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Similarity in Situation Perception Predicts Relationship Satisfaction

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Supplementary Materials: Data, Materials, Preregistration [see Index of Supplementary Materials]

Abstract

For one partner, the kitchen looks clean; for the other, the kitchen needs cleaning. Is satisfaction with our relationship tied to whether we see the world the same way our partner does? In two dyadic longitudinal studies, we investigated how similarity in the perception of situations predicts relationship satisfaction in romantic relationships. In Study 1, 203 couples participated in a 14-day diary. In Study 2, 139 couples participated in a 7-day experience sampling. At each time point, partners separately reported their perception of a situation they had experienced together, using the DIAMONDS taxonomy (Study 1) and the Situational Interdependence Scale (Study 2). Across taxonomies, more similar situation perception positively predicted state relationship satisfaction and changes in trait relationship satisfaction at follow-up. Findings have important implications for understanding couples' everyday lives and speak to the consequences of situation perception in close relationships.

Keywords

situation perception, romantic relationships, relationship satisfaction, experience sampling



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Relevance Statement

Across two dyadic longitudinal studies, similarity in the perception of situations positively predicted relationship satisfaction in romantic relationships. Findings have important implications for understanding couples' everyday lives.

Key Insights

- Situation perception should be crucial for romantic relationships.
- · Hypothesis: Situation perception similarity predicts relationship satisfaction.
- · Methods: Two dyadic longitudinal studies in romantic couples.
- Results: Across studies, similar situation perception positively predicted relationship satisfaction.
- Findings have important implications for understanding couples' everyday lives.

Imagine a couple, Ann and Ben. To Ann, the kitchen looks clean; to Ben, the kitchen looks dirty. As a consequence, Ben may mop the floor on his own, but hold a grudge because Ann did not pitch in with tidying up: Diverging perceptions of situations can create conflict and resentment. In the present research, we examined how similarity in the perception of interpersonal situations relates to relationship satisfaction.

In recent years, there has been increasing interest in the subjective perception of situations (Wagerman & Funder, 2009). Objective situational cues are filtered, evaluated, and interpreted by an individual, resulting in a mental representation of the situation (Balliet et al., 2017; Rauthmann et al., 2015). While situation perception is thus grounded in reality (Gerpott et al., 2018; Reis, 2008), it must be processed by the individual to become psychologically meaningful (Rauthmann et al., 2015). The mental representation of a situation is in turn closely linked to the behavior of the individual in that specific situation (Gerpott et al., 2018; Sherman et al., 2015). Situation perception, however, should also play a crucial role in interpersonal relationships, such as when the experience of the same situation diverges between interacting individuals.

Romantic partners spend much of their time together and, thus, jointly experience various situations. Since every individual interprets a situation through his or her own eyes (e.g., Rauthmann et al., 2015), partners might differ from each other in how they perceive the same situation. As apparent in the example of a clean (vs. dirty) kitchen, diverging perceptions might entail the potential for conflict. However, people tend to perceive similar thoughts, feelings, and behaviors in their partner (egocentrism; Murray et al., 2002) but also to recognize the other's thoughts (empathic accuracy; Ickes & Hodges, 2013) and to align themselves with them (Higgins et al., 2021). People hold a motive of shared reality, according to which one strives to communicate one's own thoughts to the other and to create commonality of inner states (Higgins et al., 2021).

Much of the empirical research has focused on the positive association of spousal similarity with relationship outcomes (Luo, 2017). It has been argued that this link

occurs because congruence improves understanding and increases closeness, agreement, constructive communication, and trust (Estlein & Theiss, 2014; Higgins et al., 2021; Murray et al., 2002) and promotes adaptive coping mechanisms and reduces conflictive interactions (Acitelli et al., 2001; Luo & Klohnen, 2005). Moreover, similarity may be important for the functioning of romantic relationships since it may help couples coordinate, which finally leads to higher relationship quality (Bahns et al., 2017).

Previous studies on similarity and relationship satisfaction have mainly focused on similarity in traits, such as personality traits, values, and attachment styles (Gaunt, 2006; Luo, 2017; Luo & Klohnen, 2005; van Scheppingen et al., 2019). Similarity in perceptions of daily interactions, however, has scarcely been investigated. Yet, similarity in perceptions of shared situations may relate more directly to spouses' everyday activities, in contrast to the general views associated with spouses' traits. Similarity in situation perceptions may therefore be particularly relevant to daily relationship satisfaction (see also Gaunt, 2006).

In the present article, we extend previous research by focusing on similarity in spouses' perceptions of everyday interactions. If partners perceive the same situation differently, they may miscommunicate, misunderstand each other, and fail to coordinate their behavior (Balliet et al., 2017; Finkel et al., 2006; Kelley et al., 2003). These failures are, in turn, associated with negative relationship outcomes (Finkel et al., 2006; Overall et al., 2009; Higgins et al., 2021). A shared understanding of the situation, in contrast, may enable pro-relationship behaviors and coordination. We therefore argue that perceiving and interpreting daily situations in a similar (diverging) way should have a positive (negative) effect on relationship satisfaction.

The Present Research

We investigated the association between similarity in situation perception and relationship satisfaction in romantic couples in two dyadic longitudinal studies, a diary study and an experience sampling study. Longitudinal measurement enabled us to distinguish between state- and trait-like components of relationship satisfaction (e.g., Hilpert et al., 2018). Focusing on relationship satisfaction as a state allowed us to investigate whether a partner is more satisfied with the relationship at times when situation perceptions converge than at times when they differ. Focusing on relationship satisfaction as a trait allowed us to investigate whether patterns of similarity are associated with relationship satisfaction more generally. In addition, we examined whether the average level of similarity in situation perceptions across days is associated with change in trait relationship satisfaction over the study phase.

