

Relationship Behaviors across the Transition to Parenthood

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Abstract

The transition to parenthood (TTP) often is associated with declines in couple relationship satisfaction. The current study evaluated changes in three relationship behaviors, namely communication, dyadic coping and relationship self-regulation, across the TTP and the association of those behaviors with relationship satisfaction. One hundred and three couples completed questionnaires twice before and three times after the birth of their first child. Prenatally, all behaviors were stable, except negative communication that declined. Postnatally, positive relationship behaviors decreased in both genders, and negative communication increased in men. Negative behaviors were associated with relationship satisfaction throughout the TTP. Furthermore, relationship self-regulation strategies and males' negative dyadic coping prospectively predicted male relationship satisfaction, while men's supportive dyadic coping predicted female relationship satisfaction. Enhancing positive relationship behaviors through relationship education programs might help couples successfully adjust to parenthood.

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transition to parenthood, dyadic coping, relationship self-regulation, communication, relationship satisfaction

The transition to parenthood (TTP) is associated with many changes for couples (Halford, Petch, & Creedy, 2015). On the one hand, happiness, pride and joy are often reported after birth (Gottman & Notarius, 2000); on the other hand, stress and relationship distress often increase at the same time (Halford et al., 2015). About 30–40 percent of couples who make the TTP meet criteria for clinical relationship distress 18 months after birth and an additional 30 percent show a small to medium decline in relationship satisfaction (Mitnick, Heyman, & Smith Slep, 2009; Petch, Halford, Creedy, & Gamble, 2012). In most couples, the reduction in relationship satisfaction across the TTP persists for a number of years (Keizer & Schenk, 2012).

Relationship Behaviors and Couples' Satisfaction

Researchers have studied the behavioral correlates and predictors of relationship satisfaction for more than five decades (Halford & Pepping, 2017). The identified correlates have then become the focus of couple interventions (Halford, 2011). Three relationship behaviors that correlate with high satisfaction and have been targeted in couple interventions are: couple communication, dyadic coping (DC), and relationship self-regulation (SR).

Communication. Premarital communication is a well-replicated correlate and predictor of relationship satisfaction and stability (Markman, Rhoades, Stanley, Ragan, & Whitton, 2010; McNulty & Russell, 2010; Woodin, 2011), and predicts future satisfaction (Ruffieux, Nussbeck, & Bodenmann, 2014). More specifically, high rates of negative communication, and low rates of positive communication, are cross-sectionally associated with low relationship satisfaction (Woodin, 2011), and each predicts declines in relationship satisfaction (Gottman & Silver, 2015; Johnson et al., 2005).

There are only a couple of studies examining communication of couples making the TTP, and they find that positive communication declines and negative communication increases from pregnancy to two and eight years, respectively (e.g., Doss, Rhoades, Stanley, & Markman, 2009; Petch et al., 2012). However, no one has examined if couple communication across the TTP predicts relationship satisfaction. One aim of the current study was to test whether the increase in negative communication across the TTP could be replicated, and whether that increase would predict couples' decreases in

relationship satisfaction. Similarly, the examination of the potential decrease in positive communication across the TTP and its association with relationship satisfaction was part of the current study.

Dyadic coping. DC is an interpersonal process in which the partners cope with stressors conjointly; the process involves couples discussing stressors to develop a shared appraisal of the stressors and their effects, developing joint goals on how to manage the stress, and implementing a coordinated set of coping actions (Bodenmann, 1997, 2005). There are different forms of DC (Bodenmann, 1997). *Supportive DC* happens when only one partner is stressed (e.g., because of their job situation) and the second partner has resources to support the first partner in adapting to the stressful situation. *Common DC* occurs when both partners are affected by the same stressor (e.g., sleep deprivation because of a crying baby) and cope as a team with that shared stressor. *Negative DC* includes all coping forms in which the partners have a discrepant approach to coping, which is seen as not helpful.

DC has been shown to be beneficial for couples facing a wide range of stressors such as breast cancer (Kraemer, Stanton, Meyerowitz, Rowland, & Ganz, 2011), infertility (Molgora et al., 2019) or daily stress (Falconier, Nussbeck, Bodenmann, Schneider, & Bradbury, 2015; Merz, Meuwly, Randall, & Bodenmann, 2014). Moreover, DC is associated with relationship stability (Ruffieux et al., 2014). A consistent moderate correlation between DC and relationship satisfaction is documented (e.g., Falconier, Jackson, Hilpert, & Bodenmann, 2015; Papp & Witt, 2010). To the best of our knowledge, only one study examined DC in the TTP: Molgora, Acquati, Fenaroli, and Saita (2018) investigated DC during pregnancy and found common DC was cross-sectionally associated with relationship satisfaction. However, there are no studies of how DC might change across the TTP, or whether DC predicts future satisfaction in expectant parents. A second aim of the current study was to address this gap in knowledge.

Relationship self-regulation. Relationship SR is a process whereby each partner assesses their relationship behaviors, sets self-change goals, and implements self-change to enhance their couple relationship. *SR strategies* refer to the work that one invests in order to maintain and improve their own relationship and *SR effort* relates to one's persistence in attempts to improve the relationship despite potential difficulties. SR has repeatedly been shown to be cross-sectionally associated with high relationship satisfaction (Halford, 2011; Halford, Lizzio, Wilson, & Occhipinti, 2007; Halford & Wilson, 2009; Shafer, James, & Larson, 2015). Only one study examined SR across the TTP finding that SR decreased in expectant parents (Halford, Petch, & Creedy,

2010). A third aim of the current study was to assess SR, and its association with relationship satisfaction across the TTP.

