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Cultural Adaptation Congruence in Immigrant Spouses is Associated with Marital Quality

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This research was supported through awards to Su Yeong Kim from (1) National Science Foundation, Division of Behavioral and Cognitive Sciences, 1651128 and 0956123, (2) National Institute on Minority Health and Health Disparities 1R21MD012706-01A1 and 3R21MD-012706-02S1, (3) Eunice Kennedy Shriver National Institute of Child Health and Human Development 5R03HD060045-02, (4) Russell Sage Foundation, 2699, (5) Spencer Foundation, 10023427, (6) Hogg Foundation for Mental Health JRG-102, (7) Office of the Vice President for Research and Creative Grant and Special Research Grant from the University of Texas at Austin, (8) College of Natural Sciences Catalyst Grant from the University of Texas at Austin, and (9) Eunice Kennedy Shriver National Institute of Child Health and Human Development 2P2CHD042849-19 grant awarded to the Population Research Center at The University of Texas at Austin.

Abstract

Objective and Background: Previous research suggests that cultural adaptation is associated with Mexican-origin couples' marital outcomes, including marital distress and rates of dissolution. However, research on the marital implications of different types of spousal differences in cultural adaptation often omits important dyadic dynamics (i.e., incongruence between couples and with their partners); when coupled with existing methodological issues.

Method: Using data from 273 Mexican-origin couples, we conducted response surface analyses to examine how spousal congruence in four adaptation domains (acculturation, enculturation, English proficiency, Spanish proficiency) is associated with wives' and husbands' marital warmth, hostility and satisfaction.

Results: Higher, versus lower, levels of couple matches (except for enculturation) were associated with better marital quality. Mismatches in American (acculturation, English) and Mexican (enculturation, Spanish) orientations were also associated with higher, and lower, marital quality, respectively.

Conclusion and Implication: Our findings highlight the importance of examining couple matching, which has historically been understudied. We also suggest that inconsistencies in prior work can be explained by discrepant associations between mismatches in American versus Mexican orientation and relationship outcomes.

Keywords: cultural diversity, Hispanic/Latino/a, immigrants, marital quality, methodologies

INTRODUCTION

Immigrants in the United States face several challenges, including those involved with adapting to American culture (e.g., learning the English language, adjusting to US norms) while maintaining their native heritage. These challenges can negatively impact not only immigrants' economic opportunities and psychosocial well-being (Helms et al., 2014), but also their intimate relationships. For example, immigrants generally report lower levels of marital quality and often experience higher rates of relationship dissolution compared to both natives in their home and destination countries (see Frank & Wildsmith, 2005; Glick, 2010).

One explanation for immigrants' high rates of martial dissatisfaction and dissolution is stress associated with spousal differences in adaptation. Cultural adaptation includes a wide spectrum of attitudinal and behavioral changes (Knight, Safa, & White, 2018), and immigrant husbands and wives might adapt at different rates to various cultural domains (i.e., language, cultural values; Grzywacz, Rao, Gentry, Marín, & Arcury, 2009; Hengstebeck, Helms, Wood, & Rodriguez, 2018). Disagreements in values and expectations may arise within dyads and compromise people's ability to maintain strong relationships. Despite the importance of close relationships for psychological and physical well-being, particularly during times of stress and transition (Johnson, Neyer, & Anderson, 2019), few studies, surprisingly, examine the extent to which immigrant couples' cultural adaptation is associated with their marital outcomes.

Given the interdependence of marriages, we suggest that the degree of mis/match between immigrant husband and wives' cultural adaptation may have implications for their marriages, even beyond an individual's own level of adaptation (Cao et al., 2019). Incongruence in spousal adaptation occurs when (1) Mexican-origin husbands and wives match on the same adaptation domain but show dissimilar levels of matching with other couples on that specific

domain (high-high couple vs. low-low couple) or (2) when husbands and wives in the same dyad show mismatches with each other on the same adaptation domain (i.e., high-low couple vs. low-high couple). However, the limited research on immigrant marriages typically focuses on individuals' rather than couples' cultural adaptation (Kisselev, Brown, & Brown, 2010); doing so overlooks the fact that adaptation is embedded within one's close relationships and can obscure important dyadic dynamics (Umaña-Taylor, Updegraff, Jahromi, & Zeiders, 2015).

In the present study, we examine associations between Mexican-origin couples' cultural adaptation to the US and the quality of their marital relationships. Mexican-origin immigrants are the largest group of immigrants in the US, and they have elevated risk of marital dissolution compared to both non-Hispanic Whites in the US and their native counterparts in Mexico (Pew Research Center, 2018). Mexican-origin couples who match at, for example, low levels of cultural adaptation may experience different sources of adaptation stress than couples who match at high levels of adaptation, which may influence marital dissatisfaction. At the same time, it is also possible that husbands and wives differ from each other in their workplace experiences and lengths of stay in the US (Grzywacz et al., 2009; Hengstebeck et al., 2018); thus, husbands and wives may also differ in their rates of adopting, and maintaining, their American versus Mexican orientations, which could manifest in spousal mismatches in adaptation. Specifically, we argue that (1) level of acculturation matching (e.g., high-high vs. low-low) and (2) mismatches between Mexican-origin husband and wives' levels of cultural adaptation (e.g., high-low vs. low-high) may have important implications for their marital quality.

Spousal Matches in Cultural Adaptation and Mexican-origin Couples' Marriages

Highly acculturated immigrants in the US (i.e., those with a stronger orientation towards American culture) tend to report more marital distress than less acculturated immigrants (Flores,

Tschann, VanOss Marin, & Pantoja, 2004; Negy & Snyder, 1997). For instance, Mexican-origin husbands and wives who are more acculturated are more confrontational, and are less likely to withdraw during couple conflicts, than their less acculturated counterparts, which can strain the marital relationship (Wheeler et al., 2010). However, most studies on this topic assess immigrants at the individual level and do not account for *both* members' cultural adaptation and the influence of dyadic similarity on marital quality. In one recent exception, immigrant wives – and husbands to a more moderate extent – reported more warmth from their partners when they *both* shared (i.e., matched at) similarly high levels of acculturation to American values (Cruz et al., 2014). These findings highlight the value of examining couple congruence, versus independent reports, given that cultural adaptation was differentially linked with Mexican-origin husbands' and wives' marital quality. However, because empirical research assessing matching in spousal cultural adaptation is rare, we currently know little about couple matching at different levels of cultural adaptation, and how matching may be linked with couples' marital quality.