In the present research, we studied similarity between profiles of spouses' situation perceptions. Profile similarity follows a couple-centered approach, in contrast to variable-centered approaches such as using interaction terms from multiple regression analysis or response surface analysis (e.g., van Scheppingen et al., 2019). Variable-centered



approaches can only be applied to study similarity on single dimensions of situation perception (such as adversity or power asymmetry). We, however, were particularly interested in similarity across dimensions of situation characteristics. Our argument that similarity in situation perception should help couples to better communicate and coordinate may be best operationalized by shape, i.e., shared ups and downs in perceptions of situations along multiple dimensions. We therefore focused on profile correlations, which reflect a couple's similarity in terms of the importance partners accord to a range of situation characteristics and are, thus, sensitive to the varying degrees of agreement between spouses across different dimensions of situation perception (see Luo & Klohnen, 2005). We report exploratory analyses using alternative indices in the Supplemental Material.

We conducted two dyadic longitudinal studies. Study 1 was a 14-day diary study in which we measured situation perceptions at 15 time points using the DIAMONDS scale (Rauthmann et al., 2014). Study 2 was a 7-day experience sampling study in which we measured situation perceptions at 49 time points using the Situational Interdependence Scale (Gerpott et al., 2018). The DIAMONDS model is broader than the SIS and encompasses situation characteristics that could be judged for any situation one encounters, while the SIS model focuses on characteristics of interpersonal situations. Thus, the models differ with respect to scope and content (Gerpott et al., 2018). In our work, we generalize across both models to study how similarity in situation perception predicts relationship satisfaction. Replicating effects across studies and, thus, measures of situation perception, would add credence to the generalizability of our findings.

The methods and hypotheses of Study 1 were preregistered (see Supplementary Materials).¹ Anonymized data from Study 2 are available in the Supplementary Materials, as are analysis scripts and Supplemental material for both studies. For Study 1, informed consent only allows limited data sharing for scientific purposes. Data can be requested from the first author. Materials for Study 1 and Study 2 can be accessed via the Supplementary Materials.²

Study 1

Romantic couples participated on 15 consecutive days (T0-T14). On each assessment day, situation perceptions of each partner were assessed by having both partners report on



¹⁾ We uploaded the pre-registration for Study 1 to the OSF on November 14th, 2016 before any data were analyzed.

²⁾ Data on daily situation perception and momentary relationship satisfaction Study 1 (T1-T14) were analyzed and reported in Rentzsch et al (2021). This article focused on the single dimensions of the DIAMONDs and not on the broader concept of situation congruency. Furthermore, data from the intake session (T0, Study 1) and analyses referring to the present preregistered hypotheses have not been reported elsewhere.

a situation that the couple had experienced together. At each time point, relationship satisfaction of each partner was assessed.

Method

The study was approved by the ethics committee at the University of Bamberg. We used the open source survey framework formr to implement our study (https://formr.org; Arslan et al., 2020).

Participants

Participants were recruited via announcements in university newsletters, via social media, and mailing lists. The study was advertised as a study about "personality and situation perception in romantic relationships." As an incentive, participants received partial course credit (where applicable) and feedback on their personality once they had completed the diary study. In addition, couples of which both partners completed the study had the chance to win a $300 \in$ event voucher. Based on practical constraints, we initially sought to recruit a minimum of 100 couples.

A total of 203 couples (N = 406 participants) eventually participated and reported N = 406 situations (i.e., N = 812 individual situation descriptions) during the intake session at T0. Two independent coders rated each situation description with respect to whether both descriptions within a dyad referred to the same situation. 15 couples had to be excluded from analyses at T0 because of non-matching situation descriptions at T0. To enable analyses for distinguishable dyads (see Bolger & Laurenceau, 2013), and to make results from Study 1 comparable to results from Study 2, only heterosexual couples were included.³ The final dataset at T0 included 182 heterosexual couples with matching situation descriptions (N = 364 participants). Average age of participants was 27.9 years (SD = 11.0, Range: 17–73; M = 28.8 years for male participants and 27.0 years for female participants). Sixty-six participants reported to be married, 289 in a relationship, and seven participants reported to be in an open relationship. 185 (51%) participants reported living together, whereas 177 (49%) reported not living together. On average, participants had been in their relationship for 5.0 years (SD = 7.2, Range: 1–49).

In the diary, N = 2276 situations were reported by 180 couples (i.e., N = 4552 individual situation descriptions stemming from 360 participants). We excluded 254 non-matching situations based on our coding and included heterosexual couples only, resulting in 1941 matching situation descriptions from 171 heterosexual couples (i.e., N = 3882individual situation descriptions stemming from 342 participants).



³⁾ Five same-sex couples and one couple indicating "diverse" as the gender of one partner participated in the study.

Procedure

The study was divided into three consecutive parts: T0, T1-T13, and T14. Every partner filled out the questionnaires of each part for themselves individually.

T0. The survey link was sent via email to one relationship partner and it was noted that after finishing T0, the other partner would receive an email with the diary survey link. The T0 survey started with demographic items and items about the relationship (type, duration, living situation, etc.). Subsequently, a number of personality measures were assessed, which are not relevant to the current study. Furthermore, participants were asked to describe a situation they had experienced with their partner at 7 pm on the previous day (see Guillaume et al., 2016). In case participants did not spend that time with their partner, they were instructed to choose another situation they had spent together on a previous evening. The importance of both partners describing the same situation was emphasized, and the couple was allowed to communicate in order to agree upon one situation to be reported in the intake session. Participants were instructed to describe the situation briefly in at least two to three sentences, to specify the date of the situation and to specify the context in which the situation was experienced (e.g., in person or via phone). Following the situation description, participants were asked to complete the Riverside Situational Q-sort (RSQ; 89-item version; Wagerman & Funder, 2009) referring to the outlined situation. They were instructed not to talk with their partners about the RSQ items. Afterwards, in order to assess trait relationship satisfaction, participants completed the relationship assessment scale (RAS; Hendrick, 1981).

T1 – T13. On each day of the diary, participants received an email at 5pm inviting them to today's survey. Each day (T1 to T13), participants were asked to report on a situation with their relationship partner in the same manner as described above. Subsequently, participants completed the S8-II, which was developed for assessing the DIAMONDS (i.e., eight dimensions of situation perception; Duty, Intellect, Adversity, Mating, pOsitivity, Negativity, Deception, Sociality) in experience sampling contexts by relying on 8 items only (Rauthmann & Sherman, 2016), in order to describe their individual perceptions of the actual situation. Furthermore, in order to assess state relationship satisfaction, participants completed three items of the RAS (Hendrick, 1981), all of which referred to their relationship satisfaction on the specific day.