Gaps in Current Knowledge

In summary, there are several studies indicating substantial changes in relationship functioning during the TTP (e.g., Kluwer, 2010; Mitnick et al., 2009). There is, on the other hand, international research showing that couple communication, DC, and SR each are significantly and consistently associated with relationship satisfaction (Falconier, Jackson, et al., 2015; Halford, 2011; Ruffieux et al., 2014; Shafer, Jensen, & Larson, 2014). Therefore prevailing models of couple interventions have focused on one or more of these behaviors aiming to improve couple relationships (Halford, 2011), notably during the TTP (Cowan & Cowan, 2000; Petch et al., 2012). However, as noted by Fincham and Beach (1999), behaviors like communication might be affected by the problems couples are facing, and just teaching communication (or DC or SR) might not address those problems. Therefore, it is important to understand both how relationship behaviors change across time in response to challenges couples face like the TTP, as well as examining how the changes in these behaviors relate to changes in satisfaction.

There is little research investigating how the behaviors of couple communication, DC, and SR change across the TPP, and none testing whether these behaviors predict couple relationship satisfaction. This gap in knowledge needs to be addressed given the previously documented high prevalence of deteriorating relationship satisfaction across the TTP, and the distinctive challenges that couples confront across the TTP.

Most studies in the field of the TTP assess couples just once before the birth, and once after the birth, which does not allow for evaluation of the nature of changes, which might reflect continuation of preexisting trends across the TTP, or more sudden change around the birth. One notable exception is the study by Doss et al. (2009), who assessed satisfaction annually across eight years from the time of marriage. They found there was a marked and abrupt decline in the trajectory of relationship satisfaction, and an increase in the trajectory of negative communication, across the TTP. However, given the one-year timeframe between assessments in that study, it cannot be estimated whether changes occurred pre- or postnatally. In the later phases of pregnancy, women often report fatigue, and there often is a decline in positive couple activities and sex (Halford et al., 2010), which might cause declines in relationship satisfaction before the birth of the child. In the current study, we assessed couple relationship behaviors and satisfaction twice

during pregnancy to test for changes before birth, as well as multiple assessments after birth to test for changes after birth.

Aims of the Current Study

Given the previous research on the stresses of the TTP, we hypothesized that positive relationship behaviors decrease (positive communication, supportive and common DC and SR) and negative behaviors (negative communication, negative DC) increase across the TTP (Hypotheses 1a and 1b). We also predicted that there would be a significant decrease in relationship satisfaction across the TTP (Hypothesis 2). Given the lack of previous research on changes during pregnancy versus after the birth of the child, we did not make specific predictions about when the changes would occur, but we did test for change before and after the birth.

Second, we examined the association between relationship behaviors and relationship satisfaction across the TTP. Based on studies consistently reporting a positive association between positive relationship behaviors and relationship satisfaction (e.g., Falconier, Jackson, et al., 2015; Halford, 2011), we predicted that positive relationship behaviors would be associated with high relationship satisfaction across the TTP (Hypothesis 3a). In a similar vein, we expected negative relationship behaviors to be associated with low relationship satisfaction (Hypothesis 3b).

Method

Participants and Procedure

Participants were 103 heterosexual expecting couples who were approached while attending antenatal information sessions at different hospitals in the German-speaking part of Switzerland, or were informed online about the study through different social media platforms and newsletters. Inclusion criteria for the study were: (a) the woman was up to 27 weeks pregnant, we limited to that time frame so we could do two assessments before the birth; (b) it was the first child for both parents; (c) both partners were willing to participate; and (d) both partners could understand, speak, and write in German.

Five couples dropped out from the study citing the following reasons: too busy ($n = 1$), unmet expectations of study participation ($n = 2$), and no specific reason ($n = 2$). Men's mean age was 34.2 years ($SD = 6.3$) and women's mean age was 31.9 years ($SD = 3.9$). Fifty-two percent of women earned between 41,000 and 80,000 Swiss francs per year (approximately between

\$41,300 and \$80,400) and 50 percent of the men earned between 61,000 and 100,000 Swiss francs per year (approximately between US \$62,400 and \$102,000), which is similar to the Swiss median family income (Swiss Federal Bureau of Statistics, 2016). About half of the couples (53%) were married and the rest were cohabiting and reported a relationship duration of 2–5 years. Highly educated people were overrepresented in the current sample with 70 percent of the men and women having a university degree.

Measures

Partners completed an online set of self-report measures on their communication, DC, relationship SR, and relationship satisfaction five times: at week 27 (T1) and week 32 (T2) of pregnancy; and at two weeks (T3), 14 weeks (T4), and 40 weeks (T5) after birth.

Communication. Positive and negative communication behavior in conflict situations was assessed by the 19-item self-report measure of the Marital Communication Questionnaire (MCQ; Bodenmann, 2000), which is based on the communication behaviors defined in the observational coding system: the Specific Affect Coding System (SPAFF; Gottman, 1994). Each item was rated on a 6-point scale (1 = *never*, 6 = *very often*). Positive communication was captured by 6 items (e.g., “*I am actively interested and curious about what my partner is telling me*”), and negative communication was captured by 13 items (e.g., “*I insult my partner*”). Items of both scales were averaged with higher values indicating more positive and negative communication, respectively. The MCQ has been shown to have satisfactory psychometric properties (Bodenmann, 2000). In this study, the internal consistencies for T1 to T5 were the following: Positive communication: $\alpha_{\text{women}} = .83$ – $.86$ and $\alpha_{\text{men}} = .82$ – $.86$; negative communication: $\alpha_{\text{women}} = .80$ – $.86$ and $\alpha_{\text{men}} = .76$ – $.84$.

