

Communication Moderates Effects of Residential Mobility on Relationship Quality Among Ethnically Diverse Couples

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Although interpersonal communication is a defining feature of committed relationships, the quality of couple communication has not proven to be a straightforward cause of relationship quality. At the same time, emerging models argue that external circumstances likely combine with communication to generate changes in relationship quality. We integrate these 2 ideas by proposing that communication does exert effects on changes in relationship quality, but primarily when couples encounter challenging situations that require an adaptive response. In the present study we examine residential moves to different neighborhoods as one such adaptive challenge. We conducted a longitudinal study of 414 newlywed couples to examine whether observed communication moderates the effect of moving to higher- or lower-income neighborhoods on changes in relationship quality. Results indicate that communication exerts no main effects on relationship quality. Consistent with the proposed model, however, wives who displayed less positive, less effective, and more negative behaviors experienced greater decreases in relationship quality, but only when couples moved to *substantially* higher-income neighborhoods. Because communication may not affect relationship quality until couples encounter qualitatively new demands, strengthening relationships may pivot less on improving communication skills and more on ensuring that couples' circumstances do not overwhelm the skills that they already possess.

Keywords: neighborhood context, communication, stress, relationship quality, longitudinal

Whereas classic models of relationships assert that communication processes are a primary cause of distress and dissolution (e.g., Jacobson & Margolin, 1979), emerging perspectives argue that these outcomes result from the interplay between communication and the challenges and opportunities afforded by partners' immediate social and economic contexts (e.g., Bodenmann, 2005; Conger, Rueter, & Elder, 1999; Karney & Bradbury, 2005). This study tests the validity of two claims made by these emerging contextual models. First, we test whether changes in couples' living circumstances—in this case, moving to a neighborhood with a lower or higher median income—predict changes in relationship quality. Second, we examine whether the effects of these moves on relationships differ depending upon the quality of communication that couples display.

Several arguments support the incorporation of contextual influences into communication-based models of relationship functioning. As Bronfenbrenner's (1979) work emphasizes, the settings that couples inhabit are characterized by a range of proximal and distal factors that can affect dyadic processes. These proximal factors include adequate childcare, long commutes, and resources and support that come from extended families. Couples, however, also experience more distal stressors that may arise from a stagnant economy, low wages, unaffordable housing, and neighborhood crime—all of which combine to make it more or less likely for couples to sustain rewarding partnerships (Karney & Bradbury, 2005). While few empirical studies capture the full richness and scope of these influences, relationships are known to change as couples encounter specific stressors such as parenthood, illness, and retirement, and acute stress creates friction in relationships by heightening partners' need for support while reducing their ability to provide it (Bodenmann et al., 2015; for review see Randall & Bodenmann, 2009). In short, theory and research suggest that otherwise identical couples, when exposed to enabling versus demanding environments, should go on to experience different relationship outcomes.

We seek to explore potential environmental effects on relationships by evaluating the extent to which judgments of relationship quality are sensitive to residential mobility. Given that stressors associated with social status are particularly consequential for ethnically diverse, low-income couples (e.g., Bramlett & Mosher, 2002), we might predict that living in disadvantaged neighborhoods will be costly for relationships. Analysis of neighborhood-level census data demonstrates that divorce rates are higher among couples living in poorer neighborhoods (South, 2001), suggesting that moving from a disadvantaged neighborhood may be beneficial

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to couples. Indeed, when Black and Latino families are randomly assigned to move to wealthier neighborhoods, adults are exposed to less violence, experience better health, and require less cash assistance (Fauth, Leventhal, & Brooks-Gunn, 2004; Rosenbaum & Harris, 2001).

Yet a competing hypothesis asserts that moving to relative affluence need not be entirely beneficial. de Souza Briggs (1997) proposes that individuals who “move up” may experience the costs of upward social comparison (i.e., comparing one’s own disadvantaged status relative to more affluent neighbors), while also noting that moving low-income families into wealthier neighborhoods does not routinely improve family finances. Families who move may find it more difficult to attain employment because of discrimination, unmatched competitiveness with affluent neighbors, and lack of necessary skills, adequate transportation, and well-placed contacts (e.g., Burby & Rohe, 1989). Additionally, moving up may leave individuals with less social capital (de Souza Briggs, 1997), as leaving a dense social network of supportive ties and shared norms may limit tangible and intangible support. Adults who move to affluent neighborhoods are *less* likely to socialize with neighbors (Fauth et al., 2004) and are more likely to experience geographic isolation owing to poor public transportation (Rosenbaum & Harris, 2001). And while young children benefit when their parents are randomly selected to move up, older children experience *negative* long-term impacts (Chetty, Hendren, & Katz, 2016). In sum, while we must be cautious about assuming that results from experiments can directly inform the nonexperimental study that we describe below, evidence suggests that upward residential mobility is not uniformly beneficial and that moving can be a disruptive experience.

In addition to the cost of decreased relationship quality, circumstances characterizing the lives of disadvantaged couples might also disrupt the emotional tenor of their relationships. Financial strain is associated with higher levels of negative communication and lower levels of positive communication (Conger et al., 1999; Masarik et al., 2016), and experiences of discrimination outside the home covary with verbal hostility in the relationship (Trail, Goff, Bradbury, & Karney, 2012). Couples living in more disadvantaged neighborhoods are also known to communicate with less positivity than couples living in more affluent neighborhoods (Cutrona et al., 2003). This latter finding, although arising from cross-sectional data, is particularly noteworthy in that neighborhood disadvantage was derived from census data while couple communication was observed directly, eliminating shared method variance as an alternative explanation. Overall, then, while adverse contexts might be broadly disruptive in intimate relationships, their effects might be especially acute among couples contending with lower incomes and social disadvantage, and these effects might be particularly detrimental to the relationship outcomes of couples who display poorer communication.

Growing empirical understanding of dyadic processes provides yet another argument in favor of expanding classic communication-based models of relationships. Multiple studies of middle class couples have demonstrated observed communication as a correlate of spouses’ reports of relationship quality (for meta-analysis, see Woodin, 2011) ranging from small to medium effects. At the same time, null and counterintuitive findings suggest that the association between communication and relationship quality is not as straightforward as we might predict. For example, higher levels of negativity among

newlyweds predict *higher* levels of relationship quality over time (e.g., Overall, Fletcher, Simpson, & Sibley, 2009). Thus, while there is little doubt that couples communicate with more frustration and less warmth once they become dissatisfied in their relationship, demonstrating a clear causal association between the quality of communication and relationship outcomes has been surprisingly difficult.