T14. The final questionnaire at day 14 was identical to the daily questionnaires at T1 to T13, except that at the end, participants additionally completed personality measures and the seven RAS items measuring general relationship satisfaction.

Measures

Demographic Variables – In addition to age and gender, participants provided information on their relationship status (married, registered partnership, in a relationship or in an open relationship), their relationship duration (in years) and whether they lived



Situation Perception — In order to assess a broad range of perceptions of situations, the Riverside Situational Q-sort (RSQ; 89-item version; Wagerman & Funder, 2009) and the S8-II (Rauthmann & Sherman, 2016) were used in the intake session and the daily diary, respectively. Both are self-report questionnaires which assess numerous properties of a given situation (e.g., whether the situation is potentially pleasant or involves a social comparison). A high score for, for example, intellect means that the given situation is of high intellectual quality (e.g., having a political debate or solving a difficult problem). The S8-II is a validated short measure of the DIAMONDS with one item per scale. Examples of items are ("The Situation contains...") "Deceit, lie, dishonesty" (deception); "Positive, pleasant, nice things" (positivity). For both measures, participants used a rating scale from 1 (*not at all*) to 7 (*totally*) to indicate how much every item applied to the situation they had described (Rauthmann & Sherman, 2016).

Relationship Satisfaction — Relationship satisfaction was assessed with the relationship assessment scale (RAS; Hendrick, 1981; German adaptation by Sander & Böcker, 1993). The RAS is a 7-item self-report questionnaire that assesses an individual's general satisfaction with their relationship (not bound to a specific situation). For the daily diary measures (T1–T14), we adapted three items of the RAS to assess momentary relationship satisfaction. All items were scored on a five-point rating scale from 1 (*low relationship satisfaction*) to 5 (*high relationship satisfaction*). Cronbach's alpha ranged from .84–.87 at intake and follow-up for male and female participants.

Analytic Strategy

In order to derive measures of similarity in situation perception, we computed indices across the 89 RSQ-items of the intake session and across the 8 S8-II-items on every day of the diary for each couple, respectively. We initially computed overall profile correlations (i.e., the actual *q*-correlation between two profiles), using the R package multicon (Sherman, 2015). However, it has been suggested that overall profile correlations, and their associations with other variables, can be inflated due to the normative nature of some responses (Wood & Furr, 2016). We therefore exploratorily computed distinctive profile correlations (i.e., the *q*-correlation between two specific profiles of which the average profile of all participants has been partialed out; Wood & Furr, 2016). Both profile correlations can be interpreted in a way similar to *r*-correlations and range from -1 to +1. Higher positive profile correlations indicate higher similarity in situation perception; larger negative coefficients indicate stronger dissimilarity. To enable Fisher *Z* transformations, we replaced correlations of ± 1.0 with \pm .999999999. The distribution of profile correlation indices is displayed in Figures S1–S2 of the Supplementary Materials.



Descriptive statistics of measures are displayed in Tables 1 and 2. In addition, we report exploratory analyses with profile similarity indices based on scatter, elevation, and the sum of squared differences (D^2) as an index of shape (Cronbach & Gleser, 1953) in the Supplementary Materials.

Table 1

Descriptive Statistics and Zero-Order Correlations at Intake (T0, Study 1)

Variable	М	SD	1	2	3	4
1. Rel.Sat _m	4.21	0.64	_			
2. Rel.Sat _f	4.22	0.67	.56	-		
3. Overall profile correlation	.50	.18	.16	.25	_	
4. Distinctive profile correlation	.29	.20	.06	.06	.76	-

Note. Rel.Sat = relationship satisfaction at intake (T0); m = male; f = female. N = 182.

Table 2

Descriptive Statistics and Zero-Order Correlations (T1-T14, Study 1)

Variable	М	SD	1	2	3	4	5	6	7	8
1. Rel.Sat _{m, int}	4.23	0.63	_							
2. Rel.Sat _{f, int}	4.22	0.63	.51	_						
3. Rel.Sat _{m, diary}	4.00	0.84	.41	.24	_					
4. Rel.Sat _{f, diary}	3.99	0.90	.26	.34	.49	_				
5. Rel.Sat _{m, fol}	4.28	0.59	.85	.45	.46	.29	_			
6. Rel.Sat _{f, fol}	4.33	0.58	.48	.82	.29	.40	.51	_		
7. Overall profile correlation	.72	.27	.09	.09	.20	.24	.14	.13	_	
8. Distinctive profile correlation	.44	.43	.03	.01	.06	.05	.08	.02	.66	-

Note. Rel.Sat = relationship satisfaction; m = male; f = female; int = assessment at intake; diary = assessment during the diary; fol = assessment at follow-up. N = 1835-1941 due to missing data.

To account for the dyadic data structure, we used actor-partner interdependence models for distinguishable dyads in accordance with Kenny et al. (2006) and multilevel models for dyadic diary data from distinguishable dyads in accordance with Laurenceau and Bolger (2012). These models take into account dependency in errors between dyad members at each time point. All analyses were carried out in Mplus Version 8 (Muthén & Muthén, 1998–2017). In our models, we specified Bayesian estimation in order to estimate standardized coefficients (Muthén, 2010). For all parameters, we chose non-informative priors. Thus, the parameter estimates were mainly based on observed data and could be interpreted in a manner that was similar to the interpretation of maximum

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likelihood estimates. For all parameters, we calculated the median of the posterior distribution (expected a posteriori) as the point estimate and the 95% Bayesian credibility interval (CI) as the interval estimate of the parameters. We also provide a one-tailed *p*-value based on the posterior distribution. For a positive estimate, the *p*-value is the proportion of the posterior distribution that is below zero. For a negative estimate, the *p*-value is the proportion of the posterior distribution that is above zero (Muthén, 2010).

The dyadic data structure at T0 included 182 dyads. An actor-partner interdependence model analysis was run to examine the impact of similarity in situation perception on general relationship satisfaction of each partner.

