Supplementary Information for
Women and Men are the Barometers of Relationships: Testing the Predictive Power of Women's and Men's Relationship Satisfaction.

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Supplementary Information Text

Detailed Analysis Plan

An analytic plan recommended by Curran et al. (1) guided data analysis. We first identified the best-fitting relationship satisfaction growth curve separately for men and women in each study. Intercept loadings were set to 1 and linear slope loadings signified the uniform passage of time across the 21-day observation window in Study 1 (e.g., 0 [Day 1], .05 [Day 2], .10 [Day 3], and so on to 1 [Day 21]) and across the five annual waves in Study 2 (e.g., 0 [Wave 1], .25 [Wave 2], .50 [Wave 3], .75 [Wave 4], and 1 [Wave 5]. The optimal trajectory was identified by fitting women's and men's relationship satisfaction to a series of increasingly complex growth models (e.g., fixed intercept, random intercept, fixed linear slope, random linear slope, and the latent basis model to capture curvilinear patterns) and the change in model chi-square determined the best-fitting trajectory. Next, the LCM-SR model was computed with the best-fitting satisfaction trajectory for men and women. All autoregressive and cross-lagged paths added to the time-specific residuals were set to equality across days (Study 1) and waves (Study 2). To account for any between-sample heterogeneity in the integrative data analysis in Study 1 (2), the dummy variables signifying study membership were added as predictors of the between-person components of the model (intercepts and slopes). Note that by treating study membership as fixed factors, we are acknowledging that our samples may not be truly random samples of a broader population of couples and that we need to be careful in generalizing any effects we find. Finally, in both studies, we tested the barometer idea by constraining the autoregressive (actor) and cross-lagged (partner) paths to be equal for men and women and computed chi-square difference tests to determine whether doing so worsened model fit.

We evaluated model fit with commonly used global fit indices: the chi-square test (χ^2), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker-Lewis Index (TLI), and standardized root mean square residual (SRMR). A non-significant chi-square, values greater than .95 for CFI and TLI, and values smaller than .06 and .08 for RMSEA and SRMR are generally accepted criteria to suggest good model fit, while a CFI and TLI greater than .90 and RMSEA and SRMR smaller than .10 indicate acceptable fit (3). Analyses were conducted in Mplus 8.0 (4).

In terms of missing data, in Study 1 three of the diary studies spanned 14 days and the other six studies spanned 21 days (or longer). Given the design of the shorter diary studies, 28.52% of our sample had no opportunity to provide data on days 15 through 21. Daily rates of missing data ranged from 5.11% to 41.95%. A day-by-day breakdown of the percent missing is contained in Table S1. In Study 2, 47.49% remained partnered through the five-year duration of this study, 46.70% attrited from the study, and 5.81% dissolved their union. Missing data across waves ranged from 2.56% to 57.03%. A wave-by-wave breakdown of missing data is also presented in Table S1. As expected, couples who ended their relationship reported significantly lower relationship satisfaction (male partner $M = 7.75$, $SD = 2.06$; female partner $M = 7.62$, $SD = 2.26$) than couples who remained together (male partner $M = 8.43$, $SD = 1.91$, $t(1774) = 4.61$, $p < .001$; female partner $M = 8.34$, $SD = 2.00$, $t(224.70) = 4.22$, $p < .001$) or attrited from the study (male partner $M = 8.30$, $SD = 2.00$, $t(1719) = 3.57$, $p < .001$; female partner $M = 8.25$, $SD = 2.04$, $t(227.11) = 3.64$, $p < .001$). Missing data for both studies were handled through the use of full information maximum likelihood estimation, which computes model parameters with all available information in the variance/covariance matrix (5), and a relationship dissolution variable was included as an auxiliary variable in Study 2 to aid the missing data estimation (6).

We computed an a priori Monte Carlo simulation to evaluate statistical power for our proposed LCM-SR model in Study 1 with a sample of 902 couples in accordance with guidelines from Muthén and Muthén (7). Prior studies reported within-person lagged (partner) effects from βs = .10 to .25 across two-month intervals (8). Using these benchmarks, we specified standardized coefficients of .10 in our power analysis for the paths of central interest: the actor and partner paths testing the predictive link from relationship satisfaction today to one's own and their partner's next-day satisfaction. In other words, we estimated power to detect small lagged and autoregressive associations across days (βs = .10) and accounted for the amount of missing data at each diary day. The simulation results showed >99.99% power to detect small next-day associations. We recomputed this power analysis with our actual sample of 901 couples and the results were identical. We computed a Monte Carlo simulation to estimate power for Study 2 using the same procedure and benchmarks as in Study 1. Power was also >99.99% to detect small next-year associations in Study 2.