Dyadic coping (DC). DC was measured using the 37-item self-report scale of the Dyadic Coping Inventory (DCI; Bodenmann, 2008). The DCI assesses DC behaviors (i.e., common, supportive, and negative DC). All items were rated on a 5-point scale (1 = *very rarely*, 5 = *very often*). Common DC was measured by five items (e.g., “*We try to cope with the problem together and search for appropriate solutions*”), supportive DC was measured by five items (e.g., “*I show empathy and understanding to my partner*”), and negative DC was measured by four items (e.g., “*I do not take my partner’s stress seriously*”). Psychometrics of the DCI are well documented (e.g., Bodenmann, 2008). In this sample, the ranges of internal consistencies for T1 to T5 were: common DC: $\alpha_{\text{women}} = .69$ – $.81$, $\alpha_{\text{men}} = .62$ – $.73$; supportive DC: $\alpha_{\text{women}} = .75$ – $.82$, $\alpha_{\text{men}} = .75$ – $.84$; negative DC: $\alpha_{\text{women}} = .52$ – $.68$, $\alpha_{\text{men}} = .56$ – $.73$.

Relationship Self-Regulation (SR). SR was assessed by a German version (after translation and independent back translation to ensure accuracy of meaning in the translated version) of the 16-item Self-Regulation for Effective Relationships Scale (SRERS; Wilson, Charker, Lizzio, Halford, & Kimlin, 2005). All items were rated on a 6-point Likert scale (1 = *not true at all*, 6 = *very true*). The SRERS has two subscales: strategies (10 items, e.g., “*I try to apply ideas about effective relationships to improving our relationship*”) and efforts (6 items, e.g., “*If my partner does not appreciate the change efforts I am making, I tend to give up*” (reverse scored)). Item scores were averaged with higher values indicating higher SR strategies and SR efforts, respectively. Total SR was computed by including all dimensions of SR. The SRERS has been shown to have satisfactory psychometric properties (Wilson et al., 2005). In the current study, ranges of internal consistencies for T1 to T5 were the following: SR strategies: $\alpha_{\text{women}} = .81-.88$, $\alpha_{\text{men}} = .84-.90$; SR efforts: $\alpha_{\text{women}} = .68-.74$, $\alpha_{\text{men}} = .70-.78$.

Relationship Satisfaction. Relationship satisfaction was assessed with the German version of the 4-item version of the Couple Satisfaction Index-4 (CSI-4; Funk & Rogge, 2007). Participants rated four global evaluations of their romantic relationship (e.g., “*Please indicate the degree of happiness, all things considered, of your relationship*”). Items were summed with higher scores indicating higher relationship satisfaction. The CSI-4 had good reliability and validity in previous studies (Funk & Rogge, 2007). In this sample, ranges of the internal consistencies for T1 to T5 were $\alpha = .65-.82$ for women and $\alpha = .68-.87$ for men.

Statistical Analyses

In this study, data from five points of measurement were nested within persons and persons within couples. Given that childbirth itself is the key defining point in becoming a new parent, time was centered at the time of birth and expressed as months from birth (T1 = -3.25, T2 = -2, T3 = 0.5, T4 = 3.5, T5 = 10). We used two different time variables for testing Hypotheses 1 and 2, to be able to model the change of relationship behaviors and relationship satisfaction separately for prebirth and postbirth. Time_{pre} reflects the change before birth and was coded as T1 = -3.25 months before birth, T2 = -2 months before birth, and T3 to T5 = 0. $\text{Time}_{\text{post}}$ reflects change after the birth and was coded as T1 and T2 = 0, T3 = 0.5, T4 = 3.5, T5 = 10 months after birth. When entered concurrently to the models, Time_{pre} and $\text{Time}_{\text{post}}$ give estimates of slope of change for pre- and postbirth, respectively.

For men and women individually, we ran eight separate unconditional growth models for each of the seven relationship behaviors (positive

communication, negative communication, positive DC, common DC, negative DC, SR strategies, and SR efforts)¹, and relationship satisfaction to evaluate change across the TTP. We used a stepwise procedure for model comparisons with fit indices (Singer & Willett, 2003). Thus, we report random intercept models, and—where indicated by better model fit indices—models including random slopes. Whenever random slopes fitted the data better than random intercept only models, effects varied considerably between women or men, respectively.

To test Hypotheses 3a and 3b about the association between relationship behaviors and relationship satisfaction, we ran multilevel Actor–Partner Interdependence models (Kenny, Kashy, & Cook, 2006) for each of the independent variables (i.e., communication, DC, and SR) separately using self-report data from men and women. To test if relationship behaviors predicted the decrease of relationship satisfaction over time, we included time and an interaction term of time with the respective relationship behaviors as predictors in our models.² Exploratively, we also tested for partner effects (from partner A to partner B). To do so, we calculated interactions between the time variables and female relationship behavior and predicted male relationship satisfaction over time (and vice versa). Following recommendations (e.g., Bolger & Laurenceau, 2013), we ran double intercept models to provide gender-specific slopes and intercepts using the nlme package in R (Pinheiro, Bates, Sarkar, & R Core Team, 2016). Following recommendations of Singer and Willett (2003), we tested the optimal random structure by a stepwise procedure of model comparisons (comparing BICs with a χ^2 -test). We extended the same model structure to run additional analysis about the predictive power of relationship behaviors for lagged effects. Lagged effects refer to the effects of a relationship behavior at T1 on relationship satisfaction on T2, a relationship behavior at T2 on relationship satisfaction at T3, and so on, so that previous relationship behaviors are used to predict relationship satisfaction at the following measurement point. To allow for autocorrelation of relationship satisfaction across time, we included the prior relationship satisfaction score as a predictor of relationship satisfaction at the subsequent time point. Before running the models, the predictors were grand mean centered ($M = 0$, $SD = 1$).