Because unexpected and complex effects such as these can signal the presence of moderation (Baron & Kenny, 1986), we test whether contextual influences interact with interpersonal processes to explain changes in relationship quality. We turn to the Vulnerability-Stress-Adaptation model (Karney & Bradbury, 1995), which argues that when circumstances change and couples need to collaborate in navigating those changes, those who can activate *adaptive* responses will gain a greater sense of relationship quality while couples who cannot do so may conclude that their relationship is becoming less rewarding.

The current study integrates established but complex findings relating couple communication to relationship quality with emerging conceptions of how relationships are situated within, and influenced by, socioeconomic circumstances. To do so we draw directly upon the novel method adopted by Cutrona et al. (2003) to reduce shared method variance by observing couple communication directly and using census data to estimate each couple’s median neighborhood income, in addition to collecting self-reports of relationship quality as our primary outcome. Collection of four waves of longitudinal data on these variables allows us to build upon Cutrona et al.’s cross-sectional study. Specifically, longitudinal data allow us to (a) establish a stable between-couple estimate of couples’ communication quality; (b) study within-couple *changes* in median neighborhood income that result from residential mobility; and (c) test whether communication quality interacts with increases and decreases in neighborhood income to predict *changes* in relationship quality. We collect these data from ethnically diverse couples, in view of evidence that these couples are generally at elevated risk for adverse relationship outcomes, and we focus specifically on the first few years of marriage because relationship changes tend to be greatest during this period (e.g., Bramlett & Mosher, 2002).

We address two questions with these data: First, do within-couple changes in neighborhood income predict fluctuations in relationship quality? While contextual models of relationships suggest that moving to wealthier neighborhoods will correspond with improvements in relationship quality, we temper this prediction with evidence that these neighborhoods can be disruptive (de Souza Briggs, 1997) and the finding that higher neighborhood income corresponds with *lower* levels of relationship quality (Cutrona et al., 2003). Longitudinal data will enable us to clarify whether this latter result was spurious or a valid reflection of how changes in context can inadvertently generate stress for couples. Second, is the effect of residential mobility on relationship quality moderated by couple communication? In describing the nature of such an interaction, we draw from Masten’s (2001) promising idea of a *risk-activated* moderator. In the same way that airbags in automobiles are largely inactive but then play a powerful causal role when circumstances change, we propose that communication remains largely dormant and inconsequential until couples pass a threshold of contextual changes that will activate the need for adap-

tation by couples. Beyond this threshold, the quality of couple communication should sort out those relationships that grow stronger or weaker, much like the quality of airbags would determine likelihood of survival among those in a head-on collision.

Method

Sampling

Sampling was undertaken to yield first-married newlywed couples in which partners were of the same ethnicity and living in neighborhoods in Los Angeles County. Recently married couples were identified through names and addresses on marriage license applications. Addresses were matched with census data to identify applicants living in census block groups wherein the median household income is less than 160% of the 1999 federal poverty level for a 4-person family. Next, names on the licenses were weighted using data from a Bayesian Census Surname Combination, which integrates census and surname information to produce a multinomial probability of membership in each of four racial/ethnic categories (Hispanic, African American, Asian, and Caucasian/other). Couples were chosen using probabilities proportionate to the ratio of target prevalences to the population prevalences, weighted by the couple's average estimated probability of being Hispanic, African American, or Caucasian, which are the three largest groups of people living in poverty in Los Angeles County (United States Census Bureau, 2002).

Participants

The 431 identified couples participated in data collection four times over 36 months. At baseline, marriages averaged 4.8 months in duration ($SD = 2.5$) with 0.6 children ($SD = 1.0$). Husbands' mean age was 27.9 ($SD = 5.8$) and wives' mean age was 26.3 ($SD = 5.0$). Wives had a mean income of \$28,672 ($SD = \$24,549$) and husbands had a mean income of \$34,153 ($SD = \$27,094$). Twelve percent of couples were African American, 12% Caucasian, and 76% Hispanic, roughly consistent with proportions of people living in poverty in Los Angeles County (12.9% African American, 14.7% Caucasian, and 60.5% Hispanic; United States Census Bureau, 2002). Of the Hispanic couples, 33% spoke Spanish in their interactions; all African American and Caucasian couples spoke English. Ten couples were not video recorded because participants declined and six because equipment malfunctioned, leaving 414 couples for analysis.

Procedure

At baseline (T1) couples were visited in their homes by two interviewers who took spouses to separate areas to ensure privacy and orally administered self-report measures. Partners were then reunited for three 8-min videotaped discussions—a problem solving discussion, husband social support discussion, and wife social support discussion. In the problem solving task, partners were asked to identify a topic of disagreement in their relationship and then to work toward a mutually satisfying

resolution. For the two social support discussions, one spouse was asked to “talk about something you would like to change about yourself,” while the partner was instructed to “be involved in the discussion and respond in whatever way you wish.” The order of the two support discussions was randomly assigned. Interviewers returned 9 months (T2; $n = 375$), 18 months (T3; $n = 359$), and 27 months (T4; $n = 336$) after baseline and administered the same interview protocol. Couples were debriefed and paid \$75 for T1, \$100 for T2, \$125 for T3, and \$150 for T4. The RAND Survey Research Group collected these data, and the RAND Institutional Review Board approved all procedures.

Behavioral Observation

Videotapes were scored by 16 trained coders using the Iowa Family Interaction Rating Scales (IFIRS; Melby et al., 1998), a macrocoding system used successfully with diverse samples (e.g., Cutrona et al., 2003). Unlike microcoding systems, the IFIRS gives each spouse a single score for each code at the end of the task rather than for multiple short time segments. Coders—five of whom were native Spanish speakers—coded only in their native language. Coders participated in 10 hours of training per week for 3 months and were required to pass written and viewing tests at an 80% accuracy level before coding tapes. Coders also participated in weekly 2-hr training meetings consisting of a variety of structured activities (e.g., watching examples of specific codes) designed to minimize drift and ensure fidelity to the IFIRS codes.

Coders viewed each of the interaction tasks three to four times using the Noldus Observer XT coding software, using the built-in capabilities to note behaviors of both spouses. Coders then used their recorded notations to assign a single score for each spouse for each code, using the criteria from the IFIRS coding manual (Melby et al., 1998). The possible scores range from 1 to 9, with a score of 1 indicating that the behavior did not occur and a score of 9 indicating that “the behavior occurs frequently or with significant intensity” (Melby et al., 1998, pp. 7–8).

To assess reliability, 20% of the videos were randomly assigned to be coded by two coders chosen at random from the pool of 16 coders. The scores of the two coders were compared, and any scores discrepant by more than one point were resolved by both coders working together. For all three scales, intraclass correlations exceeded .70 for husbands and wives across all waves of the study. The final set of scores used in analyses included scores that matched across the two coders during their initial individual coding (when codes were off by 1 point, the score from the randomly designated “primary coder” was used), and discrepant scores were replaced by the scores from the second joint coding. Factor analysis was used to reduce the IFIRS codes to positive, negative, and effective communication (Williamson, Bradbury, Trail, & Karney, 2011).