Additionally, researchers generally assume that couple congruence in cultural adaptation is linearly associated with marital quality, such that spousal congruence at high levels is associated with better marital outcomes than spousal congruence at low levels. Imagine three pairs of immigrant couples, one sharing similarly high levels, one sharing similarly moderate levels, and a third sharing similarly low levels, of English proficiency. Couples who match at low levels of English proficiency might experience greater financial hardship that spillovers to negatively affect the marriage (Kisselev et al., 2010); yet couple who match at *high* levels of English proficiency are also more likely to report direct expressions of aggression, resulting in more marital conflict (see Flores et al., 2004). Perhaps, the couples who match at moderate levels of cultural adaptation (in this case, English proficiency) enjoy better marital quality than couples

who match at extremely high or low levels (i.e., a curvilinear association). However, few studies adopt such a nuanced perspective on couple matching, and none have explicitly assessed whether matches at extreme levels (a couple in which both partners scored high or low on one cultural adaptation domain) show differences in marital quality compared to a couple in which both partners score moderately on that adaptation domain. The omission of couple matching, and testing for non-linear associations between spousal cultural adaptation and marital quality, are critical gaps in cultural adaptation literature; assessing matches and non-linear associations can therefore provide important information about how Mexican-origin husbands' and wives' adaptation to the US can affect their marriages.

Spousal Mismatches in Cultural Adaptation and Immigrant Couples' Marriages

According to the *acculturation discrepancy hypothesis* (Szapocznik & Kurtines, 1993), mismatches in cultural adaptation between members of immigrant families can lead to within-couple differences in values and marital expectations, ultimately increasing marital discord and distress. Most of the research on the acculturation discrepancy hypothesis has been conducted between immigrant parents and their children – particularly with Mexican-origin families, and it is commonly assumed that intergenerational mismatches in cultural adaptation manifest in greater familial conflict (Telzer, 2010). Few studies on cultural adaptation discrepancies have focused on couples; however, there are a handful of studies that suggest that spousal discrepancies in cultural adaptation are linked with greater marital distress. For instance, Kanat-Maymon and colleagues (2016) found that, among immigrants from the former Soviet Union living in Germany, when husbands and wives were more mismatched in host language (i.e., German) proficiency, both husbands and wives reported more marital dissatisfaction. Other research demonstrates gender differences in links between spousal mismatches and marital

outcomes: Flores et al. (2004) showed that when Mexican-origin wives were more proficient in English than their partners, wives reported more marital distress, marital problems, and disrespect from their husbands during couple conflicts; these effects were not observed when husbands were more proficient in English than their wives.

However, spousal mismatches in adaptation can be *beneficial* for the marital relationship in some cases, perhaps insofar as couple members can pool together their strengths to overcome adaptation-related challenges (Spiegler, Leyendecker, & Kohl, 2015). For instance, Spiegler and colleagues (2015) found that when Turkish wives in Germany were less acculturated (i.e., less adoption of host culture) or more proficient in German than husbands, wives were less psychologically distressed. Additionally, among Russian immigrants in the US, when wives were less proficient in English than husbands, both husbands and wives reported lower levels of marital dissatisfaction (Kisselev et al., 2010). These findings suggest that the acculturation of immigrant *wives* may be particularly important for marital outcomes. More broadly, these findings challenge the assumed negative associations between spousal cultural adaptation mismatches and marital quality. They also raise questions about applicability of the acculturation discrepancy hypothesis to Mexican-origin husbands and wives, given that most work on familial cultural adaptation mismatches focuses on parent-child relationships.

The Current Study

Relatively little is known about how different *levels* of couple matches in cultural adaptation might be differentially associated with marital quality (for an exception, see Cruz et al., 2014). Additionally, the seemingly inconsistent findings linking spousal matches in cultural adaptation with relationship quality in prior studies may be due to critical methodological flaws

and interpretational difficulties surrounding calculations of dyadic matches (for a more detailed discussion, see Barranti, Carlson, & Côté, 2017; Telzer, 2010).

Using a sample of married (including married-like relationships) Mexican-origin immigrants, the present study aimed to address two research questions concerning couple incongruence in cultural adaptation and marital quality. First, are couple matches at different levels of cultural adaptation related to better or worse marital outcomes? That is (1a) Is couple congruence at higher levels of adaptation better or worse for marital quality than couple congruence at lower levels? (1b) Is couple congruence at extreme values better or worse for marital quality than matches at less extreme values (i.e., are couple matches at high and low, versus moderate, levels better for the marriage)? Second, is the acculturation gap distress model applicable to Mexican-origin couples, such that spousal adaptation mismatches (including the directionality of these mismatches) are related to worse marital outcomes in this sample? That is, (2a) Are mismatches in one direction better or worse than mismatches in another direction? (2b) In general, are matches or mismatches in cultural adaptation better or worse for marital quality?

To address these questions, we employed dyadic response surface analysis (RSA), an advanced statistical modeling technique that is designed to assess how (mis)matches in two predictors are related to an outcome of interest. RSA models all possible configurations of two predictors (i.e., husbands' and wives' scores on different cultural adaptation domains), allowing researchers to understand how different combinations of cultural adaptation levels (different levels of couple matching and different kinds of couple mismatches) are associated with Mexican-origin couples' marital quality (Shanock, Baran, Gentry, Pattison, & Heggestad, 2010). RSA analyses show the "line of incongruence" (LOIC), which assesses how matches versus mismatches are associated with the outcome, and the "line of congruence" (LOC), which

assesses how different levels of couple matches are associated with the outcome (Barranti et al., 2017). RSA provides four coefficients (*a*1 – *a*4; two from each line) by analyzing the slope and curvature of the LOC and the LOIC, which corresponds to our research questions. Specifically, the *a*1 coefficient characterizes the linear effect of the LOC and tests whether couples who match at high levels of adaptation report better or worse marital quality than couples who match at low levels (research question 1a). The *a*2 coefficient characterizes the curvature of the LOC and tests whether couple matches at extremely high and low values are better or worse for marital quality than couple matches at moderate levels (research question 1b). The *a*3 coefficient characterizes the linear effect of the LOIC and tests whether adaptation mismatches in one direction (e.g., husbands > wives) are better or worse for marital quality than mismatches in another direction (e.g., wives > husbands; research question 2a). The *a*4 coefficient characterizes the curvature of the LOIC and tests whether matches or mismatches in cultural adaptation are better or worse for marital quality, regardless of the direction (e.g., whether mismatches are associated with better or worse marital quality than matches; research question 2b).

In the present study, we adopt a bi-dimensional perspective on cultural adaptation, assuming that cultural adaptation is not a unidimensional construct, but encompasses two distinct continua measuring immigrants' orientations to both host and native cultures. Additionally, previous research suggests that immigrant couples' language proficiency and cultural orientations should be examined separately (Knight et al., 2018). Thus, we incorporate multiple psychological domains of cultural adaptation that tap into Mexican-origin couples' American (i.e., acculturation and English proficiency) and Mexican (i.e., enculturation and Spanish language proficiency) orientations. We then examine the associations between couple matches at different levels of matching, and spousal adaptation mismatches, with three indices of couples'

marital relationship: marital warmth, hostility, and satisfaction. Although preliminary, recent findings with Mexican-origin immigrants suggest that Mexican-origin immigrants are likely to construe warmth and hostility separately (i.e., not at opposite ends of the same continuum) (Sim, Kim, Zhang, & Shen, 2019). Thus, we made independent predictions for associations with positive (i.e., warmth and satisfaction) and negative (i.e., hostility) aspects of marital quality.