The multilevel structure of the dyadic diary data at T1–T14 in accordance with the multilevel model for dyadic diary data (Laurenceau & Bolger, 2012) included daily situations (N = 1941, Level 1) nested in dyads (N = 171, Level 2). Since the multilevel model for dyadic diary data (Laurenceau & Bolger, 2012) is an adaptation of the actor-partner interdependence model (Kenny et al., 2006), daily relationship satisfaction was modeled for every partner separately, and simultaneously. Furthermore, the multilevel model for dyadic diary data allowed us to investigate within-level effects (effects of daily similarity in situation perception on daily relationship satisfaction) and between-level effects (effects of average similarity in situation perceptions on the mean level of relationship satisfaction across diary days). Therefore, we entered two predictor variables of similarity in situation perception into the models: a varying similarity score across diary days for every dyad across diary days (representing the between-level effect).

First, a null model was run to examine the intraclass correlation of state relationship satisfaction for every partner at T1–T14. Further models were run to examine the impact of daily similarity in situation perception (a Level 1 predictor) on state relationship satisfaction of both partners (within-level effect), and of average similarity in situation perception (a Level 2 predictor) on the mean level of relationship satisfaction for every partner across diary days (between-level effect).

We also analyzed the effect of similarity in situation perception on change in trait relationship satisfaction between the intake and the last session. Similarity in situation perception was modeled as the mean score of similarity for every dyad across diary days at the between level. Change in men's and women's relationship satisfaction was modeled using residualized change scores by including relationship satisfaction at intake as a predictor.

To investigate whether the relation between similarity in situation perception and relationship satisfaction differed with respect to gender, we constrained the effects across gender in subsequent analyses (see Kenny et al., 2006). We used the Bayesian Deviance Information Criterion (DIC) to compare model fit between the constrained and the unconstrained model, respectively. We report only those models that exhibited significantly



better model fit based on χ^2 difference test. In cases where model fit did not differ significantly, we report results from the more parsimonious constrained effects model.

Results

Similarity in Situation Perception and Trait Relationship Satisfaction at T0

Focusing on overall profile correlations, results revealed that participants reported higher general relationship satisfaction when they perceived the situation more similarly to their partner (Figure 1). Spouses were more satisfied with their relationship when their situation perceptions converged than when they differed ($\beta = .17$, p = .020, 95% CI [.03, .29] for male spouses, and $\beta = .26$, p < .001, 95% CI [.12, .37] for female spouses). Effects, however, were no longer significant when using distinctive profile correlations ($\beta = .06$, p = .170, 95% CI [-.05, .18] for male spouses, and $\beta = .06$, p = .170, 95% CI [-.05, .17] for female spouses; Table 3).

Table 3

Similarity in Situation Perception Predicts Trait Relationship Satisfaction (T0, Study 1)

			One-tailed		
Effect	Estimate	Posterior SD	<i>p</i> -value	LCL	UCL
Overall profile correla	tion				
$\text{Rel.Sat}_{\text{m}} \leftarrow \text{Sim}$	$.17^{\mathrm{b}}$	0.07	.020	.03	.29
$\text{Rel.Sat}_{\text{f}} \leftarrow \text{Sim}$.26 ^b	0.07	< .001	.12	.37
Distinctive profile cor	relation				
$\text{Rel.Sat}_{\text{m}} \leftarrow \text{Sim}$.06 ^a	0.06	.170	05	.18
$\text{Rel.Sat}_{\text{f}} \leftarrow \text{Sim}$.06 ^a	0.06	.170	05	.17

Note. Cells present standardized estimates from an actor-partner-interdependence-model analysis for distinguishable dyads. Rel.Sat = relationship satisfaction at intake (T0); Sim = similarity in situation perception at intake (T0); m = male; f = female; LCL = lower confidence limit (95% CI); UCL = upper confidence limit (95% CI). N = 182.

^aconstrained effects across gender

^bunconstrained effects across gender

Similarity in Situation Perception and State Relationship Satisfaction at T1-T14

Results from the null model revealed an intraclass correlation of ICC = .39 for male spouses' and an ICC = .28 for female spouses' relationship satisfaction. Analyses indicated that 39% of the variance in male spouses' daily relationship satisfaction and 28% in female spouses' daily relationship satisfaction was due to differences between dyads, whereas 61% in male spouses and 72% in female spouses was due to differences between daily situations (see also Rentzsch et al., 2021).



Investigating the within-level effect of daily situation perception on state relationship satisfaction by focusing on overall profile correlations revealed that partners were more satisfied with their relationship on days when their situation perceptions converged than on days when they differed. In addition, we also investigated whether average similarity in situation perceptions across diary days related to the mean level of relationship satisfaction across diary days (between-level effects; Figure 1). Participants reported higher daily relationship satisfaction when they perceived the situation more similarly to their partner ($\beta = .17, p < .001, 95\%$ CI [.11, .21] for male spouses, and $\beta = .19, p < .001$, 95% CI [.12, .22] for female spouses). Moreover, results revealed that couples who had similar situation perceptions on average over the two weeks also exhibited higher mean levels of relationship satisfaction than couples with less similar situation perceptions $(\beta = .08, p < .001, 95\%$ CI [.03, .16] for male spouses, and $\beta = .09, p < .001, 95\%$ CI [.03, .16] for female spouses). The effects, however, were smaller and in part no longer significant when using distinctive profile correlations (β_{within} = .03, p = .036, 95% CI [-.00, .07] for male spouses, $\beta_{\text{within}} = .03$, p = .059, 95% CI [-.01, .06] for female spouses, and $\beta_{\text{between}} = .04$, p = .250, 95% CI [-.07, .12] for male spouses, $\beta_{\text{between}} = .04$, p = .250, 95% CI [-.08, .14] for female spouses; Table 4).4 In sum, results revealed that situation perception similarity based on overall profile correlations but not on distinctive profile correlations was positively associated with daily relationship satisfaction.