Measures

Relationship quality. Spouses' global sentiment toward the relationship was assessed by summing responses on an 8-item questionnaire. Five items asked how satisfied the respondent was with certain areas of their relationship (e.g., “amount of time spent

together”), and were scored on a 5-point scale (ranging from 1 = *very dissatisfied* to 5 = *very satisfied*). Three items asked the degree to which the participant agreed with a statement about their relationship, (e.g., “How much do you trust your partner?”) and were scored on a 4-point scale (1 = *not at all*, 2 = *not that much*, 3 = *somewhat*, 4 = *completely*). Scores are a summation of the item responses, with scores ranging from 8 (very dissatisfied) to 37 (very satisfied). Coefficient α exceeded .70 for husbands and wives across all waves of the study.

Neighborhood income. Using the home addresses reported by each couple, 2010 U.S. Census data were used to determine the median neighborhood income of the Census block group in which each couple resided at each of the four waves; couples who did not move had the same median neighborhood income at each wave. Census block groups are the smallest geographical area published by the Census, thus offering the most precise measurement of couples’ neighborhood context. Among the 431 couples, 401 couples resided in unique Census block group areas and no more than 2 couples lived within the same block group at T1.

Moved. A dichotomous variable indicated whether the couple moved within the last nine months, with 0 = *did not move* and 1 = *moved*.

Family income. Each spouse reported their household income bracket, with possible responses ranging from “under \$5,000,” “\$5,000–9,999,” “\$10,000–14,999,” and so forth until “greater than \$100,000.” The midpoint of the reported income bracket was used as the reported family income value, with “greater than \$100,000” set to \$100,000. Husbands and wives’ reports of family income were averaged to create a composite family income variable for each wave.

Observed communication behavior. Using the IFIRS, positivity, negativity, and effectiveness scores were calculated for each partner, aggregated across the three discussion tasks in each of the four assessments. A *positivity* behavioral scale, accounting for expressions of warmth and closeness within the interaction, was created by averaging an individual’s scores on the group enjoyment, positive mood, warmth/support, physical affection, humor/laugh, endearment, and listener responsiveness codes. Coefficient α for positivity ranged from .65 to .74 for husbands and wives across all waves of the study. A *negativity* behavioral scale, accounting for anger and divisive behaviors within the interaction, was created by averaging an individual’s scores on the angry coercion, contempt, denial, disruptive process, dominance, hostility, interrogation, and verbal attack codes. Coefficient α for negativity ranged from .76 to .82 for husbands and wives across all waves of the study. An *effectiveness* behavioral scale, accounting for the couple’s problem-solving skills in resolving an issue, was created by averaging an individual’s scores on the assertiveness, communication, effective process, solution quality, and solution quantity codes. Coefficient α for effectiveness ranged from .65 to .78 for husbands and wives across all waves of the study. Possible scores on the measures of observed positivity, negativity, and effectiveness range from 1 to 9.

With the observed positivity, negativity, and effectiveness scores that we had available at each of the four waves, we collapsed across time to create, for each spouse, aggregated indices of these composites (i.e., T1–T4 mean positivity, negativity, effectiveness). Three arguments support this decision.

First, our main research questions emphasize communication as a stable, latent characteristic that couples deploy when circumstances change, rather than as a time-varying aspect of their relationship. Second, and consistent with this point, communication behaviors were significantly intercorrelated across time, for positivity ($r = .37-.48$, $p < .01$ and $r = .34-.49$, $p < .01$, for husbands and wives’ respectively), negativity ($r = .44-.54$, $p < .01$ and $r = .38-.46$, $p < .01$), and effectiveness ($r = .36-.47$, $p < .01$ and $r = .33-.47$, $p < .01$). Third, using multilevel modeling, fluctuations in neighborhood income over time were unrelated to fluctuations observed in positivity (husbands $z = 1.25$, $p = .212$, wives $z = -0.19$, $p = .849$), negativity (husbands $z = 0.92$, $p = .359$, wives $z = 1.41$, $p = .158$), and effectiveness (husbands $z = 0.46$, $p = .644$, wives $z = -1.45$, $p = .148$). In short, creating across-time composites provide us with a robust characterization of couples’ general capacity to communicate, enabling analysis of between-couple effects of communication on changes in relationship quality as couples encounter new environments over time.

Analytic Plan

Data were analyzed using multilevel modeling (MLM). Using Raudenbush, Brennan, and Barnett’s (1995) multivariate approach, analyses were conducted as 2-level models with repeated measures (Level 1, within-person) nested within individuals (Level 2, between-person). Husbands and wives were included in the same model to account for interdependence in the dyadic data. Analyses were conducted in Stata version 13.0.

Testing question 1: Effects of context changes on relationship quality. To address our first hypothesis, we use a *within-person* model which tests whether, on waves in which couples live in more affluent neighborhoods than usual (i.e., relative to their own cross-wave average), spouses have higher or lower relationship quality than usual within that *same* wave. In other words, testing within-person changes allows us to see how fluctuations in a spouse’s neighborhood income are associated with fluctuations in the spouse’s relationship quality.

We test for within-person effects at Level 1 (repeated observations, Equation 1a). Relationship quality at a given wave was modeled as a function of intercept, time, changes in neighborhood income, changes in family income, and moving. We centered neighborhood income and family income around the individual/couple’s mean (creating person-centered variables). Thus, values below zero represent a level lower than average for that individual/couple and values above zero represent a level higher than average.

Testing question 2: Communication as risk-activated moderator. As noted previously, we expect that the effect of communication will be nonsignificant when couples are not undergoing substantial changes in context. Thus we examine our second hypothesis by first testing that *between-couple differences* in communication do not exert a main effect on relationship quality in and of itself (i.e., a model without changes in neighborhood income). Second, we test whether communication interacts with neighborhood income changes. That is, do couples who on average display less constructive communication (low positivity and effectiveness, high negativity), experience even greater changes in relationship quality when faced

with changing neighborhoods compared to highly constructive couples?

We test for between-person effects at Level 2 (Equation 1b). At Level 2, we entered the between-person communication variables, thus creating a two-way, cross-level interaction. That is, level-2 variables are ones in which individuals' communication scores are averaged across all waves (i.e., composite scores on positivity, negativity, or effectiveness). Communication variables were centered at the overall grand mean. Thus, values below zero indicate that the spouse's behavior was below the sample average and values above zero indicate that the spouse was above the sample average.