We hypothesized that couples who matched at high levels would report higher marital quality (i.e., higher levels of marital warmth and marital satisfaction and lower levels of marital hostility) as compared to couples who matched at mid- and low- levels. Based on the acculturation discrepancy hypothesis, we also tested the hypothesis that larger spousal cultural adaptation mismatches are associated with worse marital quality (i.e., lower marital warmth and satisfaction, higher marital hostility).

METHOD

Two hundred and seventy-three heterosexual couples (546 individuals) participated in a larger longitudinal study that examined associations between English language competency and family dynamics in Mexican-origin immigrant families (see the Mexican American Immigrant Family project; Kim, Hou, & Gonzalez, 2017). IRB approval for the study was obtained from the University of Texas at Austin. Mexican-origin families were eligible for the study if they had at least one child in the family who translated for their parents. Data for the current study were obtained only from the first wave of the larger dataset where we had more complete data (both husband- and wife-reports). Couples were recruited in and around a metropolitan city in Central Texas from 2012 to 2015. Husbands were, on average, 40.87 years old (*SD* = 6.60, range = 23-63), and 98.5% were born in Mexico; wives were, on average, 38.54 years old (*SD* = 5.67, range = 38-61), and 98.9% were born in Mexico. The few participants who were US-born were

partnered with someone born in Mexico. For participants who were born in Mexico, the average length of stay in the US was 16.98 years (*SD* = 6.37). Average relationship length was 16.68 years (*SD* = 5.27). Mean and median annual family income were in the range of $30,001-$40,000 or less.

Couples were recruited through public records, school presentations, flyers and advertisement from 2012 to 2015. Research assistants distributed a letter describing the research project, along with a permission slip for families. After signing and returning the permission slip, families completed an initial screening call and were scheduled for a two-hour in-person family visit. As most couples were Spanish speakers – most wives (99.7%) and husbands (98.0%) opted to be interviewed in Spanish – bilingual and bicultural interviewers went on family visits, read questions out loud to families and entered their responses on a laptop computer. Husbands and wives completed the questionnaires separately such that they were unable to hear each other's responses. All questionnaires were prepared in both English and Spanish. The questionnaires were first translated to Spanish and then back translated to English by bilingual and bicultural research assistants. Families received $60 compensation after completing the questionnaires.

Measures

In total, we included four cultural adaptation domains in our study, measuring participants' acculturation, enculturation, English proficiency and Spanish proficiency levels. We also included three measures of marital quality: marital warmth, hostility, and satisfaction.

Acculturation and Enculturation (i.e., American and Mexican cultural behaviors, attitudes, and beliefs, respectively) were assessed using the Vancouver Index of Acculturation (Ryder, Alden, & Paulhus, 2000). Participants responded to 10 questions about their acculturation level and 10 questions about their enculturation level on five-point Likert scales (1

= *strongly disagree* to 5 = *strongly agree*). Items for acculturation and enculturation were identical, except that "American" was substituted with "Mexican" in the enculturation measure. Example items were "I often follow traditions of the American/Mexican culture" and "I believe in mainstream American/Mexican values." Scales showed good reliability (husband's acculturation: $\alpha = .82$; husband's enculturation: $\alpha = .85$; wife's acculturation: $\alpha = .82$; wife's enculturation: $\alpha = .88$).

English and Spanish Proficiency. Participants self-reported their Spanish and English proficiency in (1) reading, (2) writing, and (3) speaking and understanding via 3 items (one item for each sub-construct of language proficiency) on 5-point Likert scales (1 = *not well* to 5 = *extremely well*). Self-reported language proficiency tends to be moderately correlated with objective measures of language competence (e.g., Dunn & Tree, 2009). Our scales showed good reliability (husband's English proficiency: $\alpha = .90$; husband's Spanish proficiency: $\alpha = .80$; wife's English proficiency: $\alpha = .88$; wife's Spanish proficiency: $\alpha = .84$).

Marital Warmth and Hostility were measured using items adopted from Conger et al. (2002). The warmth scale included 7 items measuring the frequency of participants' engagement in positive behaviors toward their partner, such as "let your partner know you really love him/her" and "help your partner do something that was important to him/her." The hostility scale included 6 items assessing the frequency of participants' engagement in negative behaviors toward their partner, such as "shout or yell at your partner because you were mad at him/her" and "get angry at your partner." Participants reported how often they engaged in these behaviors during the past month on a 7-point scale ranging from 1 = *never* to 7 = *always*. Scales showed good reliability (husband's marital warmth: $\alpha = .85$; husband's marital hostility: $\alpha = .82$; wife's marital warmth: $\alpha = .88$; wife's marital hostility: $\alpha = .84$).

Marital Satisfaction was measured using select items adapted from the Couples Satisfaction Index (Funk & Rogge, 2007). On a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*, participants answered to what extent they agreed with the three statements in regard to their relationship quality (husbands: $\alpha = .60$; wives: $\alpha = .77$): 1) my relationship with my partner is better compared to other couples; 2) I cannot imagine another person making me as happy as my partner does; and 3) in general, I am satisfied in my relationship with my partner.

Covariates included self-reported age, relationship length (in years), and family income (measured on an 11-point scale with $10,000 increments, ranging from 1 = *$10,000 or under* to 11 = *$110,001 or more*).

Analysis Plan

We first ran correlations among key study variables (i.e., the four cultural adaptation indicators and the three marital quality indices) to assess interdependence at the couple level. We then conducted RSA procedures following the steps outlined by Barranti et al. (2017) and Shanock et al. (2010), using the RSA package (Version 0.9.13; Schönbrodt & Humberg, 2018) in R 3.6.2 (R Development Core Team, 2019). Missing data was addressed by using pairwise deletion so that the number of cases for each analysis was maximized. We first centered husband and wife reports of the different cultural adaptation domains, separately, at the midpoint of the scale (e.g., 3 on a 1-5 scale) to facilitate the interpretation of the results. Because cultural adaptation mismatches may be differentially related to husbands' and wives' marital quality (Cruz et al., 2014), separate RSA models were conducted for husbands and wives (i.e., we reran the same analyses twice: once for husbands' and then again for wives' outcomes). It is important to note that RSA is similar to a univariate regression analysis, which allows for the inclusion of

only one dependent variable in each model; thus, RSAs were conducted for each of the four cultural adaptation domains and each of our three dependent variables and then again by husbands and wives (i.e., husband- and wife-reported marital warmth, marital hostility, and relationship satisfaction), culminating in a total of 24 models.