Similarity in Situation Perception and Change in Trait Relationship Satisfaction Between T0 and T14

We also tested whether similarity in situation perception predicted change in relationship satisfaction (Figure 1). Similarity in situation perception during the diary was positively associated with change in relationship satisfaction when using overall profile correlations ($\beta = .17$, p < .001, 95% CI [.11, .25] for male spouses, and $\beta = .16$, p < .001, 95% CI [.07, .23] for female spouses) and when using distinctive profile correlations for male spouses only ($\beta = .14$, p < .001, 95% CI [.06, .24] for male spouses, and $\beta = .05$, p = .270, 95% CI [-.06, .14] for female spouses; Table 5). In sum, relationship satisfaction was higher after 14 days of measurement than at the beginning when partners perceived their daily situations as more similar.



⁴⁾ Model comparison revealed a smaller DIC for the constrained model than the unconstrained model, indicating better model fit of the constrained model. This finding is in line with research showing that the DIC is prone to overfitting and is less robust in mixed model designs (Lu et al., 2017). Since the DIC estimates in the present study point toward worse model fit when modeling gender differences, we take the results as indicative of insubstantial gender differences.

		^s	Study 1				Stu	Study 2		
			One-tailed					One-tailed		
Effect	Estimate	Estimate Posterior SD	<i>p</i> -value	TCL	UCL	Estimate	Posterior SD	<i>p</i> -value	LCL	UCL
Overall profile correlation	uo									
Within-Level										
$\text{Rel.Sat}_{\text{m}} \leftarrow \text{Sim}$	$.17^{\rm b}$	0.03	< .001	.11	.21	$.04^{\rm b}$.02	.014	.01	.08
$\text{Rel.Sat}_{\text{f}} \leftarrow \text{Sim}$.19 ^b	0.03	< .001	.12	.22	.05 ^b	.02	.013	.01	.08
Between-Level										
$\text{Rel.Sat}_{\text{m}} \leftarrow \text{Sim}$.08 ^b	0.04	< .001	.03	.16	$.20^{\mathrm{b}}$.05	< .001	.10	.30
$\text{Rel.Sat}_{\text{f}} \leftarrow \text{Sim}$	⁴ 60.	0.04	< .001	.03	.16	.19 ^b	.04	< .001	.10	.26
Distinctive profile correlat	lation									
Within-Level										
$\text{Rel.Sat}_{\text{m}} \leftarrow \text{Sim}$	$.03^{a}$	0.02	.036	00	.07	05 ^b	.02	.010	08	01
$\text{Rel.Sat}_{\text{f}} \leftarrow \text{Sim}$.03 ^a	0.02	.059	01	.06	04 ^b	.02	.038	08	.00
Between-Level										
$\text{Rel.Sat}_{\text{m}} \leftarrow \text{Sim}$	$.04^{a}$	0.05	.250	07	.12	.06 ^b	.06	.120	05	.18
$\text{Rel.Sat}_{\text{f}} \leftarrow \text{Sim}$.04 ^a	0.06	.250	08	.14	.02 ^b	.05	.305	08	.13

Similarity in Situation Perception Predicts State Relationship Satisfaction (T1-T14, Study 1, Study 2)

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Table 4



Note. Cells present standardized estimates from multilevel models for dyadic diary data for distinguishable dyads. Rel.Sat = relationship satisfaction; Sim = similarity in situation perception; m = male; f = female; LCL = lower confidence limit (95% CI); UCL = upper confidence limit (95% CI). N_{study} 1, within = 1931–1941 due to missing

data; N_{Study 1}, between = 171, N_{Study 2}, within = 1696 due to missing data; N_{Study 2}, between = 131 due to missing data.

'unconstrained effects across gender ¹constrained effects across gender

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Satisfaction
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Change in
Predicts (
Perception
in Situation
Similarity

			r funne							
			One-tailed					One-tailed		
Effect	Estimate	Estimate Posterior SD	<i>p</i> -value	LCL	UCL	Estimate	Posterior SD	<i>p</i> -value	LCL	UCL
Overall profile correlation	u									
$\text{Rel.Sat}_{m,\text{fol}} \leftarrow \text{Sim}$	$.17^{\rm b}$	0.04	< .001	.11	.25	.07 ^b	.08	.180	-09	.22
$\text{Rel.Sat}_{f, \text{ fol}} \leftarrow \text{Sim}$	$.16^{\rm b}$	0.05	< .001	.07	.23	$.24^{\rm b}$.08	<.001	.05	.39
Distinctive profile correlation	ation									
$\text{Rel.Sat}_{m,\text{fol}} \leftarrow \text{Sim}$	$.14^{\rm b}$	0.05	< .001	90.	.24	11 ^a	.27	.350	66	.38
$\text{Rel.Sat}_{f, \text{ fol}} \leftarrow \text{Sim}$.05 ^b	0.06	.270	06	.14	11 ^a	.27	.350	-,66	.38

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Table 5

^aconstrained effects across gender ^bunconstrained effects across gender

Study 2

In Study 2, we sought to replicate the findings from Study 1 using experience sampling and a different situation taxonomy. For one week, romantic couples received seven questionnaires a day. Situation perceptions were assessed by asking each member to report on the last situation they had experienced with their partner and then rating this situation. Relationship satisfaction was assessed at each time point, as well as a day before and a week after the experience sampling phase.

Method

Data for Study 2 were independently collected as part of the Interdependence in Daily Life Study (Columbus et al., 2022). A detailed overview of measures is provided in the Supplementary Materials. The original study received ethical approval from the institutional review board of the Vrije Universiteit Amsterdam (#VCWE-2017-003).

Participants

Participants were recruited via two Dutch panel agencies as well as word of mouth. The study required a romantic relationship of at least four months. Participants were informed that the study consisted of a 2–2.5-hour laboratory intake session and a seven-day experience sampling phase. Participants were paid a show-up fee of €20, up to €10 in performance-dependent pay for unrelated measures, €0.50 for each completed experience sampling survey, as well as €20 if they completed at least 80% of the experience sampling surveys. Participants earned on average €63.65 (*SD* = 12.27) per person. In addition, participants had a chance to win 8 × €50 for completing the follow-up survey.

139 couples (N = 278 participants) completed the intake procedure ($M_{age} = 32.04$ years, SD = 13.56, Range: 18–79). 68 participants reported to be married, 9 in a civil partnership, 178 in an unmarried relationship, and 21 in another form of relationship. On average, participants indicated a relationship length of 7.7 years (SD = 10.6, Range: 1–59). We excluded one same-sex couple from the following analyses.