Level 1:

$$\begin{aligned} \text{Relationship Quality}_{it} = & (\text{female})_{it}[\pi_{f0i} + \pi_{f1i}(\text{time})_{it} \\ & + \pi_{f2i}(\Delta \text{neighborhood income})_{it} \\ & + \pi_{f3i}(\Delta \text{family income})_{it} \\ & + \pi_{f4i}(\text{moving})_{it}] \\ & + (\text{male})_{it}[\pi_{m0i} + \pi_{m1i}(\text{time})_{it} \\ & + \pi_{m2i}(\Delta \text{neighborhood income})_{it} \\ & + \pi_{m3i}(\Delta \text{family income})_{it} \\ & + \pi_{m4i}(\text{moving})_{it}] + e_{it} \end{aligned} \quad (1a)$$

Level 2:

$$\begin{aligned} \pi_{f0i} &= \beta_{f00} + \beta_{f01}(\text{female } M \text{ positivity/negativity/effectiveness})_i + u_{f0i} \\ \pi_{f1i} &= \beta_{f10} + u_{f1i} \\ \pi_{f2i} &= \beta_{f20} + \beta_{f21}(\text{female } M \text{ positivity/negativity/effectiveness})_i + u_{f2i} \\ \pi_{f3i} &= \beta_{f30} \\ \pi_{f4i} &= \beta_{f40} \\ \pi_{m0i} &= \beta_{m00} + \beta_{m01}(\text{male } M \text{ positivity/negativity/effectiveness})_i + u_{m0i} \\ \pi_{m1i} &= \beta_{m10} + u_{m1i} \\ \pi_{m2i} &= \beta_{m20} + \beta_{m21}(\text{male } M \text{ positivity/negativity/effectiveness})_i + u_{m2i} \\ \pi_{m3i} &= \beta_{m30} \\ \pi_{m4i} &= \beta_{m40} \end{aligned} \quad (1b)$$

Given that couples may differ in their baseline neighborhood income, we also tested for the possibility that the effect of moving to higher- or lower-income neighborhoods may be dependent on where couples are moving *from*, relative to other couples. In other words, the effects of moving to a wealthier neighborhood may differ between couples who moved from significantly low-income areas versus couples who moved from middle-class neighborhoods. As such, we modeled a three-way interaction between couples' *baseline* neighborhood income with *changes* in neighborhood income and mean communication and thus created an interaction between two Level 2 predictors and a Level 1 predictor. We therefore modified the same Equation 1 above to include a multiplicative term between Mean Positivity/Negativity/Effectiveness and T1 Neighborhood Income for wives and husbands [for example, for wives: $\pi_{f2i} = \beta_{f20} + \beta_{f21}(\text{female } M \text{ communication})_i + \beta_{f22}(\text{T1 neighborhood income})_i + \beta_{f23}(\text{female } M \text{ communication}) \times (\text{T1 neighborhood income})_i$].

Finally, after identifying any significant interactions between neighborhood income and communication, we examined whether the moderation effect is better described as a *risk-activated* moderator. Evidence in support of a risk activation

would need to demonstrate that the effects of communication are evident only when there are nontrivial changes in the environment. We do this by conducting *regions of significance* tests for any significant moderation effect found in the present study. As recommended by Preacher, Curran, and Bauer (2006), a region of significance defines the specific values in a predictor at which the effect of a moderator transitions from nonsignificance to significance. That is, these regions can identify the point at which changes in neighborhood income significantly activate and interact with positivity, negativity, and effectiveness when they are otherwise nonpredictive of relationship quality (i.e., when a couple's change in neighborhood income is not within the regions of significance).

Results

Descriptive Statistics

Across the 431 couples from T1–T4, family income ranged from \$25,000 to \$100,000 with a sample median of \$50,000 across time; median neighborhood income ranged from \$13,235 to \$175,948 with a sample average of \$41,481. One hundred and 96 couples (45%) moved at some point during the study, with 54 couples moving more than once. Changes in neighborhood income from one wave to the following wave ranged from $-\$95,149$ to $+\$107,438$, with 54% of all moves resulting in an increase in neighborhood income. Baseline (T1) neighborhood income was significantly correlated with changes in neighborhood income, $r = -.52$, $p < .05$, such that couples who experienced increases in neighborhood income were more likely to live in relatively poorer neighborhoods at baseline.

Table 1 presents descriptive statistics and correlations between key study variables. Whether or not a couple moved at any time point was unrelated to all assessments of relationship quality for husbands and wives (r ranging from $-.068$ to $.092$, all *ns*) and unrelated to all three couple communication variables for husbands and wives (r ranging from $-.086$ to $.067$, all *ns*). Thus we find no evidence that these couple characteristics make it more or less likely that couples move to a new residence. In addition, positivity, negativity, and effectiveness were all moderately correlated ($r = 1.20-.471$, $p < .05$), suggesting that the three dimensions of communication behaviors were related but distinguishable. Correlations between relationship quality and the communication variables across the four waves ranged from small to medium for wives ($r = 1.13-.301$, $p < .05$) and from nonsignificant to medium for husbands ($r = 1.07-.221$).

Are Changes in Neighborhood Income Associated With Changes in Relationship Quality?

As predicted, changes in neighborhood income were significantly associated with changes in relationship quality. Specifically, and consistent with cross-sectional findings reported by Cutrona et al. (2003), when couples moved and their new neighborhood income increased above the couple's mean level of neighborhood income, relationship quality *decreased* below each spouse's mean level of quality. Conversely, when couples

