



Supplementary Materials for

Though They May Be Unaware, Newlyweds Implicitly Know Whether Their Marriage Will Be Satisfying

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Participants

Participants were recruited from eastern Tennessee using two methods. The first was to place advertisements in community newspapers and bridal shops offering payment to couples willing to participate in a longitudinal study of newlyweds. The second was to send invitations to eligible couples who had completed marriage license applications in counties near the study location. All couples responding to either solicitation were screened for eligibility in an initial telephone interview. Inclusion required that: (a) this was the first marriage for each partner, (b) the couple had been married less than 6 months, (c) each partner was at least 18 years of age, (d) each partner spoke English and had completed at least 10 years of education (to ensure comprehension of the questionnaires), and (e) couples did not already have children and wives were not older than 35 (i.e., to allow a similar probability of transitioning to first parenthood for all couples, as part of the broader aims of the study).

At baseline, husbands were 25.9 years old ($SD = 4.6$) and had completed 15.7 years of education ($SD = 2.4$). Seventy percent were employed full time and 26% were full time students. The median of husbands' reported income range was \$20,001 to \$25,000 per year. Wives were 24.2 years old ($SD = 3.6$) and had completed 18.1 years of education ($SD = 1.9$). Fifty-six percent were employed full time and 28% were full time students. The median of wives' reported income range was \$10,001 to \$15,000 per year. Ninety-one percent of husbands and 93% of wives identified as Caucasian.

Procedure

Eligible couples were scheduled to attend an initial laboratory session and mailed a packet of questionnaires that included the measures of relationship satisfaction, relationship problems, and explicit attitudes. At their session, both partners posed for four photographs and

completed the associative priming task that assessed their automatic attitudes.

Materials

Automatic Attitude Measures. Spouses' automatic attitudes were assessed with an associative priming procedure (16). This procedure required spouses to complete three blocks of trials on a computer. In each block, they indicated the valence of eight positive words (e.g., "delightful") and eight negative words (e.g., "disgusting") that appeared on the computer monitor in random order. The first block was an orientation block during which spouses responded to the stimulus words after being exposed to an innocuous prime (a row of asterisks) that appeared for 315 milliseconds before each word. The second and third blocks served as the measurement trials during which spouses responded to the same words but this time those words were preceded by a 300-millisecond prime of a photograph. Three types of photographs were used: (a) photographs of the partner, (b) photographs of the self, and (c) photographs of an attractive stranger. Four orientations of each type of photograph were used in each trial: (a) a frontal view of the face, (b) a profile view of the face, (c) a frontal view of the entire body while standing, and (d) a frontal view of the entire body while seating. During each of these test trials, each photograph preceded each word in random order. Participants were asked to indicate as quickly as possible whether the stimulus word was positive or negative by pressing a designated key on the computer keyboard. The time it took them to respond was recorded. An index of spouses' automatic attitudes toward their partner was formed by subtracting the average time it took them to respond to the positive words after being exposed to photographs of their partner from the time it took them to respond to the negative words after being exposed to photographs of their partner. An index of spouses' automatic attitudes toward themselves (implicit self-esteem) was formed by subtracting the average time it took them to respond to the positive words

after being exposed to photographs of themselves from the time it took them to respond to the negative words after being exposed to photographs of themselves. An index of spouses' automatic attitudes toward opposite-sexed others was formed by subtracting the average time it took them to respond to the positive words after being exposed to photographs of an attractive stranger from the time it took them to respond to the negative words after being exposed to photographs of an attractive stranger. Controlling for these latter two automatic attitudes did not alter the results. Three of the couples experienced equipment failures that prevented data collection. Of the other 264 individuals, 10 made errors on 20% or more of the trials (incorrectly indicated the valence of the stimulus words) and were thus excluded from analyses.

Explicit Attitude Measure. Spouses' explicit attitudes toward their marriage were assessed at baseline using a semantic differential (15) that asked spouses to rate their marriage on 7-point scales between fifteen pairs of opposing adjectives (e.g., "Good" versus "Bad," "Satisfied" versus "Dissatisfied"), yielding scores from 15 to 105, with higher scores reflecting more positive attitudes toward the relationship. Internal consistency of this measure was high (husbands' $\alpha = .89$, wives' $\alpha = .91$).