With each survey, participants were asked to describe the last situation they had experienced with their partner since the preceding measurement, reporting N = 6766 situations. All responses to the same survey were coded to determine whether partners had reported on the same situation. A Dutch native speaker was trained to code each pair of reports as referring to the same situation or not, based on written situation descriptions. 100 situations were randomly sampled and classified by a second trained coder to test for interrater reliability (Cohen's $\kappa = .92$). We excluded non-matching situational reports based on our coding, resulting in 3562 matched reports referring to 1781 situations.

Procedure

The study consisted of three parts, a laboratory intake, an experience sampling phase beginning the day after the intake, and an online follow-up survey a week after the end of the experience sampling phase.

Intake — In the laboratory, participants first completed individual difference questionnaires, relationship-specific measures, and demographic measures. Participants also played a series of incentivized economic games. Finally, participants received detailed instructions about the experience sampling phase. Research assistants read a script and used slides to present and explain all questionnaires included in the experience sampling surveys. The exact text of the instructions can be found in the Procedures document in the Supplementary Materials.

Experience Sampling — For seven consecutive days, participants received seven messages a day between 08:00 and 22:00. This window was divided into seven blocks of two hours, and participants received a message at a random time within each block (with a minimum of 45 minutes between messages). Partners were contacted simultaneously. If participants did not open the link in the message, a reminder was sent after 15 minutes. Survey links remained open for 45 minutes; the median time until opening the link was 3 minutes. Each link directed participants to a short survey (median time to completion 2:36 minutes).

Participants were first asked whether they had experienced a situation with their partner since responding to the last questionnaire. If so, they were asked to report on the last situation they had experienced with their partner. If not, participants were asked about a situation they had experienced with another person or alone. Participants were instructed to describe the situation in one to three sentences, focusing on who was present and what happened. Afterwards, participants completed a measure of situation perception and a number of attitude items, including their relationship satisfaction.

Follow-Up — One week after the end of their experience sampling phase, participants were invited to complete a ten-minute online follow-up survey, which included a measure of relationship satisfaction. A reminder was sent after three days. A total of 212 participants started the follow-up survey.

Measures

Demographic Variables — In addition to age and gender, participants provided information on their relationship status (unmarried, civil partnership, married, other) and the start of their relationship (month/year) in the intake survey.



Situation Perception — We measured the perception of daily life situations using the Dutch 10-item short-version of the Situational Interdependence Scale (SIS; Gerpott et al., 2018). The SIS is a self-report measure of perceptions of five dimensions of interdependence: mutual dependence, conflict of interests, future interdependence, information certainty, and power asymmetry. These dimensions are derived from objective properties of situations described by Interdependence Theory (Kelley et al., 2003). The Dutch 10-item SIS is a validated short form with two items per scale (Gerpott et al., 2018). Examples of items are "what each of us did in this situation affected the other" (mutual dependence); "we could both obtain our preferred outcomes" (conflict of interests). Participants stated their agreement with each item's description of the situation on a five-point rating scale (1 = completely disagree, 5 = completely agree; except for the power dimension: 1 = completely the other, 5 = completely me).

Relationship Satisfaction — During intake and follow-up, we assessed relationship satisfaction with items from the Global Investment Model Scale (Rusbult et al., 1998). We used all five global items from the relationship satisfaction subscale in the intake and items 2, 3, and 5 in the follow-up. For consistency, we only use these three items from the intake in the following analyses. Items were translated and back-translated by native Dutch speakers. Participants stated their agreement with each item's description of the situation on a seven-point rating scale (1 = completely disagree, 7 = completely agree). In the experience sampling surveys, we used a face-valid single-item measure of relationship satisfaction ("I am satisfied with our relationship") answered on a five-point rating scale. Omega total was .90 and .92 at intake, and .80 and .86 at follow up for male and female participants, respectively.

Analytic Strategy

Following the same analytic strategy in Study 1, we computed overall and distinctive profile correlations (Wood & Furr, 2016) across the 10 SIS items for each pair of matched experience sampling responses. Descriptive statistics of all measures are displayed in Table 6; the distribution of profile correlation indices is displayed in Figure S3 of the Supplementary Materials.

The analyses for Study 2 closely followed Study 1; therefore, here we only note deviations. We analyzed data using Mplus Version 8.2 (Muthén & Muthén, 1998–2017). The multilevel structure of the experience sampling data included matched situations (N = 1696, Level 1) nested in dyads (N = 131, Level 2). The models used to analyze the experience sampling data were identical to the analysis of daily effects in Study 1. Thus, we first examined the intraclass correlation of state relationship satisfaction. We then tested the within- and between-level effects of similarity in situation perception on state relationship satisfaction. Finally, we also analyzed the effect of similarity in situation perception on change in relationship satisfaction between the intake and follow-up.

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Table 6

Descriptive Statistics and Zero-Order Correlations (Study 2)

Variable	М	SD	1	2	3	4	5	6	7	8
1. Rel.Sat _{m, int}	6.10	.91	—							
2. Rel.Sat _{f, int}	6.07	.97	.43	_						
3. Rel.Sat _{m, exp}	4.67	.59	.32	.28	_					
4. Rel.Sat _{f, exp}	4.67	.62	.17	.43	.29	_				
5. Rel.Sat _{m, fol}	6.12	.83	.47	.46	.45	.20	-			
6. Rel.Sat _{f, fol}	6.05	.91	.26	.61	.19	.57	.42	-		
7. Overall profile correlation	.53	.36	.13	.15	.18	.17	.09	.18	_	
8. Distinctive profile correlation	.20	.47	.07	.04	.05	.02	.07	.03	.66	_

Note. Rel.Sat = relationship satisfaction; m = male; f = female; int = assessment at intake; exp = assessment during the experience sampling; fol = assessment at follow-up. Means, standard deviations, and correlations of/among intake and follow-up measures of relationship satisfaction are based on a wide data frame (i.e., one observation per couple), all others are based on a long data frame (i.e., one observation per experience sampling time point). $N_{\text{between}} = 85-129$, $N_{\text{within}} = 1298-1774$ due to missing data.