Table 1
Mean, Standard Deviation, and Bivariate Correlations Between Main Study Variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. T1 Relationship Quality	.32**	.61**	.60**	.56**	.04	.03	.06	.07	.00	.02	.02	.03	.00	.02	.06	.20**	-.18**	.07
2. T2 Relationship Quality	.57**	.48**	.67**	.63**	.06	.07	.10*	.09	.02	.03	.00	-.01	.03	.02	.02	.22**	-.20**	.09
3. T3 Relationship Quality	.53**	.65**	.43**	.69**	.05	.02	.01	.03	-.02	-.03	.01	-.02	-.04	-.01	.06	.16**	-.18**	.09
4. T4 Relationship Quality	.51**	.58**	.63**	.48**	.03	.04	.04	.01	-.12*	-.09	-.08	-.10	-.01	-.06	.09	.19**	-.17**	.12*
5. T1 Neighborhood Income	.02	.05	.10	.04	1	.74**	.65**	.55**	.26**	.27**	.31**	.26**	.00	-.10*	-.03	.09	-.12*	.14**
6. T2 Neighborhood Income	.07	.02	.10	.06	.74**	1	.84**	.73**	.30**	.32**	.40**	.33**	.05	-.10*	-.02	.12*	-.14**	.13**
7. T3 Neighborhood Income	.04	.05	.06	.04	.65**	.84**	1	.90**	.30**	.33**	.39**	.32**	.05	.05	.01	.15**	-.11*	.16**
8. T4 Neighborhood Income	.03	.04	.04	.03	.55**	.73**	.90**	1	.30**	.35**	.39**	.35**	.09	.07	.04	.17**	-.12*	.17**
9. T1 Family Income	.05	.08	.11*	.03	.26**	.30**	.30**	.30**	1	.85**	.78**	.74**	-.10*	-.06	-.08	.18**	-.10*	.16**
10. T2 Family Income	.00	.04	.07	-.02	.27**	.32**	.33**	.35**	.85**	1	.84**	.81**	-.13*	-.07	-.09	.20**	-.09	.19**
11. T3 Family Income	.06	.04	.13*	.02	.31**	.40**	.39**	.39**	.78**	.84**	1	.88**	-.10	-.06	.22**	-.15**	.20**	.20**
12. T4 Family Income	-.01	.02	.09	.01	.26**	.33**	.32**	.35**	.74**	.81**	.88**	1	-.07	-.07	-.11*	.19**	-.08	.16**
13. T2 Moved	.06	.04	.04	.04	.00	.05	.05	.09	-.10*	-.13*	-.10	-.07	1	.09*	.08	.00	-.08	-.02
14. T3 Moved	.01	-.01	-.07	-.04	-.10*	-.10*	.05	.07	-.06	-.07	-.11*	-.07	.09*	1	.05	.00	.00	-.03
15. T4 Moved	.06	.05	.07	.02	-.03	-.02	.01	.04	-.08	-.09	-.06	-.11*	.08	.05	1	.04	-.07	.04
16. M Positivity	.30**	.28**	.30**	.23**	.06	.08	.09	.11*	.19**	.21**	.25**	.21**	-.02	-.04	.07	.82**	-.24**	.47**
17. M Negativity	-.17**	-.20**	-.22**	-.14*	-.10*	-.12*	-.09	-.11*	-.15**	-.14**	-.21**	-.13*	-.09	.06	-.03	-.21**	.58**	-.26**
18. M Effectiveness	.13**	.18**	.24**	.14**	.10*	.12*	.08	.12*	.22**	.19**	.25**	.22**	.01	-.07	.05	.38**	-.20**	.48**
Husbands: <i>M (SD)</i>	33.9 (3.0)	33.4 (3.7)	33.4 (3.5)	33.0 (4.1)	\$44,011 (\$18311)	\$44,604 (\$18700)	\$45,916 (\$19409)	\$46,206 (\$19715)	\$51,291 (\$27712)	\$53,640 (\$27671)	\$55,611 (\$29018)	\$56,057 (\$28187)	.25 (.43)	.19 (.39)	.16 (.37)	2.3 (.5)	1.8 (.5)	4.0 (.7)
Wives: <i>M (SD)</i>	33.1 (3.4)	32.8 (3.7)	32.4 (4.1)	32.3 (4.2)	\$44,011 (\$18311)	\$44,604 (\$18700)	\$45,916 (\$19409)	\$46,206 (\$19715)	\$51,291 (\$27712)	\$53,640 (\$27671)	\$55,611 (\$29018)	\$56,057 (\$28187)	.25 (.43)	.19 (.39)	.16 (.37)	2.3 (.5)	1.9 (.5)	4.1 (.7)

Note. Intercorrelations between husbands' characteristics are reported above the diagonal and wives' characteristics are reported below the diagonal. Values along the diagonal represent correlations between husbands and wives. Bold numbers are used to help the reader quickly identify which numbers are correlations between husbands and wives along the diagonal.

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

Table 2
Hierarchical Linear Modeling Coefficients for Changes in Neighborhood Income on Relationship Quality

Fixed effects	Husbands <i>b</i> (<i>SE</i>)	Wives <i>b</i> (<i>SE</i>)
Main Effects Only		
Family Income Change ^a	<.01 (.01)	<.01 (<.01)
Moving ^a	-.19 (.14)	.09 (.14)
Neighborhood Income Change	-.01 (.01)*	-.01 (.01)*
Positivity 2-way Interaction		
Neighborhood Income Change	-.03 (.03)	-.08 (.03)**
Positivity	<.01 (.10)	<.01 (.10)
Neighborhood × Positivity	.01 (.01)	.03 (.01)*
Effectiveness 2-way Interaction		
Neighborhood Income Change	-.01 (.03)	-.10 (.03)***
Effectiveness	<.01 (.07)	-.01 (.07)
Neighborhood × Effectiveness	<.01 (.01)	.02 (.01)**
Negativity 3-way Interaction		
Neighborhood Income Change	-.02 (.06)	.10 (.05)*
Negativity	.01 (.23)	.01 (.22)
Baseline Neighborhood Income	<.01 (.01)	<.01 (.01)
Neighborhood × Negativity	-.01 (.03)	-.08 (.03)**
Neighborhood × Baseline Neighborhood	<.01	-.002 (<.01)**
Negativity × Baseline Neighborhood	<.01 (<.01)	<.01 (<.01)
Neighborhood × Effectiveness × Baseline Neighborhood	<.01 (<.01)	.001 (<.01)**

Note. Models also include intercept effect (not shown).

^a The values of these fixed effects for each subsequent model are not repeated in the table.

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

moved and their neighborhood income decreased, relationship quality *increased* above each spouse's mean level of quality. As seen in Table 2, this association was evident for husbands ($z = -2.18, p = .029$) and for wives ($z = -2.36, p = .018$), after adjusting for the effects of moving and family income. In addition, the main effect for the act of moving was nonsignificant for husbands ($z = -1.35, p = .178$) and wives ($z = 0.64, p = .520$).¹

Does Observed Communication Moderate the Association Between Changes in Neighborhood Income and Changes in Relationship Quality?

Main effects of communication. First, tests of whether communication behaviors can exert a main effect on relationship quality in and of itself revealed nonsignificant associations for husbands and wives for all behavioral codes (positivity: husbands $z = .03, p = .978$, wives $z = -.03, p = .972$; negativity: husbands $z = -.03, p = .977$, wives $z < .01, p = .998$; effectiveness: husbands $z < .01, p = .998$, wives, $z = .01, p = .995$). These findings are at odds with classic perspectives on associations between couple communication and relationship quality, while aligning with our view that the effects of communication might remain dormant until circumstances activate them. We turn next to test this prediction directly.

Simple moderating effects: Results for wives. The association between changes in neighborhood income and relationship quality was significantly moderated by wives' mean levels of positivity and effectiveness, such that the association was stronger

for couples in which wives displayed less positivity and less effectiveness (Table 2, two-way interaction: $z = 2.33, p = .020$ and $z = 2.67, p = .007$, respectively).