Results

Preliminary Growth Curve Results. Prior to computing our primary LCM-SR analysis, it was necessary to first identify the best-fitting relationship satisfaction growth curve separately for men and women to accurately partition the between- and within-person variation. For Study 1, the preliminary growth curve analyses indicated a random linear slope model provided the best fit for men's and women's relationship satisfaction across 21 days (men's model fit indices: $\chi^2[226] = 734.080$; RMSEA = .050, 90% CI [.046, .054]; CFI = .935; TLI = .940; SRMR = .078; women's model fit indices: $\chi^2[226] = 800.785$; RMSEA = .053, 90% CI [.049, .057]; CFI = .921; TLI = .926; SRMR = .074). Men's relationship satisfaction averaged 5.80 at the beginning of the study (range from 1 to 7) and demonstrated no mean level change (slope = -.04, 95% CI [-.12, .04], $p = .342$). Women's relationship satisfaction trajectory was similar; initial values averaged 5.85 and there was no average change over time (slope = -.04, 95% CI [-.12, .04], $p = .304$). There was significant variation underlying the intercepts and slopes for men (intercept variance = .80, 95% CI [.71, .90]; slope variance = .63, 95% CI [.50, .75], *p*s < .001) and women (intercept variance = .77, 95% CI [.68, .86]; slope variance = .69, 95% CI [.55, .83], *p*s < .001).

In Study 2, the preliminary growth curve analyses indicated the latent basis model fit best for men's and women's relationship satisfaction across the five annual waves (men's model fit indices: $\chi^2[7] = 26.927$; RMSEA = .029, 90% CI [.018, .041]; CFI = .988; TLI = .983; SRMR = .032; women's model fit indices: $\chi^2[7] = 7.866$; RMSEA = .006, 90% CI [.000, .023]; CFI = 1.000; TLI = .999; SRMR = .013). Men's relationship satisfaction averaged 8.34 at the beginning of the study (range from 0 to 10) and demonstrated an overall decrease that stabilized by the end of the study (slope = -.53, 95% CI [-.63, -.43], $p < .001$). Women's relationship satisfaction trajectory was similar; initial values averaged 8.25 and there was an overall decrease that stabilized between Waves 4 and 5 (slope = -.46, 95% CI [-.56, -.36], $p < .001$). There was significant variation underlying the intercepts and slopes for men (intercept variance = 1.84, 95% CI [1.54, 2.14]; slope variance = 1.32, 95% CI [.80, 1.84], *p*s < .001) and women (intercept variance = 1.97, 95% CI [1.62, 2.33]; slope variance = 1.41, 95% CI [.91, 1.92], *p*s < .001).

Critically, in Study 1 and Study 2 there was significant daily within-person variation in relationship satisfaction for men and women not explained by the average trajectory (all *p*s < .001 for daily satisfaction residual variances), supporting further within-person analyses.

Study 1 Control Variable Results. Full results for the study membership control variables predicting the intercepts and slopes are displayed in Table S2. Regarding significant intercept associations, men in Studies b and c and women in Studies b, c, and d had lower initial relationship satisfaction, on average, compared to the couples in Study h. Study membership also predicted slopes; men in Study e and women in Studies b and f experienced steeper decreases in their satisfaction over time compared to couples in Study h.

Table S1. Percentage of Missing Data for Relationship Satisfaction on Each Diary Day in Study 1 and at Each Wave in Study 2.

Study 1 (*n* = 901 couples)			Study 2 (*n* = 3,405 couples)		
Day	Men	Women	Wave	Men	Women
1	6.3%	5.1%	1	2.9%	2.6%
2	10.3%	6.9%	2	37.3%	34.9%
3	10.3%	8.5%	3	47.7%	43.3%
4	11.2%	9.1%	4	52.2%	48.5%
5	11.9%	9.2%	5	57.0%	53.3%
6	13.1%	9.8%			
7	14.1%	12.0%			
8	14.2%	12.7%			
9	18.3%	14.4%			
10	16.1%	13.2%			
11	17.3%	14.7%			
12	18.1%	15.4%			
13	17.6%	14.5%			
14	19.4%	16.3%			
15	33.3%	30.2%			
16	38.1%	35.8%			
17	39.7%	39.3%			
18	41.6%	40.3%			
19	41.7%	40.0%			
20	41.1%	39.6%			
21	42.0%	41.7%			

Note: The observation period in three diary studies was 14 days, making it so that 28.5% of the sample in Study 1 did not have the opportunity to provide data on days 15 through 21.

Table S2. Study 1 Unstandardized Latent Curve Model with Structured Residuals Results Testing Associations Between Men's and Women's Relationship Satisfaction Across 21 Days in Study 1 (n = 901 couples).