Results

Similarity in Situation Perception and State Relationship Satisfaction

Intraclass correlations from the null model indicated that 69.1% of the variance in men's and 70.5% in women's relationship satisfaction was due to differences between dyads, whereas 30.9% of the variance in men and 29.5% in women was due to situational differences.

Investigating the within-level effect of situation perception on situational relationship satisfaction by focusing on overall profile correlations revealed that partners were more satisfied with their relationship in situations when situation perceptions converged than in situations when they differed (β = .04, p = .014, 95% CI [.01, .08] for male spouses; β = .05, p = .013, 95% CI [.01, .08] for female spouses; Figure 1). Moreover, couples who had similar situation perceptions on average, i.e., across one week of experience sampling, also exhibited higher mean levels of relationship satisfaction than couples with less similar situation perceptions (β = .20, p < .001, 95% CI [.10, .30] for male spouses; β = .19, p < .001, 95% CI [.10, .26] for female spouses). The effects, however, were less consistent when using distinctive profile correlations (β_{within} = -.05, p = .010, 95% CI [-.08, -.01] for male spouses, β_{within} = -.04, p = .038, 95% CI [-.08, .00] for female spouses, and β_{between} = .06, p = .120, 95% CI [-.05, .18] for male spouses, β_{between} = .02, p = .305, 95% CI [-.08, .13] for female spouses; Table 4).⁴

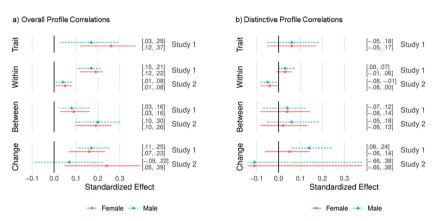


Similarity in Situation Perception and Change in Trait Relationship Satisfaction Between Intake and Follow-Up

We also tested whether average similarity in situation perception predicted change in relationship satisfaction (Figure 1). Similarity in situation perception during the experience sampling phase was positively associated with women's, but not men's, change in relationship satisfaction when using overall profile correlations ($\beta = .07$, p = .180, 95% CI [-.09, .22] for male spouses; $\beta = .24$, p < .001, 95% CI [.05, .39] for female spouses). The effects, however, were not significant when using distinctive profile correlations ($\beta = -.11$, p = .350, 95% CI [-.66, .38] for male and female spouses; Table 5). Thus, women's, but not men's, relationship satisfaction was higher two weeks after the intake when partners perceived everyday situations as more similar, though this relationship did not hold parceling out the normativeness of situations.

Figure 1

Overview of Results on Overall and Distinctive Profile Correlations From Studies 1 and 2



Note. 95% confidence intervals for standardized effects of similarity in situation perception on relationship satisfaction at intake (Trait relationship satisfaction), variation in state relationship satisfaction within (Within) and between couples (Between) and change in relationship satisfaction at follow-up (Change).

Discussion

We show that the degree to which partners agree in their perception of everyday situations relates positively to their relationship satisfaction, both in the moment and as a trait. Further, we found that similarity in situation perception predicted a change in relationship satisfaction up to two weeks later. Although previous research has already highlighted the predictive nature of situation perception regarding affect and behavior of individuals (e.g., Gerpott et al., 2018; Horstmann et al., 2021; Sherman et al., 2015), we are the first to demonstrate that it is not the situation perceived by an individual alone, but



also the degree to which interaction partners agree in their subjective perceptions that predicts outcomes, and specifically relationship satisfaction.

Situation perception similarity was, in both studies, consistently positively associated with relationship satisfaction when using overall profile correlations as an index of similarity, which is in line with our preregistered hypothesis. The effects for distinctive profile correlations were mostly smaller and inconsistently predictive of relationship satisfaction. This is in line with research showing distinctive profile correlations to be smaller in size than overall profile correlations and to exhibit weaker associations with desirable outcomes (Wood & Furr, 2016). One explanation is that the association between situation perception similarity and relationship satisfaction in part reflects the normativeness of certain desirable or merely common positive situation characteristics. However, by subtracting the sample average from each response and thus expressing ratings in relative terms, the procedure to compute distinctive profile correlations might not only take away desirability, but also valid content such as the social or interactional quality in jointly experienced daily situations (see also Funder, 2001). For example, we found some unexpected negative associations with relationship satisfaction only with distinctive profile correlations. Indeed, research showed that a tendency towards normativity can be adaptive in itself and thus does not necessarily constitute a statistical artifact (Kenny & Acitelli, 1994).

Exploratory analyses comparing different types of profile similarity — i.e., shape, scatter, elevation (Cronbach & Gleser, 1953) — provided somewhat inconsistent results across measures and studies (see the Supplementary Materials). While this mirrors findings from previous research (Götz et al., 2018), any post hoc explanations would be speculative. With the evidence at hand, we therefore prefer to focus on the general pattern of results: We found no convincing evidence whatsoever for scatter and elevation, but consistent evidence for shape (i.e., by relying on overall profile correlations). This finding supports our initial argument that situation perception similarity in shape plays a central role for relationship satisfaction.

How does situation perception similarity in shape relate to relationship satisfaction? Indices of similarity in shape are particularly sensitive to the varying degrees of agreement across different dimensions of situation perception. Relationship researchers have long recognized that objective features of situations are mentally processed, and that it is the perceived situation that people act upon (Kelley et al., 2003; Reis, 2008). Perceived situations are best thought of as social affordances—they are mental representations of the "opportunities for acting, interacting, and being acted upon that others provide" (Zebrowitz & Collins, 1997, p. 217). For example, perceiving a conflict of interests allows one to forego personal gain to benefit one's partner (Columbus et al., 2021; Righetti & Impett, 2017). Similarity in situation perception may matter because it alone allows for joint action: Only when partners align in their perceptions of the interactions that a situation affords can they work together towards positive relationship outcomes.