Figure 1 depicts the interaction between changes in neighborhood income and wives' positivity (Panel A) and effectiveness (Panel B). Lines illustrate the negative effect of neighborhood income for wives with levels of positivity and effectiveness equal to the sample mean or ± 1 standard deviation or ± 2 standard deviations from the sample mean. As seen in Figure 1, the negative effect of moving to more wealthy neighborhoods was significant only among wives who displayed mean levels or lower on communication relative to other wives (significant simple slopes indicated with asterisks). That is, only couples in which the wife was lower on positivity or effectiveness experienced a decrease in relationship quality when they moved to a wealthier neighborhood, whereas more positive or effective wives were buffered from the negative effect of moving to a higher-income neighborhood. Conversely, wives who were lower on positivity or effectiveness

¹ Supplemental analyses indicated that the negative association between changes in neighborhood income and relationship quality remained significant after entering other covariates in the model, specifically the effects of parental status and changes in neighborhood racial composition (i.e., Census estimates of the percentage of white residents) during that move. In addition, the negative effects of neighborhood income were not moderated by parental status or racial composition. That is, the negative effects of moving up were not dependent on whether the couple had children or whether the couple moved to a neighborhood that had more or less White residents. Details are available from the first author.

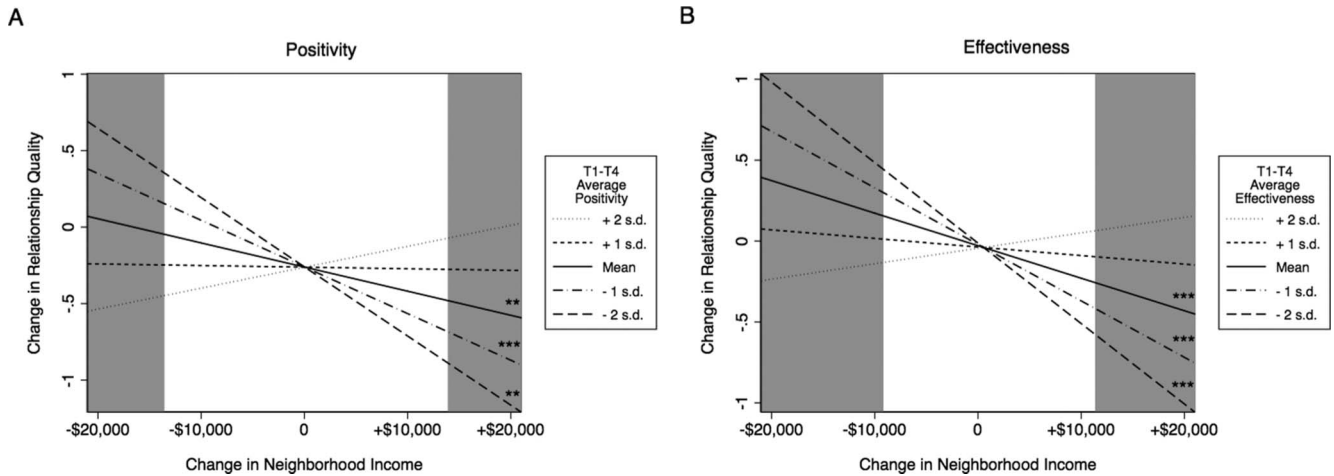


Figure 1. Two-way interaction between changes in neighborhood income and wives' average level of (A) positivity and (B) effectiveness in predicting changes in relationship quality. The regions of significance are highlighted in gray: The interaction is significant when neighborhood income increased by at least \$13,726 (positivity) or \$11,425 (effectiveness) or decreased by at least \$13,913 (positivity) or \$9,204 (effectiveness). Lines illustrate the negative effect of neighborhood income for wives with levels of positivity and effectiveness equal to the sample mean or ± 1 SD or ± 2 SD from the sample mean. Lines with simple slopes that are significantly different from 0 are indicated with asterisks. Overall, couples in which the wife is lower on positivity or effectiveness experience a decrease in relationship quality when they moved to a significantly wealthier neighborhood. ** $p < .01$. *** $p < .001$.

experienced an increase in relationship quality when they moved to a poorer neighborhood.

In addition, we tested a 3-way interaction between T1 neighborhood income, changes in neighborhood income, and spouse's mean communication. For wives, this 3-way interaction was non-significant for positivity and effectiveness ($z = -0.42$, $p = .672$ and $z = -0.84$, $p = .403$, respectively), but was significant for negativity ($z = 2.88$, $p = .004$; see Table 2, three-way interaction).

This means that the interaction between negativity and changes in neighborhood income was itself moderated by the couple's baseline neighborhood income, indicating that the costs of moving up were only evident among negative wives who were moving from relatively poorer neighborhoods. Figure 2 depicts the interaction between changes in neighborhood income and wives' negativity, with each panel representing this interaction when T1 neighborhood income is (a) -1 SD below the mean (which equates to a

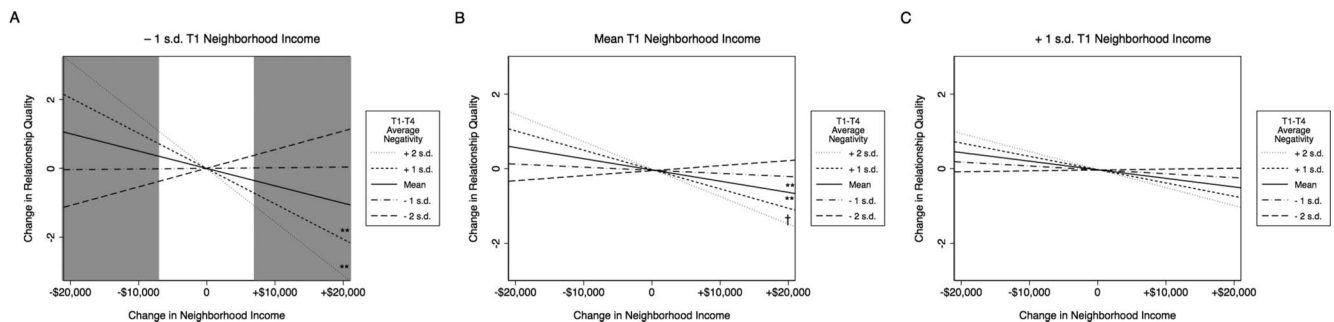


Figure 2. Three-way interaction between T1 neighborhood income, changes in neighborhood income, and wives' negativity. The interaction between changes in neighborhood income and wives' average level of negativity are depicted for couples with baseline neighborhood income equal to (A) -1 SD below the mean, (B) the mean, or (C) $+1$ SD above the mean. The regions of significance are highlighted in gray: The interaction is significant among couples who, at baseline, lived in poorer than average neighborhoods (see Panel A). Lines illustrate the effect of neighborhood income for wives with levels of negativity equal to the sample mean or ± 1 SD or ± 2 SD from the sample mean. Couples in which the wife is higher on negativity relative to other wives experience a decrease in relationship quality when they move to a wealthier neighborhood, if the couple's T1 neighborhood income was below the mean. As panels B and C depict, the interaction between negativity and changes in neighborhood income are nonsignificant if the couple's T1 neighborhood income was at or above the mean. † $p < .10$. ** $p < .01$.