Marital Satisfaction Measure. Spouses' marital satisfaction was assessed at every wave of measurement using the Quality Marriage Index (23). This instrument asks spouses to indicate their level of agreement with five items that describe the general quality of the marriage (e.g., "We have a good marriage") using a 7-point scale (1 = *Very Strong Disagreement*, 7 = *Very Strong Agreement*), and to rate the overall quality of the marriage on a 10-point scale (1 = *Very Unhappy*, 10 = *Perfectly Happy*). Thus, scores could range from 6 to 45, with higher scores reflecting more marital satisfaction. Internal consistency was high across all phases ($\alpha > .85$ for both husbands and wives).

Problem Severity Measure. Spouses' perceptions of the severity of their marital problems were assessed at every wave of measurement using a version of the *Inventory of Marital Problems* (24). This version lists 19 potential problem areas in a marriage (e.g., money management, trust, making decisions, in-laws, sex, showing affection, drugs and alcohol) and asks participants to rate each item on a scale from 1 (not a problem) to 11 (a major problem). Spouses' ratings of each item were averaged to form an index of average problem severity that could range from 1 to 11.

Covariates. Several factors that may be associated with automatic attitudes and changes in satisfaction were assessed at baseline and controlled. Self-esteem was assessed using the 10-item *Rosenberg Self-Esteem Scale* (25) (husbands' $\alpha = .84$, wives' $\alpha = .88$). Barriers to leaving the relationship were assessed using a 5-item scale of self-perceived obstacles to leaving the relationship (26) (husbands' $\alpha = .80$, wives' $\alpha = .85$). Attachment insecurity was assessed using the 36-item *Experiences in Close Relationships Scale* (27) (for anxiety, husbands' $\alpha = .91$, wives' $\alpha = .92$; for avoidance, husbands' $\alpha = .92$, wives' $\alpha = .94$). Neuroticism was assessed using the 10-item neuroticism subscale of the *Big Five Personality Inventory* short-form (28) (husbands' $\alpha = .71$, wives' $\alpha = .72$). Partner physical attractiveness was assessed by having five trained coders separately rate the frontal-view photographs and the full-body-standing-view photographs that were used in the associative priming measure on a scale from 1 to 10, where higher ratings indicate higher levels of attractiveness (for facial attractiveness, husbands' $ICC = .85$, wives' $ICC = .93$; for body attractiveness, husbands' $ICC = .89$, wives' $ICC = .87$). None of these covariates altered the results when included in the model.

Data Analysis

The association between automatic and conscious attitudes was estimated with the

following two-level model, in which individuals (i) were nested within couples (j):

$$Y_{ij}(\text{Automatic Attitude}) = b_{0j} + b_{1j}(\text{Conscious Attitude}) + r_{0j}$$

The trajectory of marital satisfaction was estimated with the following three-level growth curve model, in which repeated assessments (t) were nested within individuals (i) who were nested within couples (j):

$$Y_{ijt}(\text{Marital Satisfaction}) = \pi_{0ij} + \pi_{1ij}(\text{Time of Assessment}) + r_{0j} + r_{1j} + u_0 + u_1 + e_{ijt}$$

The association between initial attitudes and the trajectory of marital satisfaction was estimated using the following three-level model, in which repeated assessments (t) were nested within individuals (i) who were nested within couples (j):

$$Y_{ijt}(\text{Marital Satisfaction}) = \pi_{0ij} + \pi_{1ij}(\text{Time of Assessment}) + b_{0j}(\text{Automatic Attitudes}) + b_{0j}(\text{Conscious Attitudes}) + b_{1j}(\text{Automatic Attitudes X Time}) + b_{0j}(\text{Conscious Attitudes X Time}) + r_{0j} + r_{1j} + u_0 + u_1 + e_{ijt}$$

The association between initial attitudes and the trajectory of perceptions of marital problems (i.e., the first step of mediation) was estimated using the following three-level model, in which repeated assessments (t) were nested within individuals (i) who were nested within couples (j):

$$Y_{ijt}(\text{Problem Severity}) = \pi_{0ij} + \pi_{1ij}(\text{Time of Assessment}) + \pi_{2ij}(\text{Partner's Report of Problem Severity}) + b_{0j}(\text{Automatic Attitudes}) + b_{0j}(\text{Conscious Attitudes}) + b_{1j}(\text{Automatic Attitudes X Time}) + b_{0j}(\text{Conscious Attitudes X Time}) + r_{0j} + r_{1j} + u_0 + u_1 + e_{ijt}$$