In each model, we regressed the outcome (e.g., marital warmth, hostility, satisfaction) on husband- and wife-reported cultural adaptation levels, their squared terms (husband report^2 and wife report^2), and their interaction term (husband × wife report). The coefficients, derived from the regression analysis, were then used to generate a response surface pattern, which captures the three-dimensional relationship between the two predictor variables and the outcome variable through the LOC and LOIC. It is important to note that only regions of the response surface plot that are within the range of the original data should be interpreted due to extrapolations of the surface plot (i.e., there are no actual observations in these extrapolated regions; Montgomery, Peck, & Vining, 2012; Schönbrodt, 2016). Thus, we followed the recommendation of including a *bagplot* (Schönbrodt, 2016) – a bivariate extension of the boxplot and appears as a visual aid on RSA figures to show the inner 50% of points and separates outliers from inliers – and did not interpret regions that fell outside the bagplot.

RSA provides statistical tests for four coefficients that communicate information related to each of our four research questions. We also adopted recommendations from past research (Barranti et al., 2017) and interpret our findings holistically to capture the relations among the four coefficients (first addressing $a1$, and $a2$, before discussing $a3$ and $a4$). We separate our results according to the type of cultural adaptation domain assessed. We first present findings for wives (if any), followed by findings for husbands. Finally, additional robustness checks were

included to account for false discovery rates (i.e., Type I error) because our analyses involved multiple sets of comparison.

RESULTS

Preliminary Analyses

Descriptive statistics (means, standard deviations, and correlations) between the study variables are presented in Table 1. Results of paired-sample *t*-tests showed that, on average, husbands reported higher levels of acculturation (t_{271} = -3.84, $p < .001$) and English proficiency (t_{272} = -4.77, $p < .001$), but lower levels of enculturation (t_{271} = 4.57, $p < .001$) and Spanish proficiency (t_{272} = 3.37, $p < .01$), than wives. This descriptive information indicates that husbands and wives, on average, may be mismatched in their levels of cultural adaptation.

Main Analyses

For our main analyses, we ran dyadic response surface analysis and examined each cultural adaptation domain separately. In line with the guidelines of (Shanock et al., 2010), the RSA coefficients, which are derived from the regression coefficients, were used to examine whether mismatches and matches between husband and wife reports of the cultural adaptation domain related to our outcome measures. First, we examined the extent to which couple congruence was associated with marital quality by addressing whether some matches in cultural adaptation are better or worse than other matches (i.e., *a*1 coefficient; research question 1a), and whether adaptation matches at extreme levels have different effects on marital quality than matches at mid-levels (i.e., *a*2 coefficient; research question 1b). Next, we focus on spousal adaptation *mismatches*, and focus on whether matches are associated with higher or worse marital quality than mismatches (i.e., *a*3 coefficient; research question 2a), and whether matches or mismatches are related to better outcomes (i.e., *a*4 coefficient; research question 2b). The

results of the polynomial regression analyses and response surface analyses are presented in Tables 2 and 3. For parsimony (because we ran a total of 24 models), we only discuss the results of and present RSA figures (see Figures 1 and 2) for models with significant $a1$- $a4$ coefficients.

Acculturation. Our first analysis, testing research question 1a, revealed that wives were warmer when they were congruently high with their partners on acculturation as compared to wives who were congruently low with their partners. This is evident in Figure 1a, where we see the pronounced linear effect of the LOC in the surface plot (downward sloping from back to front), and the significant a_1 coefficient ($a_1 = .63$, $p < .05$).

Similar to our findings for wives, husbands were more satisfied with their marriage when they were congruently high with their partners on acculturation as compared to congruently low with their partners. This is evident in Figure 1c, where we note the pronounced linear effect of the LOC in the surface plot (downward sloping from back to front), and the significant a_1 coefficient ($a_1 = .58$, $p < .001$). We made no interpretations of the significant a_2 coefficient ($a_2 = -.40$, $p < .05$) as there were no actual data matching at extreme low levels based on the bagplot (i.e., the finding is based on extrapolated data).

Additionally, our analysis revealed that husbands were warmer when they were more acculturated than their wives (research question 2a). This is evidence in Figure 1b, where we observe the pronounced linear effect of the LOIC in the surface plot (upward sloping from left to right), and the positive significant a_3 coefficient ($a_3 = .84$, $p < .001$).

Enculturation. Wives were warmer when they were either congruently high or congruently low with their partners on enculturation as compared to wives who were congruent at moderate levels of enculturation with their partners (research question 1b). This association is

especially salient in Figure 1d, as we note the convex u-shaped (from left to right) in the surface plot, and the significant a_2 coefficient ($a_2 = .67$, $p < .05$).

English proficiency. We found significant a_1 and a_2 coefficients ($a_1 = .73$, $p < .01$; $a_2 = .22$, $p < .05$) for English proficiency and husbands' hostility (research questions 1a and 1b). Husbands were more hostile when they were congruently high with their partners on English proficiency as compared to husbands who were congruently low with their partners. This is evident in Figure 1e, where we note the pronounced linear effect of the LOC in the surface plot (downward sloping from back to front), and the significant a_1 coefficient ($a_1 = .73$, $p < .01$). We made no interpretations of the significant a_2 coefficient ($a_2 = .22$, $p < .05$) as there were no actual data matching at extreme high levels based on the bagplot (i.e., the finding is based on extrapolated data).

Additionally, we found that husbands were less hostile when their partners were more mismatched with them in English proficiency (research question 2b). This is evident in Figure 1e, where we observe the curvilinear effect of the LOIC in the surface plot (concave downward u-shaped curve from left to right) and the significant a_4 coefficient ($a_4 = -.29$, $p < .05$).

Spanish proficiency. We found significant a_1 and a_2 coefficients ($a_1 = .39$, $p < .01$; $a_2 = -.16$, $p < .05$) for Spanish proficiency and wives' marital satisfaction (research questions 1a and 1b). It is important to point out that there was a stronger linear than curvilinear effect (i.e., $a_1 = .39$, $a_2 = -.16$). As shown in Figure 1f, the linear association is reflected in the upward sloping LOC (from front to back) in the surface plot; however, there is also evidence for a curvilinear trend, as the LOC tapers off from the midpoint to the back. Taken together, we interpret that wives were more satisfied with the marriage when they were congruently high than congruently low with their partners in general; however, wives in congruently high couples showed similar

levels of marital satisfaction to couples who matched moderately on Spanish proficiency, while wives in congruently low Spanish proficiency couples reported lower levels of marital satisfaction.