median neighborhood income of \$25,700), (b) at the mean (\$44,011), and (c) +1 *SD* above the mean (\$62,321). Much like the significant 2-way interactions for positivity and effectiveness wherein poor communication exacerbated the effect of moving up, poor communication as measured by high levels of negativity also exacerbated the effect of moving up, but only among couples who at baseline lived in poorer neighborhoods (see Figure 2, Panel A).

Simple moderating effects: Results for husbands. Husbands' mean levels of communication did not moderate the association between changes in neighborhood income and relationship quality (Table 2; positivity: $z = 0.75, p = .451$; negativity: $z = 0.10, p = .919$; effectiveness: $z = -0.07, p = .942$). That is, the 2-way interaction between husbands' communication and changes in neighborhood income were nonsignificant for all communication behaviors. Similarly, the 3-way interactions between T1 neighborhood income, changes in neighborhood income, and husbands' mean communication were all nonsignificant (Table 2; positivity $z = -0.79, p = .431$; negativity: $z = 0.21, p = .834$; effectiveness: $z = -0.31, p = .759$).

Regions of significance in the Communication \times Neighborhood income interactions. To test for the hypothesis that communication is better described as a *risk-activated* moderator, we sought to identify the point at which changes in median neighborhood income were substantial enough to interact with wives' communication. Thus, we further probed the significant two-way interactions for positivity and effectiveness found among wives by identifying the regions of significance. As Figure 1 illustrates, the interaction between wives' communication and neighborhood income was significant only when moving resulted in fairly substantial changes in median neighborhood income. Specifically, positivity moderated the income–relationship quality association only when increases in neighborhood income were greater than \$13,726 or decreases in neighborhood income exceeded \$13,913 (see shaded regions in Figure 1, Panel A). The interaction between wives' effectiveness and neighborhood income was significant only when moving led to increases greater than \$11,425 or decreases exceeded \$9,204 (see shaded regions in Figure 1, Panel B). As illustrated by the unshaded regions in Figure 1, when moves did not result in much change in a couples' median neighborhood income, relationship quality did not change reliably when comparing couples in which wives were two standard deviations above and below the mean in positivity or effectiveness.

Results of the regions of significance test for the 3-way negativity interaction indicated that wives' negativity significantly interacted with neighborhood income only among couples who at baseline lived in poorer neighborhoods (i.e., -1 *SD* below the mean). As the shaded regions in Figure 2 Panel A show, the negative effect of neighborhood income change was only evident among highly negative wives when moving resulted in increases in neighborhood income greater than \$7,044 or decreases in neighborhood income exceeded \$7,285.

Discussion

Explanations for why relationships grow stronger and weaker tend to emphasize the quality of communication that partners display during important conversations. Although those explanations have proven fruitful, newer models proposed by Bodenmann (2005), Conger et al. (1999), and Karney and Bradbury (2005)

assert that dyadic processes alone are unlikely to account for relationship development. Instead, understanding how dyadic processes influence relationship outcomes requires that they be situated within the larger array of settings that couples inhabit. Consistent with these perspectives, we found that relationship quality did change for husbands and wives when couples moved to more and less affluent neighborhoods. However, relationship quality was unrelated to average levels of observed communication, a finding that runs counter to the traditional view that couples who communicate well will generally enjoy better relationships. Instead, communication came to be associated with changes in relationship quality only when changes in context were sufficiently large. Specifically, only when couples moved to neighborhoods with median incomes differing by \sim \$7,000–14,000 from their original neighborhood did their communication come to predict changes in relationship quality. Critically, these results held after controlling for between-couple variance in moving, suggesting that changes in neighborhood environments were contributing to the observed effects rather than the stress of moving by itself. Below we discuss how these results might shed light on the ways in which changes in couples' context affect their developing relationships.

With regard to our first question, we found that nearly half of all couples moved at some point during the 3-year longitudinal study, and their relationship quality improved with moves to poorer neighborhoods and declined with moves to wealthier neighborhoods. Thus, while it is possible to view mobility to a higher-income neighborhood as a move toward less stress and more resources, these findings highlight the possibility that higher-income neighborhoods may create stressors not previously encountered in the lower-income neighborhood. On one hand this is a surprising result, as we might have expected relationship quality to rise with moves to higher-income neighborhoods, yet our findings are consistent with a prior cross-sectional study of established couples: Cutrona and colleagues (2003) found that couples living in higher-income neighborhoods reported lower relationship quality compared to couples living in lower-income neighborhoods. Moving to higher-income neighborhoods may not always improve couples' circumstances, as "moving up" might incur costs, perhaps through growing physical or psychological distance from important network members and changes in one's income standing relative to one's neighbors. Indeed, moves to neighborhoods with lower median incomes might well have been undertaken to circumvent just these sorts of difficult adjustments, possibly enabling relationship quality to rise. While we have to be careful not to generalize to other sorts of shifts in housing, we note that intervention studies randomizing families to move sometimes yielded mixed effects (e.g., Chetty et al., 2016). These findings highlight the subtlety and complexity of the dynamic environments that couples occupy.

