression över en fem års period.

Studiens sampel bestod av 2175 kvinnliga tvillingar från Finnish population-based Genetics of Sexuality and Aggression (GSA) projektet. Information gällande studiens variabler införskaffades genom frågeformulär. Analyserna utfördes i två delar; en tvärsnittsmodell där alla 2175 deltagare togs med och en longitudinell modell, där de 711 deltagare som varit i samma parförhållande under båda mättillfällen togs med. Modellerna utfördes med strukturell ekvationsmodellering. Utöver tillfredställelse med parförhållandet predicerade fientlig attributionsbias även högre nivåer av ångest och depression hos kvinnor, vilket tidigare påvisats ha en betydande inverkan på tillfredställelse med parförhållandet.

Samband mellan fientlig attributionsbias, tillfredställelse med parförhållande och psykisk ohälsa har inte tidigare utforskats och avhandlingen bidrar därmed intressant information för forskning om romantiska förhållanden.

Avhandligen utfördes av Jannik Andelin under handledning av forskardoktor Ada Johansson och forskardoktor Patrick Jern.

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