The association between perceptions of problem severity and changes in marital satisfaction (i.e., the second step of mediation) was estimated using the following three-level model, in which repeated assessments (t) were nested within individuals (i) who were nested within couples (j):

$$\begin{aligned}
Y_{ijt}(\text{Marital Satisfaction}) = & \pi_{0ij} + \pi_{1ij}(\text{Time of Assessment}) + \pi_{2ij}(\text{Own Report of Marital} \\
& \text{Satisfaction at the Prior Wave}) + \pi_{3ij}(\text{Partner's Report of Problem Severity at the Prior Wave}) + \\
& \pi_{4ij}(\text{Own Report of Problem Severity at the Prior Wave}) + b_{00j}(\text{Automatic Attitudes}) + \\
& b_{01j}(\text{Conscious Attitudes}) + b_{10j}(\text{Automatic Attitudes X Time}) + b_{11j}(\text{Conscious Attitudes X} \\
& \text{Time}) + r_{0j} + r_{1j} + u_0 + u_1 + e_{ijt}
\end{aligned}$$

No constraints were placed on the covariance structure.

Table 1. Descriptive Statistics

	Husbands		Wives	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Conscious Attitudes toward Relationship	6.48 _a	0.54	6.50 _a	0.57
Automatic Attitudes toward Partner	48.38 _a	91.57	47.27 _a	77.84
Automatic Attitudes toward Self	38.20 _a	73.54	69.17 _b	80.21
Automatic Attitudes toward Alternatives	31.80 _a	257.97	-9.25 _a	91.34
Self-Esteem	3.36 _a	0.50	3.32 _a	0.54
Neuroticism	2.56 _a	0.58	2.97 _b	0.59
Attachment Anxiety	2.03 _a	0.96	2.02 _a	0.99
Attachment Avoidance	2.03 _a	0.85	1.80 _b	0.84
Barriers to Leaving the Marriage	4.96 _a	1.47	4.76 _a	1.65
Partner Facial Attractiveness	4.77 _a	1.43	4.74 _a	1.11
Partner Body Attractiveness	4.85 _a	1.27	5.20 _b	1.13

Note: Different subscripts within rows denote significantly different means according to a paired samples t-test, $p < .05$.

Table 2. Bivariate Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Conscious Attitudes toward Relationship	.37**	-.05	.02	-.11	.23**	-.23**	-.37**	-.60**	-.00	.00	-.08
(2) Automatic Attitudes toward Partner	.04	-.02	.29**	-.01	-.26**	.09	.08	-.02	.05	.08	-.01
(3) Automatic Attitudes toward Self	-.01	.21*	.02	-.08	-.07	.01	.05	-.07	-.01	-.02	-.19*
(4) Automatic Attitudes toward Alternatives	-.09	.11	-.01	-.12	-.00	-.14	-.09	-.03	-.03	.13	.13
(5) Self-Esteem	.36	.06	.03	-.04	.19*	-.41**	-.54**	-.17	-.12	.02	.11
(6) Neuroticism	-.24	.05	.13	.14	-.54**	-.03	.47**	.16	.09	-.07	.05
(7) Attachment Anxiety	-.35	-.09	-.03	.00	-.45**	.41**	.40**	.44**	.00	.01	.12
(8) Attachment Avoidance	-.42	.08	.07	-.01	-.42**	.25**	.52**	.22*	-.07	.04	.06
(9) Barriers to Leaving the Marriage	-.02	-.23*	-.08	-.07	.04	-.15	-.13	-.14	.52**	.20*	.02
(10) Partner Facial Attractiveness	.15	-.06	.04	-.05	.12	-.04	-.03	-.14	.15	.44**	.54**
(11) Partner Body Attractiveness	.00	-.07	-.02	-.01	.13	-.15	-.08	-.14	.21*	.76**	.41**

Note. Correlations for wives are presented above the diagonal, correlations for husbands are presented below the diagonal, and correlations between husbands and wives are presented on the diagonal.

* $p < .05$, ** $p < .01$

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