With regard to our second question, we found clear evidence for communication as a moderator of context changes. As the shaded regions in Figure 1 illustrate, only relatively large increases in neighborhood wealth were associated with disruptions to relationship quality, particularly so among poor communicators. Couples in which the wife was low on positivity or effectiveness relative to other wives experienced a decrease in relationship quality when they moved to a wealthier neighborhood (i.e., wives scoring equal to or lower than the sample average in their expressions of warmth and cooperation and in their ability to work toward a solution to a

conflict with their partner). Couples in which the wife was higher on positivity or effectiveness, however, experienced no change in relationship quality and were buffered from the effect of moving up. Similarly, Figure 2 illustrates that wives who were higher on negativity (i.e., wives communicating angrily or antagonistically toward their partner) experienced a decrease in relationship quality when they moved up, although this was only true among couples who lived in lower-income neighborhoods prior to moving. As the unshaded (nonsignificant) regions of Figures 1 and 2 suggest, in the absence of substantial change in context, communication behaviors do not appear to be systematically associated with changes in relationship quality—in this range, the least skilled communicators are no different from the most skilled communicators. Thus in the same way that there is a threshold that governs whether or not the presence of an airbag in a car will moderate the effect of an instigating event (e.g., going over a speed bump vs. head-on collision) on the well-being of people in the car, so too is there a threshold in changes in neighborhood income that governs whether communication will moderate the effect of that change on relationship quality. Below this threshold, communication exerts no apparent effect on changes in relationship quality. While most of us hope that our airbags will perform flawlessly when called upon to protect us, between-couple variability in communication is far greater and likely enables some couples to thrive when their living circumstances change markedly, just as others falter under similar conditions. Although not hypothesized a priori, the findings indicate that moderation was present only for wives. Women's communication skills may be predictive because women tend to closely and consistently monitor the tone of the relationship (Doss, Atkins, & Christensen, 2003). Women may be more likely to utilize those skills to address relationship problems when they arise because the problems are more easily detected and the threshold to action is lower.

Close inspection of our three Communication \times Neighborhood income interactions indicate that couples with below-average scores in communication, upon moving to neighborhoods with lower median incomes, actually gain more in relationship quality relative to their counterparts with above-average scores in communication. In other words, couples with poorer communication experience the greatest costs for moving to higher-income neighborhoods but also incur the greatest benefits from moving to lower-income neighborhoods. This finding was unexpected, but it is not unprecedented. For example, diary studies of the association between daily relationship events and daily ratings of relationship quality show that distressed couples are more responsive than satisfied couples to negative and positive events, independent of the frequency of those events (e.g., Jacobson, Follette, & McDonald, 1982). Along similar lines, sequential analysis of videotaped interactions reveals distressed couples to be characterized primarily by partners' reactivity to one another's behaviors, a behavioral response thought to reflect a higher degree of structure or predictability in couple conversations as they grow less satisfied with their relationship (Margolin & Wampold, 1981). Whether any such tendency toward heightened reactivity is instigated by shifts in circumstance remains an open question, and future studies are needed to first replicate and then clarify how relatively unskilled communicators might be able to thrive as they transition to more affordable neighborhoods. Support for this unexpected result would suggest that the fit between a couples' interpersonal tendencies and

their ecological niche might be more important than either factor alone, much like the concept of person–environment fit is used in the larger literature on personal adjustment.

Limitations and Implications

Before considering the implications of the study, we provide some reasons for caution in interpreting the results. First, our study of naturally occurring mobility addresses correlational data rather than true experimental data and thus does not support causal inferences. We also remain tentative about the results of the study because, although the negative effect of neighborhood income on relationship quality was found for husbands and wives, we found no evidence that husband behaviors moderated this association. Second, although the negative effects of moving to a higher-income neighborhood are statistically reliable and replicate an independent study (Cutrona et al., 2003), we cannot make strong claims about the magnitude because traditional estimates of effect size do not apply to multilevel models (Holden, Kelley, & Agarwal, 2008). Nonetheless, as our figures demonstrate, the scale of changes in our relationship quality variable were not large in magnitude and thus give further reason for caution. A third consideration is that we examined residential mobility and changes in neighborhood income as readily quantified indicators of general changes in social and economic conditions. Future studies are needed to determine whether our findings generalize to other conditions affecting couples' lives (e.g., job loss, growing debt) or generalize to couples beyond ethnically diverse, heterosexual couples in their first marriages. Last, our spouses did not report the reasons for moving, the effects of moving on their financial debt and mortgage, or exposure to discrimination from new neighbors; future work might address these factors as mechanisms by which moving to higher-income communities may generate stress for couples.²

Notwithstanding these limitations, this study is among the first to directly test how context interacts with dyadic processes to predict relationship quality, and further research using a similar methodological approach is needed to address the inconsistency of how and when communication skills are related to relationship outcomes. In addition, a large sample of diverse couples living in a wide range of neighborhood contexts, census-based data on neighborhood income, and observational data on couple communication are all strengths of this work, as is our four-wave longitudinal design and the finding that well-functioning couples were not systematically more or less likely to undertake residential moves. We believe these results suggest a new perspective on how interpersonal communication—a fundamental and defining element in all intimate relationships—functions to affect change in relationship quality. Social exchange and social learning theories (e.g., Jacobson & Margolin, 1979) assign great significance to interpersonal communication as a generative force in relationships, of course, and preventive interventions target behavior change as

² The negative effects of moving up were not confounded by the effects of having children or by changes in the racial demographic of the neighborhood (see Footnote 1), indicating the robustness of the neighborhood effect. Nonetheless, these tests are imperfect in detecting the direct mechanisms of moving. For example, future research should examine psychological experiences of discrimination in the new neighborhood.

a key mechanism for improving relationships. Finding consistent support for this idea has proven difficult, however, and existing evidence supports the idea that dyadic processes are a relatively stable, trait-like characteristic of the dyadic system that partners create—processes that deteriorate principally when relationship distress becomes overt and unavoidable, and only then becoming amenable to change (e.g., Doss, Mitchell, Georgia, Biesen, & Rowe, 2015). Our findings build on this idea and suggest that communication operates less as an unmoderated generative force and more as a risk-activated *amplifier* of other experiences that couples undergo, notably when those experiences are significantly different than before. For couples who communicate poorly, moves to a wealthier neighborhood may pose their own stressors and drain relationship quality whereas couples who communicate well may be buffered from objectively identical transitions.

These results also have practical implications for housing mobility initiatives aiming to move families from low-income housing projects to higher-income neighborhoods. For example, the U.S. Department of Housing and Urban Development's Moving To Opportunity program has improved the mental health and physical health of its movers, particularly for young children, but the results may not be as straightforward for adults and older children who may experience disruption from their existing social network and ultimately strain within the dyad (Chetty et al., 2016). Thus, although the majority of studies of randomized controlled programs have analyzed the effects of mobility on child and health outcomes, our findings suggest that further research should examine the effects on couples and their social networks.

These findings are consistent with evidence showing that interpersonal processes can buffer the negative effects of neighborhood instability (e.g., Riina, Lippert, & Brooks-Gunn, 2016) and the negative effects of financial strain (Conger et al., 1999). More specifically, whereas social learning theory assumes that exchanged behaviors provide the raw material that spouses use to make judgments about the quality of their relationship, we might speculate that exchanged behaviors serve to heighten or reduce the effects that other experiences come to have on the relationship. In this regard, changes in context might present couples with important tests, such that couples capable of better communication may be well-positioned to excel on these tests and go on to enjoy better relationships, whereas couples who are prone to miscommunication will struggle in the face of the challenge and grow disenchanted with each other as a consequence.

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