Paralleling our findings for wives, we also found significant a_1 and a_2 coefficients (a_1 = .28, $p < .01$; a_2 = -.13, $p < .05$) for Spanish proficiency and husbands' marital satisfaction. It is important to point out that, as before, there was a stronger linear than curvilinear effect (i.e., a_1 = .28, a_2 = -.13), albeit smaller magnitude in both a_1 and a_2 coefficients. As shown in Figure 1g, we note the linear association of the LOC as it is upward sloping (gradually from front to back) in the surface plot; however, there is also evidence for a curvilinear trend, as the LOC tapers off from the midpoint to the back. Taken together, in general, husbands appeared to be more satisfied with their marriage when they were more congruently high than congruently low with their partners; however, husbands in congruently high couples showed similar levels of marital satisfaction to couples who matched moderately on Spanish proficiency, while husbands in congruently low Spanish proficiency couples reported lower levels of marital satisfaction.

Additionally, we found significant a_1 and a_2 coefficients (a_1 = -.29, $p < .05$; a_2 = .17, $p < .05$) for Spanish proficiency and husbands' hostility. As shown in Figure 1h, we see the linear association, as the LOC is downward sloping in the surface plot from front to back; however, there is also evidence for a curvilinear trend, as there is a pronounced increase in the LOC from the midpoint to the back (i.e., a convex u-shaped curve from front to back). Taken together, in general, husbands appeared to be more hostile when they were congruently low than congruently high with their partners; however, husbands in congruently high and congruently low couples showed more hostility compared to couples who matched moderately on Spanish proficiency.

We know that husbands were more hostile when they were congruently low, versus congruently high, with their wives, but what about husbands who mismatched with their wives on Spanish proficiency? We found that husbands were more hostile when their wives matched with them at low versus high levels of Spanish proficiency (research question 2a). This is evident in Figure 1h, where we observe the linear effect of the LOIC in the surface plot (upward sloping from left to right) and the significant a_3 coefficient ($a_3 = .31$, $p < .05$).

Additional Analyses

To guard against Type 1 errors in the current analyses, Benjamini-Hochberg adjustment tests were conducted (Thissen, Steinberg, & Kuang, 2002). The results suggest that the following results remained significant after incorporating the Benjamini-Hochberg adjustment: (1) the a_3 coefficient in the model of acculturation discrepancy predicting husband-reported warmth; (2) the a_1 coefficient in the model of acculturation discrepancy predicting husband-reported marital satisfaction; (3) the a_1 coefficient in the model of English proficiency discrepancy predicting husband-reported hostility; (4) the a_1 coefficient in the model of Spanish proficiency discrepancy predicting wife-reported marital satisfaction; (5) the a_1 coefficient in the model of Spanish proficiency discrepancy predicting husband-reported marital satisfaction. Interestingly, most of our findings remained significant for couple matches in cultural adaptation; many findings concerning couple mismatches did not hold after we conducted our adjustment tests.

DISCUSSION

Immigration is an important life transition for many individuals and couples in the US, and people's ability to adapt and adjust to their new cultural environments can potentially spill over and affect their marital relationships. However, the interdependence between couples is neglected when cultural adaptation is construed as an individual-level phenomenon. Here, we

accounted for the interdependence between Mexican-origin spouses and leveraged response surface analyses to examine how in(congruence) at different levels of four domains of cultural adaptation (i.e., acculturation, enculturation, and Spanish and English language proficiency) were associated with three indices of marital functioning: warmth, hostility, and satisfaction.

Are Matches at Different Levels of Cultural Adaptation Related to Marital Outcomes?

Our study offers important contributions to the literature by being the first to examine whether couples who matched on a given cultural adaptation domain at different *levels* reported better marital quality. In general, couples with different levels of adaptation matches showed differential levels of marital quality. Moreover, confirming our hypotheses, there was a general pattern such that immigrant couples with congruently high levels of cultural adaptation showed better marital quality than congruently low couples (except for English proficiency).

More specifically, couples in which both members reported high, versus low, acculturation or Spanish proficiency reported higher marital satisfaction. The 3-dimensional graphic aid further suggests that these results are likely driven by low levels of marital satisfaction in low-low matched couples. Low levels of acculturation are associated with acculturative stress, which can negatively spill over to affect marital outcomes; this effect might be exacerbated when both members of the dyad experience similar challenges in assimilating with American norms and cultural values (Archuleta & Teasley, 2013; Kanat-Maymon et al., 2016). Similarly, low levels of Spanish proficiency might be an indicator of reduced social capital and support from other Mexican-origin immigrants; difficulty communicating in Spanish may be especially salient for participants in our study who lived in the metropolitan area of Austin, Texas, where there is a large community of Mexican-origin immigrants (Archuleta &

Teasley, 2013). Taken together, these findings suggest that couples with congruently low acculturation and Spanish proficiency are most vulnerable and at risk of worse marriages.

That said, our results also alluded to possible curvilinear associations: Couples with congruently high levels of acculturation (for husbands only) and Spanish proficiency showed worse marital quality and more hostility than couples with congruently moderate levels (although these curvilinear associations were no longer significant after correcting for multiple model testing). The curvilinear trend for acculturation might capture what is known as the "immigrant paradox", in which higher levels of acculturation in Mexican-origin immigrants have been associated with worse outcomes for immigrants (see Salas-Wright, Vaughn, Clark, Terzis, & Córdova, 2014). For Spanish proficiency, perhaps couples who have extremely high levels of Spanish proficiency might prefer to interact and socialize only with their ethnic enclave; this deliberate dissociation may compromise immigrants' ability to fully integrate with mainstream culture, which could take a toll on the marriage. More generally, if we had simply tested for linear associations between couple congruence in cultural adaptation and marital outcomes, we would have missed important nuances revealed by our curvilinear associations. Our findings suggest that simply increasing immigrants' acculturation and Spanish proficiency might not necessarily improve martial quality, consistent with work from other researchers who have suggested that immigrants need to balance between acculturation and maintenance of one's ethnic culture (Salas-Wright et al., 2014). We are cognizant of our non-significant curvilinear findings (after correction) and make no attempt to overinterpret these results; however, it is reasonable to suggest that educational programs aimed at boosting both acculturation and community social support with other immigrants (e.g., including contacts and peer support from

other Mexican-origin immigrants who show high levels of acculturation) may offer a way to improve immigrants' integration while also alleviating risk for adverse marital outcomes.

Interestingly, we found that spousal matching at higher levels of adaptation may not always relate with better outcomes: Husbands in dyads that matched at relatively high, versus low, levels of English proficiency reported more hostility. From the 3-dimensional visual aid, we see that this association was driven primarily by congruently low couples who showed lower levels of hostility as compared to congruently high couples. Couples in which both partners find it difficult to pick up the English language may be equally cognizant of the difficulties of immigration to the US and therefore less likely to engage in hostile behaviors with one another (Espenshade & Fu, 1997). Alternatively, the buffer and the stress associated with high levels of English proficiency may cancel one another out: As we noted earlier, English proficiency is related to both better job-seeking opportunities (which buffers against negative spillovers and reduces hostility) (Kisselev et al., 2010) but also more conflictual communication between spouses (Flores et al., 2004). More research is needed to better understand how different adaptation stressors (e.g., work stability and couple communication) intersect to affect marital quality. Perhaps practitioners should also consider how best to balance integration needs with challenges associated with learning the host country language. For example, programs aimed at increasing Mexican-origin couples' English proficiency (for securing better employment) may be paired with teachings on effective conflict resolution strategies (e.g., through couple therapy) to alleviate potentially hostile couple communication (Wheeler, Updegraff, & Thayer, 2010).