Between-Person Results	**1.**	**2.**	**3.**	**4.**
Growth Curve Associations				
1. Men Satisfaction Intercept	–			
2. Men Satisfaction Slope	.03 [-.05, .11]	–		
3. Women Satisfaction Intercept	.35* [.28, .42]	.05 [-.02, .13]	–	
4. Women Satisfaction Slope	.10* [.02, .17]	.10* [.01, .20]	.04 [-.05, .12]	–
Study Membership Controls[a]				
Study a	-.12 [-.37, .13]	.16 [-.12, .43]	-.24 [-.48, .01]	-.05 [-.34, .24]
Study b	-.87* [-1.16, -.58]	-.27 [-.70, .17]	-.83* [-1.11, -.54]	-.82* [-1.27, -.37]
Study c	-.36* [-.61, -.10]	.15 [-.13, .43]	-.31* [-.56, -.06]	-.05 [-.33, .23]
Study d	-.04 [-.30, .22]	-.02 [-.32, .28]	-.34* [-.60, -.09]	.02 [-.28, .33]
Study e	-.01 [-.28, .26]	-.46* [-.86, -.06]	-.09 [-.35, .18]	-.40 [-.81, .01]
Study f	-.17 [-.42, .09]	.04 [-.31, .39]	-.01 [-.27, .24]	-.43* [-.79, -.07]
Study g	.13 [-.11, .37]	.18 [-.08, .43]	.09 [-.14, .33]	-.08 [-.34, .19]
Study i	.13 [-.11, .38]	-.07 [-.34, .19]	-.09 [-.32, .15]	.04 [-.23, .31]
Within-Person Results[b]				
Concurrent Associations				
Men Sat. ↔ Women Sat.	.29* [.27, .30]			
Actor Paths				
Men Sat. $_{T-1}$ → Men Sat.	.16* [.14, .19]			
Women Sat. $_{T-1}$ → Women Sat.	.18* [.16, .20]			
Partner Paths				
Men Sat. $_{T-1}$ → Women Sat.	.05* [.03, .06]			
Women Sat. $_{T-1}$ → Men Sat.	.05* [.03, .06]			

Note: Unstandardized estimates [95% Confidence Interval]. [a]Study h is the reference group. [b]The within-person paths were a priori constrained to equality across all diary days. Sat. = Relationship Satisfaction. T = Time. The intercepts and slopes were regressed on study membership dummy variables. Model fit indices: χ^2[1,188] = 1,991.400; RMSEA = .027 [90% CI = .025, .029]; CFI = .953; TLI = .953; SRMR = .066. *p < .05.

Table S3. Complete Race and Ethnicity Descriptives for all Studies in Study 1.

Study	White	Black	East Asian	South Asian	Latino/a	Native American/ Indigenous	More than one Race/ Ethnicity	Another Race/ Ethnicity
a	M: 54.37% W: 46.60%	M: 9.71% W: 14.56%	M: 5.83% W: 6.80%	M: .97% W: .97%	M: 7.77% W: 7.77%	M: 0% W: 4.85%	M: 1.94% W: 1.94%	M: 19.42% W: 16.50%
b	M: 55.71% W: 44.29%	M: 8.57% W: 5.71%	M: 20.00% W: 31.43%	M: 7.14% W: 4.29%	M: 5.71% W: 11.43%	M: 0% W: 1.43%	M: 0% W: 0%	M: 2.86% W: 1.43%
c	M: 57.78% W: 56.32%	M: 2.22% W: 1.15%	M: 10.00% W: 11.49%	M: 4.44% W: 4.60%	M: 6.67% W: 8.05%	M: 0% W: 0%	M: 8.89% W: 9.20%	M: 10.00% W: 9.20%
d	M: 60.47% W: 63.10%	M: 4.65% W: 5.95%	M: 6.78% W: 14.29%	M: 5.81% W: 4.76%	M: 3.49% W: 2.38%	M: 1.16% W: 1.19%	M: 11.63% W: 7.14%	M: 5.81% W: 1.19%
e	M: 31.03% W: 31.03%	M: 8.05% W: 4.60%	M: 12.64% W: 16.09%	M: 8.05% W: 3.45%	M: 5.75% W: 2.30%	M: 0% W: 0%	M: 8.05% W: 13.79%	M: 26.44% W: 28.74%
f	M: 33.00% W: 35.11%	M: 12.00% W: 6.38%	M: 11.00% W: 15.96%	M: 22.00% W: 19.15%	M: 6.00% W: 4.26%	M: 2.00% W: 0%	M: 7.00% W: 15.96%	M: 7.00% W: 3.19%
g	M: 75.49% W: 82.46%	M: 2.63% W: 1.75%	M: 4.38% W: 4.38%	M: 3.51% W: .88%	M: 8.77% W: 5.26%	M: 0% W: 0%	M: 5.26% W: 3.51%	M: 0% W: 1.75%
h	M: 71.97% W: 66.67%	M: .76% W: .76%	M: 6.82% W: 9.09%	M: 11.36% W: 9.85%	M: 1.52% W: 2.27%	M: .76% W: 1.52%	M: 6.06% W: 7.58%	M: .76% W: 2.27%
i	M: 65.18% W: 67.86%	M: 5.36% W: 2.68%	M: 9.82% W: 6.25%	M: 8.04% W: 8.04%	M: 1.79% W: 7.14%	M: 0% W: 0%	M: 6.25% W: 3.57%	M: 3.57% W: 4.46%

Note: M = Men. W = Women.

SI References

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