Previous research has shown that situation perception is associated with affective states and social behavior (Columbus et al., 2021; Gerpott et al., 2018; Horstmann et al., 2021; Rauthmann et al., 2014; Sherman et al., 2015). Ratings of daily life situations in terms of both DIAMONDS (Horstmann et al., 2021) and SIS (Gerpott et al., 2018) are associated with distinct emotions—which may mediate the effect of situation perception on commitment in close relationships (Rusbult & Van Lange, 2003). Similarity in situation perception may thus also give rise to emotional attunement (Gonzaga et al., 2007). Furthermore, perceived situation characteristics relate to behavior, and in particular cooperation, in the laboratory (e.g., Columbus et al., 2018). Yet, this previous research has only considered the consequences of situation perceptions for individual choice. In romantic couples, the shared understanding of a situation from the perspective of both partners may play an important role in influencing interpersonal behavior.

Limitations and Future Directions

While the use of different taxonomies and measures across two studies adds to the validity and generalizability of this research, it also raised some questions. Intraclass correlations of state relationship satisfaction varied somewhat between Study 1 and Study 2. This may be due to the use of a very short (one-item) scale in Study 2. Limited variance in this item may also have been the reason why within-level effects of the similarity indices on relationship satisfaction were smaller in Study 2 than in Study 1. Further differences, such as gender differences in the relation between situation perception and change in relationship satisfaction, may also be due to using the DIAMONDS taxonomy (Rauthmann et al., 2014) in Study 1 and the Situational Interdependence Scale (Gerpott et al., 2018) in Study 2. Although both taxonomies partly overlap, they also capture different situation characteristics (Gerpott et al., 2018). The reliability of our similarity measures is limited for the daily diary data in Study 1 and the experience sampling data in Study 2 due to relying on 8 to 10 items per measure. Still, our results resemble those from the intake session in Study 1, which used 89-items for measuring situation perception similarity.

Despite these strengths, the generalizability of our findings is constrained by our samples, which albeit heterogeneous, overrepresented younger and more educated couples. In addition, our samples were from two Western European countries and findings may not generalize across cultures. Further examination of demographic, cultural, and relationship characteristics may uncover effect heterogeneity.

One potential way to interpret our findings is that similar situation perception is associated with relationship satisfaction through joint behavior of both partners. Future research may elucidate whether shared perceptions of situations are associated with better communication, greater mutual understanding, and more efficient coordination as pathways to relationship satisfaction. For example, longitudinal studies may explore

the relationship between similarity in situation perception and the development of relationship-specific norms and joint goals (e.g., both want each other to make a career; Fitzsimons et al., 2015; Rauthmann et al., 2014; Rusbult & Van Lange, 2003).

Another way to interpret our findings is that perceiving situations in a normative, desirable way (i.e., to experience situations with the partner like most other people do) was related to relationship satisfaction. Thus, future research may want to elaborate on the core of normativeness in situation perceptions. For example, it is possible that shared perceptions of positivity/negativity may have driven the effects. Previous research has shown that measures of situation perception are to some extent correlated with positive/negative affect (e.g., Horstmann et al., 2021; Sherman et al., 2015), and common experiences in positivity may be associated with relationship satisfaction. Future research may thus contrast the association between overall situation perceptions of positivity/negativity in situation perception and relationship satisfaction. Furthermore, the present research cannot rule out the possibility that happy couples experienced more positivity (and not the other way around). Future research may also investigate lagged associations between situation perception, affect and relationship satisfaction using intensive longitudinal designs.

Conclusion

Throughout their daily lives, romantic partners experience a great variety of situations with each other. A shared understanding of these situations may afford couples the opportunity to engage in responsive and pro-relationship behaviors. The current work shows that the degree to which partners agree in their perception of these situations is associated with their relationship satisfaction both in the moment and in the longer term.



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Author Contributions: Katrin Rentzsch—Idea, conceptualization | Design planning | Resource provision (materials, participants, etc.) | Research implementation (software, hardware, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Visualization (data presentation, figures, etc.) | Data analysis | Validation, reproduction, checking | Writing | Supervision, mentoring | Project coordination, administration | Funding to conduct the work. Simon Columbus—Design planning | Resource provision (materials, participants, etc.) | Nisualization (data presentation, figures, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Visualization (data presentation, figures, etc.) | Data collection | Data management (storage, curation, processing, etc.) | Visualization (data presentation, figures, etc.) | Data analysis | Validation, reproduction, checking | Writing | Supervision, mentoring | Project coordination, administration. Daniel Balliet—Design planning | Resource provision (materials, participants, etc.) | Feedback, revisions | Supervision, mentoring | Project coordination, administration | Funding to conduct the work. Tanja M. Gerlach—Design planning | Resource provision (materials, participants, etc.) | Research implementation (software, hardware, etc.) | Data collection | Feedback, revisions | Supervision, mentoring | Project coordination, administration | Funding to conduct the work. Tanja M. Gerlach—Design planning | Resource provision (materials, participants, etc.) | Research implementation (software, hardware, etc.) | Data collection | Feedback, revisions | Supervision, mentoring | Project coordination, administration.

Ethics Approval: Study 1 was approved by the ethics committee at the University of Bamberg. Data for Study 2 were independently collected as part of the Interdependence in Daily Life Study (Columbus et al., 2022). The original study received ethical approval from the institutional review board of the Vrije Universiteit Amsterdam (#VCWE-2017-003).

Data Availability: Anonymized data from Study 2 are freely available (for access see Index of Supplementary Materials below). For Study 1, informed consent only allows limited data sharing for scientific purposes. Data can be requested from the first author.

Supplementary Materials

For this article, the following Supplementary Materials are available (for access see Index of Supplementary Materials below):

- The PDF-file "Supplemental_Material.pdf" including additional analyses, tables, figures.
- For Study 1, preregistration documentation, codebook and analysis scripts.
- · For Study 2, codebook, data and analysis scripts.

For additional information, please refer to the readme file provided with the Supplementary Materials.



Index of Supplementary Materials

- Rentzsch, K., Columbus, S., Balliet, D., & Gerlach, T. M. (2022). Supplementary materials to "Similarity in situation perception predicts relationship satisfaction" [Data, Codebook, Code, Materials]. PsychOpen GOLD. https://doi.org/10.23668/psycharchives.7048
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