Are Mismatches in Cultural Adaptation Related to Marital Outcomes?

Taken together, our findings provide mixed support for the acculturation discrepancy hypothesis (Szapocznik & Kurtines, 1993): Spousal mismatches in Mexican orientation were

associated with worse marital quality, whereas adaptation mismatches in *American* orientations were associated with better marital quality. Consistent with the acculturation discrepancy hypothesis, husbands who were more proficient in Spanish than their wives reported greater hostility towards their wives (Kanat-Maymon et al., 2016). Renegotiation of traditional gender roles sometimes follows after immigration and can heighten marital tension (Cruz et al., 2014); perhaps, responsibilities traditionally ascribed to wives (such as keeping in contact with the family in their country of origin) are more likely to fall on husbands and lead to men's greater dissatisfaction. Indeed, some early work with Mexican-origin immigrants demonstrated that when husbands' share of household labor increased, so did marital conflict (Grzywacz et al., 2009; Shelton & John, 1996). Although the association between spousal mismatches in Spanish proficiency and husbands' marital hostility was not significant after controlling for multiple model testing in our study, future work might benefit from examining how changes in household division of labor are associated with Mexican-origin couples' marriages.

Contrary to the acculturation discrepancy hypothesis, we found that husbands who were more acculturated than their wives reported greater marital warmth. Perhaps more acculturated Mexican-origin men are better adjusted (i.e., experiencing less anxiety and fewer worries related to assimilating into US host culture), which allows for more time, energy, and resources to work on their marriages and promotes more warm and nurturing behaviors toward their partners (Bean, Perry, & Bedell, 2001; Smokowski & Bacallao, 2006). Couples who exhibited greater mismatches in their acculturation may also have adopted an adaptation strategy in which they capitalized on the acculturation level of the member with higher acculturation levels. Over time, couples who are able to overcome weaknesses in one member with strengths from the other may be better able to navigate the demands of adjusting to the US; reduced adaptation stress might

result in decreased hostility (Spiegler et al., 2015). These findings are consistent with the idea that spousal cultural adaptation mismatches may in fact be a marital resource, and immigrant couples with mismatching cultural adaptation levels can function as a "bicultural" unit (Kisselev et al., 2010; Spiegler et al., 2015): Couples may maximize the benefits of both their American and Mexican side as long as one member is sufficiently acculturated/proficient in English, while the other is sufficiently enculturated/proficient in Spanish. For instance, acculturation mismatches were found to be a protective resource against verbal and physical aggression during conflict resolution in Mexican-origin couples (Flores et al., 2004).

Overall, it was surprising that we did not find more support for the acculturation discrepancy hypothesis in our study despite the extensive work on familial cultural adaptation gaps in the larger literature. There may be something unique about Mexican-origin couples' marriages, and the acculturation discrepancy hypothesis may not entirely generalize to Mexican-origin marriages. Indeed, findings from our study suggest that matches in cultural adaptation may be beneficial – albeit only to a certain extent; couple congruence in some domains of cultural adaptation did not relate to positive outcomes, and there was little support for the notion that adaptation discrepancies are detrimental for couples' marital quality. Nevertheless, our findings add to the growing body of research that suggest mixed associations between familial mismatches and relationship quality by focusing on immigrant couples (instead of parent-child dynamics, which are more prevalent in the literature). Perhaps, more research needs to be extended beyond the scope of mismatches to investigating couple similarity to fill the gap in research on cultural adaptation congruence and marital outcomes.

An important strength of the current study is the use of a novel methodology, RSA, to examine associations between mismatches and different levels of couple matches in spousal

cultural adaptation with marital quality. RSA circumvents limitations of traditional methods by accounting for the direction of spousal mismatches in cultural adaptation, while simultaneously testing whether marital quality holds at all levels of spousal matches in cultural adaptation (Barranti et al., 2017; Telzer, 2010). We recommend RSA for future studies examining spousal adaptation mismatches and matches; it is not only useful for testing couple-level research questions but can also extend to other types of dyadic research such as parent-child (mis)matches and relationship quality.

Another strength of the present study is the use of multiple indicators of cultural adaption to understand how spousal adaptation mismatches are related to marital outcomes. The developmental and contextual framework of cultural orientation emphasizes cultural adaptation as a process that involves *multiple* psychological dimensions (Knight et al., 2018), including one's cultural orientations *and* language competencies. Consistent with this view, we observed that Mexican-origin couples' marital quality was more often associated with spousal adaptation mis/matches at different levels of language proficiency than with acculturation and enculturation. These findings highlight the utility of considering cultural orientations and language proficiency as distinct adaptation constructs in immigrant marriages. Our findings are consistent with past studies (Cruz et al., 2014) that have linked couple-level mis/matches in both aspects of cultural adaptation with marital quality. Our study provides new evidence that adaptation mismatches in English and Spanish language proficiency are associated with not just positive (i.e., marital warmth and satisfaction) but negative aspects of the marriage (i.e., marital hostility). More research is necessary to build on the multidimensional perspective of cultural adaptation (Knight et al., 2018) and it is important to distinguish between warmth and hostility in future research to fully understand how different aspects of adaptation affect immigrant couples' marriages.

Limitations and Future Research

Despite its merits, we also acknowledge important limitations to our study. First, our sample was relatively demographically homogeneous, which makes it difficult to generalize our findings to other samples. Couples were recruited as part of a larger study that examined how low English language competency may affect familial outcomes in immigrant families. Thus, the proportion of couples with low levels of English proficiency may not reflect the general population. More recent immigrants from Mexico may have English language competencies that are high enough (Pew Research Center, 2018) that language proficiency plays a smaller role in marital outcomes (e.g., minimizing difficulties in finding employment due to low English proficiency). Additionally, husbands and wives in our sample also reported relatively high levels of warmth and satisfaction and low levels of marital hostility, so ceiling and floor effects may have impacted our findings. Further, although most couples in our study were in married-like relationships, we did not have a measure of legal marriage per se; Mexican-origin couples in non-marital relationships (e.g., cohabitation) may show worse outcomes compared to legally married couples (see Darghouth, Brody & Alegria, 2015).