Results

Changes in Relationship Behaviors across the TTP (Hypotheses 1a and 1b)

Except for negative DC, all relationship behaviors decreased for one or both partners across the TTP (see Table 1). As shown in Figure 1 and Table 2,

Table 1. Mean and Standard Deviation of all the Study Variables (N = 103).

		T1		T2		T3		T4		T5	
		M	SD	M	SD	M	SD	M	SD	M	SD
Positive communication	F	4.54	.75	4.63	.67	4.56	.76	4.49	.69	4.41	.78
	M	4.32	.73	4.34	.77	4.27	.73	4.30	.79	4.21	.75
Negative communication	F	2.06	.47	1.97	.47	1.92	.56	1.93	.52	1.98	.49
	M	1.91	.43	1.79	.38	1.73	.39	1.75	.41	1.81	.47
Common dyadic coping	F	3.67	.71	3.63	.59	3.57	.68	3.45	.68	3.26	.74
	M	3.58	.55	3.58	.58	3.52	.62	3.49	.65	3.34	.67
Supportive dyadic coping	F	4.17	.54	4.18	.51	4.12	.53	4.07	.54	3.97	.55
	M	4.11	.52	4.05	.54	4.04	.59	3.98	.60	3.86	.61
Negative dyadic coping	F	1.42	.47	1.29	.36	1.36	.41	1.37	.47	1.43	.53
	M	1.53	.51	1.54	.57	1.60	.51	1.58	.54	1.63	.57
Relationship self-regulation strategies	F	4.54	.66	4.59	.65	4.47	.65	4.45	.74	4.39	.76
	M	4.43	.71	4.42	.68	4.49	.75	4.37	.81	4.24	.83
Relationship self-regulation effort	F	4.37	.84	4.56	.78	4.39	.86	4.31	.89	4.24	.86
	M	4.21	.91	4.18	.88	4.25	.82	4.18	.90	4.02	.92
Relationship Satisfaction	F	14.13	2.23	14.00	2.31	13.51	2.71	12.21	3.02	11.46	3.35
	M	14.14	2.22	13.70	2.24	13.31	2.67	13.15	2.99	11.96	3.35

Note: M = male, F = female; Time = weeks since birth, centered at birth.

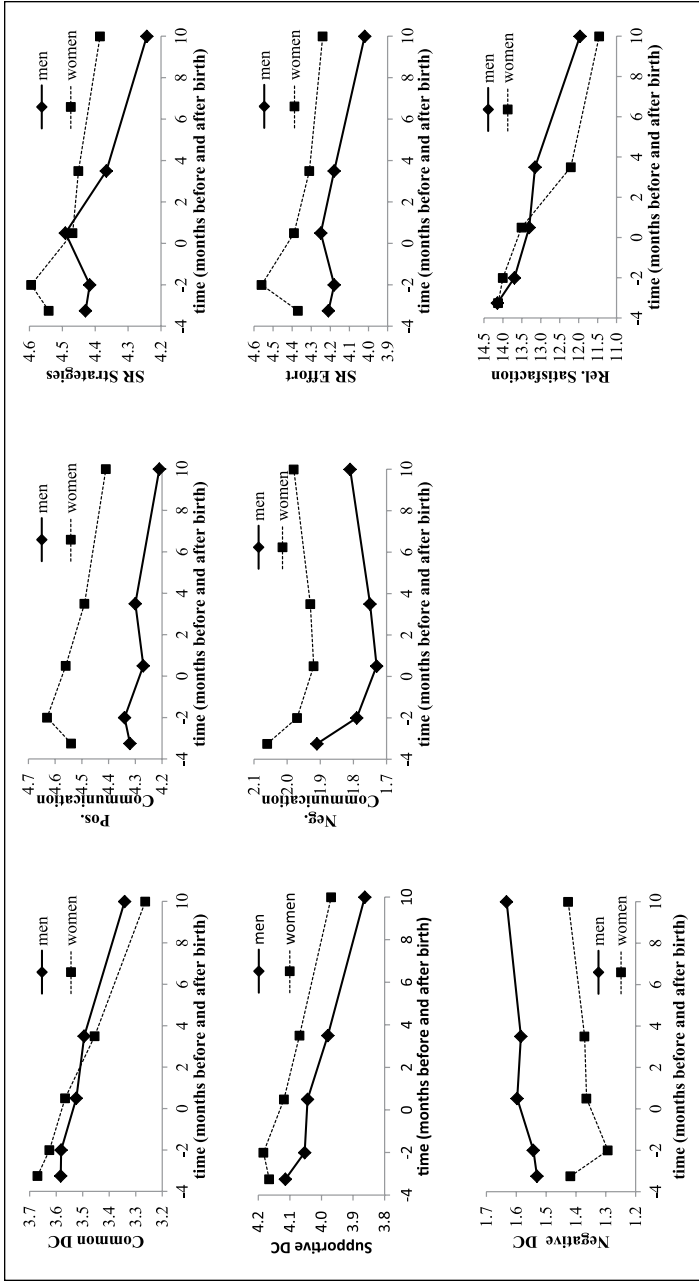


Figure 1. Time Effects on all the Study Variables (Raw means).
 Note: DC = dyadic coping; SR = relationship self-regulation; Rel. Satisfaction = relationship satisfaction.

Table 2. Estimates and Standard Errors of the Unconditional Growth Curve Models of Relationship Behaviors and Relationship Satisfaction (N = 103) for Pre- and Postnatal Time.

	Pos. Comm.	Neg. Comm.	Common DC	Supportive DC	Negative DC	SR Strategies	SR Effort	Rel. Satisfaction
Intercept	F 4.59 (0.07)*** M 4.30 (0.07)***	1.89 (0.05)*** 1.71 (0.04)***	3.57 (0.07)*** 3.56 (0.06)***	4.14 (0.05)*** 4.02 (0.06)***	1.34 (0.04)*** 1.58 (0.05)***	4.48 (0.07)*** 4.50 (0.08)***	4.42 (0.08)*** 4.24 (0.09)***	13.35 (0.29)*** 13.30 (0.27)***
Time _{pre}	F 0.01 (0.02) M -0.01 (0.02)	-0.05 (0.01)*** -0.05 (0.01)***	-0.03 (0.02) -0.01 (0.02)	-0.1 (0.01) -0.03 (0.02)	-0.01 (0.01) 0.01 (0.02)	-0.03 (0.02) 0.02 (0.02)	-0.01 (0.02) 0.02 (0.03)	-0.25 (0.09)*** -0.24 (0.09)***
Time _{post}	F -0.02 (0.01)*** M -0.01 (0.01)	0.01 (0.01) 0.01 (0.01)*	-0.03 (0.01)*** -0.02 (0.01)***	-0.02 (0.01)* -0.02 (0.01)**	0.01 (0.01) 0.01 (0.01)	-0.01 (0.01) -0.02 (0.01)**	0.01 (0.01) -0.02 (0.01)*	-0.20 (0.03)*** -0.13 (0.03)***

Note. Time_{pre} = Time before birth; Time_{post} = Time after birth; M = male; F = female; Comm. = Communication; DC = dyadic coping; pos. = positive; neg. = negative; SR = relationship self-regulation; Rel. = relationship; SE are in brackets; model allowed for random slopes of time before birth; model allowed for random slopes of time after birth.

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

different changes in relationship behaviors were evident before (from T1 to T2) and after (from T3 to T5) birth.

Negative relationship behaviors. Negative communication declined significantly in both genders before birth, although these were very small effect size declines, $d_{\text{women}} = 0.06$; $d_{\text{men}} = 0.07$. After birth, negative communication increased significantly in men but not women. Significant random slope effects for Time_{pre} in women, $\chi^2_{\text{women}}(2) = 6.50, p = .039$, and Time_{pre} and Post in men, $\chi^2_{\text{men}}(2) = 10.03, p = .018$, highlight females' variation in the slope of change in negative communication before birth and the variation in change in men pre- and postnatally.

Positive relationship behaviors. In both genders, positive communication did not change prenatally, but decreased postnatally significantly in women (but not men) indicating a small effect, $d_{\text{women}} = 0.16, d_{\text{men}} = 0.01$. Addition of random slopes for Time_{pre} in women, $\chi^2_{\text{women}}(2) = 18.48, p < .001, \chi^2_{\text{men}}(2) = 3.47, p = .178$, improved the fit of the model for women. Before birth, common DC did not change, but declined significantly in women and in men postnatally, with small to medium effect sizes, $d_{\text{women}} = 0.32; d_{\text{men}} = 0.21$. Random slopes for $\text{Time}_{\text{post}}$ in women and Time_{pre} in men, $\chi^2_{\text{women}}(2) = 10.08, p = .006; \chi^2_{\text{men}}(2) = 6.95, p = .031$, improved model fit. Similarly, supportive DC did not change prenatally, but decreased significantly in both genders postnatally with a small effect size, $d_{\text{women}} = 0.17, d_{\text{men}} = 0.16$. Postnatal random slopes in women and prenatal random slopes in men significantly improved model fits, $\chi^2_{\text{women}}(2) = 9.53, p = .009, \chi^2_{\text{men}}(2) = 6.76, p = .034$. SR strategies did not change in women at all and decreased significantly in men only after birth with a small effect size, $d_{\text{women}} = 0.12, d_{\text{men}} = 0.19$, and a significant random slope effect for women after birth, $\chi^2_{\text{women}}(2) = 12.23, p = .002, \chi^2_{\text{men}}(2) = 5.98, p = .051$. In a similar vein, in SR effort, no changes were observed in women, and in men only a significant decrease after birth, ($d_{\text{women}} = 0.11, d_{\text{men}} = 0.21$).

Changes in Relationship Satisfaction across the TTP (Hypothesis 2)

Relationship satisfaction declined significantly in women and in men before birth but with a very small effect size, $d_{\text{women}} = 0.07, d_{\text{men}} = 0.06$. Similarly, relationship satisfaction declined significantly postnatally in women and in men but with a small to medium effect for women, $d_{\text{women}} = 0.41$; and a small effect for men, $d_{\text{men}} = 0.27$. Model comparisons indicated that there was substantial between-person variability in the change of satisfaction before birth for women, $\chi^2_{\text{women}}(2) = 12.76, p = .002$; and pre- and postnatally for men, $\chi^2_{\text{men}}(2) = 10.97, p < .012$.³

Associations between Relationship Behaviors and Relationship Satisfaction (Hypotheses 3a and 3b)

To test cross-sectional associations between relationship behaviors and relationship satisfaction, each behavior was a time varying predictor that was tested for its cross-sectional association with relationship satisfaction.

Actor effects. These are the associations between an individual's relationship behaviors and their own relationship satisfaction. As shown in Table 3, high negative communication and negative DC were associated with low own relationship satisfaction in both genders. Own positive communication, common and supportive DC, and SR strategies were associated with high own relationship satisfaction across the TTP in men and women. Additionally, males' SR effort was related to their own high relationship satisfaction.