Second, our study focused on Mexican-origin immigrants because they are the largest group of immigrants in the US; yet immigrants with different cultural backgrounds may have different cultural adaptation experiences that differently influence their marital outcomes. For instance, language acculturation is a significant integration challenge that is particularly salient for Asian Americans – the next largest US immigrant group – so much so that Asian Americans are often stereotyped as "perpetual foreigners" (Tuan, 1998). In fact, lower levels of language acculturation and the perpetual foreigner stereotype have been associated with worse marital outcomes (Hou, Neff, & Kim, 2018). That said, associations between spousal cultural adaptation

congruence and marital outcomes are likely dependent on the adaptation domain, immigrant population, and region or nation in question. Our findings are valuable to the extent that they broaden our general understanding of immigrant couples' adaptation congruence in general, and we recommend one avenue where more research should be directed: Future research may benefit from further focus on specific cultural adaptation domains that are pertinent to the target immigrant group (e.g., language competency in Asian immigrant couples).

Finally, although we have argued that stress associated with cultural adaptation, and mismatches between partners with respect to adaptation, can influence marital outcomes, the correlational nature of our study limits firm conclusions about causality. Perhaps, people in higher quality marriages are better able to adjust to a new culture, or more closely aligned with their partners on a given cultural dimension. Future research that assesses couples over time, or intervenes to influence peoples' levels of adaptation, can disentangle the causal direction of these effects and shed more nuanced light on the associations that we report here.

In summary, the current study contributes to our understanding of links between cultural adaptation and marital outcomes in Mexican-origin immigrant couples. We recommend that researchers assess multiple domains of cultural adaptation in future investigations (e.g., cultural values, language proficiency). We also recommend the use of sophisticated methods that allow for assessments of couples' mismatches and different levels of couple matches in cultural adaptation. In the present study, we adopted RSA to assess whether spousal mismatches in cultural adaptation are associated with better relationship outcomes, and we provide important information regarding how couple matches at high versus low levels may be related to Mexican-origin couples' marital quality. However, more research is needed to understand the causal direction of these associations and the mechanisms that may contribute to them.

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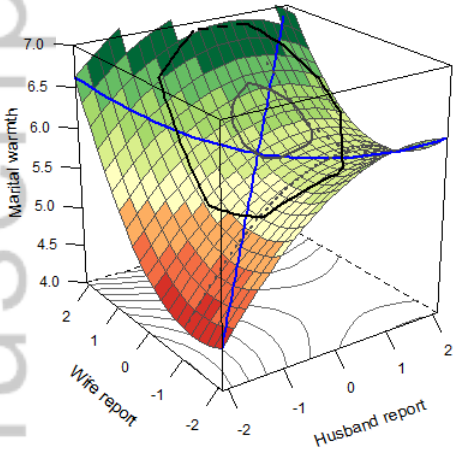
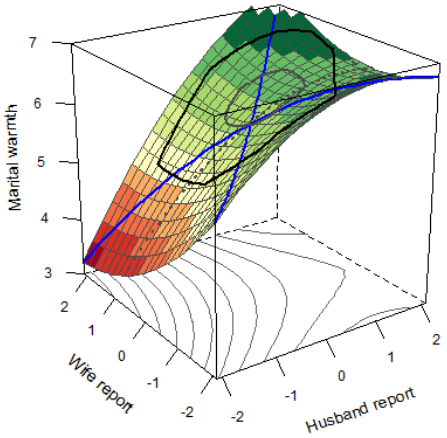
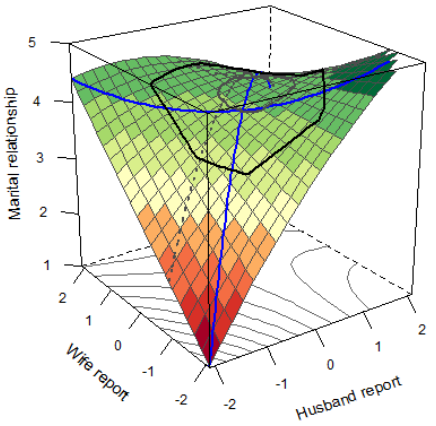


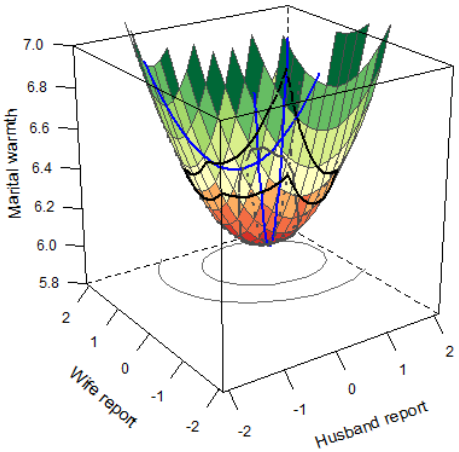
A. ACCULTURATION – WIFE-REPORTED MARITAL WARMTH



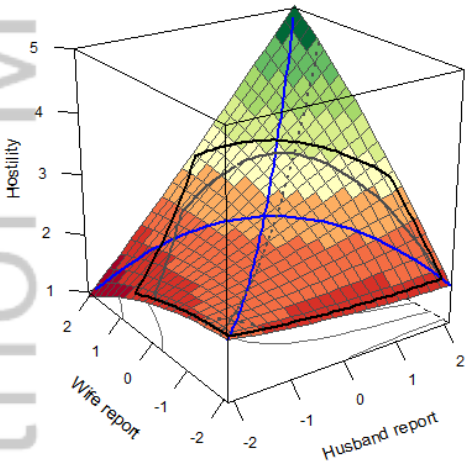
B. ACCULTURATION – HUSBAND-REPORTED MARITAL WARMTH



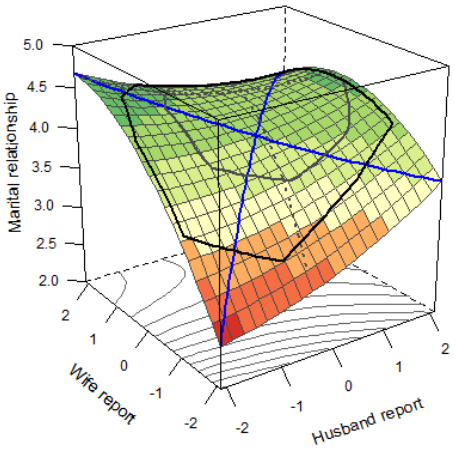
C. ACCULTURATION – HUSBAND-REPORTED MARITAL SATISFACTION



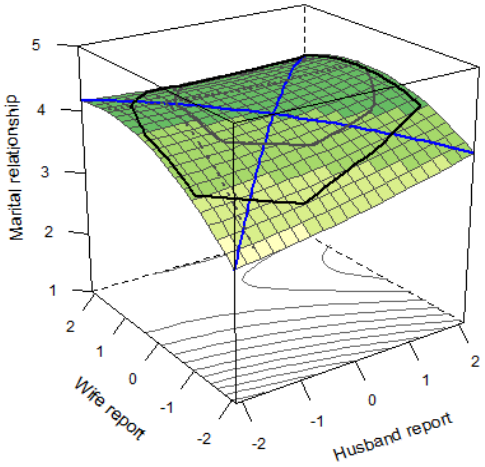
D. ENCULTURATION – WIFE-REPORTED MARITAL WARMTH