The interaction of relationship behavior and time (see last four rows of Table 3) indicates that the trajectory of relationship satisfaction depends on the level of relationship behavior: in women, none of their own relationship behaviors were related to the trajectory of their own relationship satisfaction. In contrast, men with high negative communication and negative DC had a steeper decline in relationship satisfaction across the TTP. Furthermore, men's high supportive DC and SR strategies were associated with a smaller decline in relationship satisfaction across the TTP.

Partner effects. These are the associations between relationship behaviors and relationship satisfaction across both partners). All male's positive relationship behaviors (except males' common DC) were positively, and male's negative relationship behaviors negatively, associated with their female partners' relationship satisfaction. In contrast, only one female behavior (females' supportive DC) was positively associated with their male partners' relationship satisfaction.

The interaction effects of one's partner's relationship behavior by time showed that male partner's high negative communication was associated with high decline over time in their female partner's relationship satisfaction. Males' supportive DC and common DC were associated with low decline in female relationship satisfaction over time. Furthermore, females' high common DC and SR strategies were associated with low decline in their partners' relationship satisfaction over time.

Finally, we tested whether relationship behaviors prospectively predicted relationship satisfaction at the following time point (see Table 4 for the lagged analysis). That is, did behavior at Time 1 predict satisfaction at T2, behavior at T2 predict satisfaction at T3, etc. Women's relationship satisfaction was

Table 3. Estimates and Standard Errors of the Multilevel Models of Relationship Behaviors Predicting Relationship Satisfaction (N = 103) Controlled for Pre- and Postnatal Time Differences.

Relationship Satisfaction	Predictors									
	Pos. Comm.	Neg. Comm. ^b	Common DC ^b	Supportive DC ^a	Negative DC ^a	SR Strategies ^a	SR Effort			
Intercept	F 13.44 (0.20)	13.50 (0.20)	13.46 (0.19)	13.43 (0.19)	13.51 (0.20)	13.46 (0.17)	13.46 (0.21)			
	M 13.55 (0.20)	13.38 (0.20)	13.47 (0.18)	13.50 (0.18)	13.61 (0.19)	13.50 (0.18)	13.50 (0.21)			
Time	F -0.05 (0.01) ^{***}	-0.06 (0.01) ^{***}	-0.04 (0.01) ^{***}	-0.04 (0.01) ^{***}	-0.05 (0.01) ^{***}	-0.05 (0.01) ^{***}	-0.05 (0.01) ^{***}			
	M -0.03 (0.01) ^{***}	-0.04 (0.01) ^{***}	-0.03 (0.01) ^{***}	-0.02 (0.01) ^{***}	-0.03 (0.01) ^{***}	-0.03 (0.01) ^{***}	-0.03 (0.01) ^{***}			
Behavior	F 0.65 (0.16)^{***}	-0.40 (0.15)[*]	0.69 (0.14)^{***}	0.80 (0.14)^{***}	-0.32 (0.15)^{*1}	0.69 (0.14)^{***}	-0.05 (0.20)[*]			
Own	M 0.72 (0.15)^{***}	-0.48 (0.17)^{**}	0.82 (0.16)^{***2}	0.77 (0.13)^{***}	-0.52 (0.13)^{***}	0.80 (0.14)^{***}	-0.05 (0.23)			
Behavior	F 0.34 (0.15)[*]	-0.41 (0.17)[*]	0.27 (0.16)	0.42 (0.13)^{**}	-0.34 (0.13)[*]	0.42 (0.14)^{**}	0.52 (0.21)^{**}			
Partner	M 0.20 (0.16)	0.03 (0.15)	0.06 (0.13)	0.34 (0.14)[*]	0.17 (0.14)	0.20 (0.14)	0.10 (0.22)			
Behavior	F 0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.01 (0.01)	0.01 (0.01)			
own × Time	M 0.01 (0.01)	-0.02 (0.01)^{**}	0.01 (0.01)	0.01 (0.01)^{**}	-0.02 (0.01)^{***}	0.01 (0.01)[*]	0.01 (0.01)			
Behavior	F 0.00 (0.01)	-0.02 (0.01)^{**}	0.01 (0.01)[*]	0.01 (0.01)[*]	-0.01 (0.01)	-0.00 (0.01)	0.01 (0.01)			
Partner × Time	M 0.01 (0.01)	-0.00 (0.01)	0.01 (0.01)[*]	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)[*]	0.01 (0.01)			

Note. M = male, F = female; Time = weeks since birth, centered at birth; Comm. = Communication; DC = dyadic coping; pos. = positive; neg. = negative; SR = relationship self-regulation; SE are in brackets¹; allowed for random slopes of time in women²; allowed for random slopes of time in men.¹ Females' negative DC was more strongly associated with relationship satisfaction before birth than after (Est = 0.70, SE = 0.34, $p = 0.04$).² Males' common DC was more strongly associated with relationship satisfaction before birth than after (Est = 0.70, SE = 0.34, $p = 0.04$).

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

Table 4. Estimates and Standard Errors of the Multilevel Models of Lagged Relationship Skills Predicting Relationship Satisfaction (N = 103).

Relationship Satisfaction	Predictors						
	Pos. Comm.	Neg. Comm. ^b	Common DC ^b	Supportive DC ^a	Negative DC ^a	SR Strategies ^a	SR Effort
Intercept	F 3.22 (0.75)	2.87 (0.73)	3.68 (0.76)	3.18 (0.79)	2.88 (0.74)	3.46 (0.80)	3.33 (0.67)
	M 5.35 (0.82)	4.33 (0.77)	5.08 (0.82)	6.10 (0.84)	4.75 (0.79)	6.09 (0.86)	5.03 (0.79)
Previous relationship satisfaction	F 0.72 (0.05) ^{***}	0.75 (0.05) ^{***}	0.68 (0.06) ^{***}	0.72 (0.06) ^{***}	0.75 (0.05) ^{***}	0.70 (0.06) ^{***}	0.70 (0.05) ^{***}
	M 0.58 (0.06) ^{***}	0.64 (0.06) ^{***}	0.59 (0.06) ^{***}	0.51 (0.06) ^{***}	0.62 (0.06) ^{***}	0.52 (0.06) ^{***}	0.60 (0.06) ^{***}
(stability)							
Previous behavior own	F -0.06 (0.14)	-0.19 (0.13)	0.27 (0.15)	-0.03 (0.15)	-0.16 (0.16)	0.16 (0.16)	0.55 (0.21)^{**}
	M 0.24 (0.15)	-0.33 (0.17)	0.28 (0.17)	0.58 (0.15)^{**}	-0.58 (0.14)^{***}	0.49 (0.16)^{**}	0.24 (0.22)
Previous behavior partner	F 0.23 (0.13)	-0.11 (0.15)	0.25 (0.15)	0.29 (0.13)[*]	-0.22 (0.12)	0.01 (0.13)	-0.14 (0.19)
	M 0.03 (0.16)	-0.05 (0.14)	0.06 (0.16)	0.26 (0.16)	-0.05 (0.16)	-0.12 (0.17)	-0.17 (0.24)

Note. M = male, F = female; Time = weeks since birth, centered at birth; Comm. = Communication; DC = dyadic coping; pos. = positive; neg. = negative; SR = relationship self-regulation; SE are in brackets^a; allowed for random slopes of time in women^b; allowed for random slopes of time in men.

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

prospectively predicted by only one (SR effort) of seven assessed own behaviors. In contrast, men's relationship satisfaction was prospectively predicted by three of seven assessed own behaviors; negative DC, SR strategies, and supportive DC. These same male behaviors also prospectively predicted their female partners' relationship satisfaction, while none of the female relationship behaviors predicted men's relationship satisfaction. Notably, men's supportive DC was the only behavior from all seven relationship behaviors that predicted both gender's relationship satisfaction.

Discussion

The present study examined the link between three relationship behaviors (communication, DC, and relationship SR) and relationship satisfaction in expecting couples.

Changes in Relationship Behaviors across the TTP

We predicted a decrease in positive relationship behaviors across the TTP (Hypothesis 1a), and an increase in negative behaviors (Hypothesis 1b). Before birth, we found none of the predicted behavior changes. In fact, a reverse change was found in that negative communication showed a small but significant decline in both genders. However, there was partial support for Hypothesis 1 after birth: there were declines in common and supportive DC in both genders, males' but not females' relationship SR, and females' but not males' positive communication; and there also was an increase in male's but not females' negative communication. Contrary to Hypothesis 1, negative DC did not change before or after birth. The current study is the first to show there are little to no changes in relationship behaviors across the later stages of pregnancy, but postnatally several positive behaviors declined, and negative communication increased. These findings are in line with the results of a study by Doss and colleagues (2009) which found that couples reported a sudden decline in relationship functioning after birth highlighting that birth of a child is a key defining point in the TTP for couples. These changes in relationship behaviors might be attributable to the demanding character of the postnatal period, when new parents are confronted with time restrictions, sleep deprivation, and high demands of infant care (Halford et al., 2015). As a consequence, partners have first to adapt individually to parenthood, leading to a lack of resources to engage in positive relationship behaviors and restrict negative relationship behaviors after birth.

Changes in Relationship Satisfaction across the TTP

We hypothesized that relationship satisfaction decreases across the TTP. Relationship satisfaction declined in both genders both before and after birth. The current study replicated the well-established finding that relationship satisfaction decreases across the TTP (Mitnick et al., 2009), and extends prior research by showing the decline of relationship satisfaction begins before birth. The changes observed in relationship behaviors after birth were relative to behaviors occurring before birth, and the changes may just represent a return to the couple's behavioral baseline. It has been suggested there is a "honeymoon- phase" that couples experience during pregnancy (Feeney, Hohaus, Noller, & Alexander, 2001). However, this overall decline in relationship satisfaction might not be true for all couples, as some couples also report increased relationship satisfaction across the TTP (e.g., Cowan & Cowan, 1995). Therefore, future studies should try to investigate differential effects of the TTP on relationship satisfaction in different subgroups.

In addition to mean changes across time, consistent with prior research (Kluwer, 2010), in the current study there was noteworthy variability between couples in the decline in positive relationship behaviors and relationship satisfaction. The variable adjustment of couples to parenthood may be due to different environmental factors (e.g., low income; Doss et al., 2009), or personal factors (e.g., insecure attachment; Kohn et al., 2012) and highlights the need to assess risk and resilience factors that might account for this variability.

Associations between Relationship Behaviors and Relationship Satisfaction

We predicted that positive relationship behaviors are positively and negative relationship behaviors are negatively associated with relationship satisfaction across the TTP (Hypotheses 3a and b). Consistent with Hypothesis 3, we found cross-sectional actor associations for all relationship behaviors (except relationship SR effort for women) with one's own relationship satisfaction. Also consistent with Hypothesis 3, we found cross-sectional partner effects for women: all male relationship behaviors were associated with females' relationship satisfaction except for common DC. However, surprisingly and contrary to Hypothesis 3, female relationship behaviors were not associated with males' relationship satisfaction except that female supportive DC was positively associated with male relationship satisfaction. Time-lagged analyses

revealed that women's own relationship SR efforts predicted own relationship satisfaction from one time point to the next, while in men relationship SR efforts, supportive and negative DC prospectively predicted male's own relationship satisfaction. The only lagged partner effect was found for men's supportive DC on women's relationship satisfaction. The current research replicates previous research (Falconier, Jackson, et al., 2015; Halford et al., 2010; Ruffieux et al., 2014) suggesting a cross-sectional association between positive relationship behaviors and high relationship satisfaction, as well as an inverse association of negative relationship behaviors with low satisfaction. It extends prior research by showing, that mainly for men, there is a prospective association between own behavior and subsequent male relationship satisfaction. These results may help to better understand the mechanism of changes in relationship satisfaction across the TTP.

Gender Differences

In the current study, the rate of decline in female satisfaction after birth was larger than the rate of male decline, which is consistent with prior research that women's relationship satisfaction tends to decline more than men's (Mitnick et al., 2009). Moreover, women's relationship satisfaction was more strongly associated with their male partners' (cross-sectional and preceded) relationship behaviors than vice versa, which again replicates previous research (Bodenmann, Pihet, & Kayser, 2006; Papp & Witt, 2010).

Biological realities impose more physical demands upon the woman than the man in the TTP (e.g., morning sickness and fatigue during pregnancy, the effects of the birth itself, and waking up to breast feed multiple times per night; Rudin, Bischof, Bannwart, & Jäggi, 2018). These extra demands on the woman might explain why female satisfaction is more related to male relationship behaviors than male satisfaction is related to female behaviors, women have to cope with more demands than men and so need more help. Men can be supportive, taking on more chores, even though they never have the physical demands that motherhood imposes. Moreover, it seems to be beneficial for both genders if men are supportive, as the result of the current study showed that men's supportive DC was the only relationship behavior that was associated with men's and women's lagged relationship satisfaction. However, recent findings (Fillo, Simpson, Rholes, & Kohn, 2015) indicate that while men were less satisfied when they reported relatively high contributions to childcare, women's satisfaction trajectories were much less influenced by their own amount of childcare. Therefore, future research should investigate the specific effect of gender on different aspects of support provision within couples transitioning to parenthood.

Strengths, Limitations, and Future Directions

Several strengths emphasize the importance of this study. First, to the best of our knowledge, the current study is the first to examine time effects on different positive and negative relationship behaviors and relationship satisfaction within a sample of expectant parents. Based on our results, relationship education may be refined and tailored more specifically to the needs of expectant parents. Second, we examined actor and partner effects of relationship behaviors on relationship satisfaction. The prediction of women's satisfaction from men's relationship behavior was particularly striking.

Despite these advantages of the study, there are some limitations: First, we did not have a large enough sample to analyze variability between subgroups of expectant parents, such as might be done with growth mixture modeling. Knowing more about subgroups and moderators of the trajectory of relationship satisfaction might help to identify those couples most likely to benefit from relationship education programs during the TTP. Second, even though lagged analyses demonstrate temporal precedence of effects they cannot establish causal effects. Future research could test whether changes in relationship behaviors mediate intervention effects on relationship satisfaction. Third, participating couples were highly educated and had higher than average monthly salary, and the generalizability to lower socioeconomic groups is unclear as there is some evidence that predictors for relationship satisfaction differ between couples with high SES versus low SES (e.g., Johnson, 2012). Rates of accessing antenatal care in Switzerland are high, and most employed women in Switzerland are eligible for 14 weeks' paid maternity leave, making recruiting couples before birth and engaging couples after birth feasible. Effects of relationship behaviors on relationship satisfaction may be different in contexts where social policy provides certain basic levels of support for new parent couples.

Conclusion

Positive relationship behaviors declined, and negative behaviors increased, after the birth of a couple's first child. Positive as well as negative relationship behaviors were associated with relationship satisfaction and predicted future relationship satisfaction. Providing relationship education might help couples protect their relationship against harmful factors. Promoting positive communication, DC, and relationship SR, which each are associated with relationship satisfaction (Halford et al., 2015), would seem to be plausible targets of such education. In line with previous suggestions (see Pinquart & Teubert, 2010) and based on our findings that satisfaction begins to decline in

late pregnancy, we suggest beginning the delivery of education before birth. Postnatal infant care demands can make engagement difficult for couples, and some of the change in relationship satisfaction might already have occurred before birth.


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Notes

1. We also ran gender-specific double intercept models with random slope effects for Time_{Pre} and $\text{Time}_{\text{Post}}$ (but not gender as models did then not converge) and compared them to the separate models for men and women: results from both approaches did not differ. However, when analyzing the data separately for men and women, different random time effects (for before and after birth) became significant (see Table 2) stressing the heterogeneity between men and women before and after birth. Thus, we decided to present the estimates of the models about the individual analyses.
2. Some studies (e.g., Doss et al. 2009) found major changes in relationship satisfaction occur after birth. To test the possibility that the behavior and satisfaction associations might differ in the pre- and postnatal periods, we also ran the analyses to include a dummy time variable (prenatal time = 1, postnatal time = 0) to control for potential differences in the associations between relationship behaviors and relationship satisfaction before and after birth. Including the dummy variable for pre- and postbirth worsened model fit indices (AIC and BIC), and the pattern of associations was almost identical for the two time periods, so we report the consolidated results ignoring the dummy time variable.
3. Additionally, we did also compare the slopes between men and women but none of the differences were significant.

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