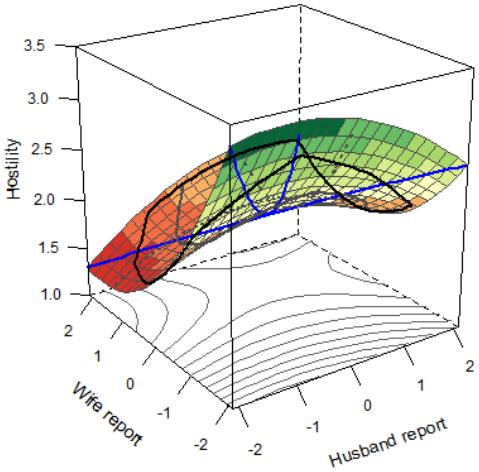
E. ENGLISH PROFICIENCY – HUSBAND-REPORTED MARITAL HOSTILITY



F. SPANISH PROFICIENCY – WIFE-REPORTED MARITAL SATISFACTION



G. SPANISH PROFICIENCY – HUSBAND-REPORTED MARITAL SATISFACTION



H. SPANISH PROFICIENCY – HUSBAND-REPORTED MARITAL HOSTILITY

FIGURE 1. RESPONSE SURFACE FOR THE POLYNOMIAL REGRESSION OF ENCULTURATION AND ACCULTURATION PREDICTING MARITAL RELATIONSHIP. BLACK LINES IN FIGURES REPRESENT THE BAGPLOT OF INTERPRETABLE DATA.

Table 1. *Means, Standard Deviations and Correlations Among Study Variables*

	1	2	3	4	5	6	7	*Mean*	*SD*	*N*
1. English proficiency	.19**	.17**	.02	.02	.05	.08	.05	1.53	.72	273
2. Spanish proficiency	.28**	.23**	.16*	-.06	.09	.11	.13*	4.08	.87	273
3. Enculturation	.03	.10	.26**	.17**	.14*	.05	.16**	4.21	.52	273
4. Acculturation	.25**	.08	.34**	.01	.24**	-.14*	.16**	3.32	.57	272
5. Marital warmth	.06	.08	.24**	.33**	.19**	-.50**	.44**	6.11	.96	272
6. Marital hostility	.02	-.02	-.08	-.09	-.21**	.23**	-.35**	2.28	1.02	272
7. Marital satisfaction	.04	.11	.22**	.20**	.32**	-.13*	.18**	4.19	.74	272
Mean	1.83	3.86	4.04	3.50	6.14	1.93	4.19			
SD	.88	.92	.48	.53	.83	.79	.61			
N	273	273	273	273	272	272	272			

Note: Statistics below the diagonal are from husband's report; statistics above the diagonal are from wife's report. Highlighted cells represent within-couple correlations.

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

Table 2. *Dyadic Polynomial Regression Coefficients and Response Surface Parameters of Husband-Reported and Wife-Reported Adaptation Indicators and Marital Outcomes*

	Acculturation			Enculturation			English Proficiency			Spanish Proficiency		
	Marital warmth	Marital hostility	Marital Quality	Marital warmth	Marital hostility	Marital Quality	Marital warmth	Marital hostility	Marital Quality	Marital warmth	Marital hostility	Marital Quality
Wife-reported marital outcomes												
Polynomial regression coefficients												
b1 - husband report	0.26	-0.04	0.09	-0.47	-0.24	-0.07	-0.14	0.22	0.00	0.01	0.04	0.07
b2 - wife report	0.37*	-0.18	0.08	-0.78	0.12	-0.26	0.30	0.09	0.15	0.23	-0.07	0.32**
b3 - husband report2	-0.13	-0.08	-0.09	0.24	-0.01	0.10	0.03	-0.05	-0.02	0.06	-0.01	0.04
b4 - husband x wife report	-0.07	0.11	0.00	0.08	0.13	-0.07	-0.09	0.17	0.01	-0.10	0.11	-0.09
b5 - wife report2	0.19	-0.09	0.24**	0.36	-0.03	0.20	0.19	-0.12	0.03	-0.05	0.07	-0.11*
Response surface parameters												
a1 - slope along LOC (x = y)	0.63*	-0.22	0.16	-1.25	-0.12	-0.32	0.15	0.31	0.15	0.24	-0.03	0.39**
a2 - curvature along LOC (x = y)	0.00	-0.06	0.15	0.67*	0.09	0.23	0.13	0.00	0.02	-0.09	0.17	-0.16*
a3 - slope along LOIC (x = -y)	-0.11	0.14	0.01	0.31	-0.36	0.19	-0.44	0.13	-0.16	-0.22	0.11	-0.24
a4 - curvature along LOIC (x = -y)	0.13	-0.27	0.15	0.52	-0.16	0.37	0.30	-0.33	0.00	0.10	-0.05	0.02
Husband-reported marital outcomes												
Polynomial regression coefficients												
b1 - husband report	0.65***	-0.10	0.41**	0.28	-0.21	-0.45	-0.09	0.45**	-0.18	0.07	0.01	0.09
b2 - wife report	-0.20	0.13	0.18	-0.85	-0.58	-0.09	-0.23	0.28*	0.06	0.04	-0.30**	0.19*
b3 - husband report2	-0.15	-0.05	-0.30*	-0.02	0.19	0.35*	0.01	0.25**	-0.09	0.01	0.09	-0.04
b4 - husband x wife report	0.16	0.02	-0.11	0.15	-0.05	0.11	-0.06	0.02	-0.02	-0.03	-0.07	0.02
b5 - wife report2	0.11	-0.09	0.00	0.25	0.16	-0.08	-0.12	-0.05	0.09	0.04	0.15*	-0.10*
Response surface parameters												
a1 - slope along LOC (x = y)	0.45	0.04	0.58***	-0.57	-0.79	-0.54	-0.32	0.73**	-0.12	0.11	-0.29*	0.28**
a2 - curvature along LOC (x = y)	0.12	-0.12	-0.40*	0.38	0.30	0.38	-0.18	0.22*	-0.02	0.02	0.17*	-0.13*
a3 - slope along LOIC (x = -y)	0.84***	-0.23	0.23	1.13	0.38	-0.36	0.15	0.17	-0.24	0.02	0.31*	-0.10
a4 - curvature along LOIC (x = -y)	-0.20	-0.02	0.19	0.08	-0.09	-0.32	-0.05	-0.29*	0.17	0.07	-0.01	-0.04

Note. Non-standardized coefficients are presented. Age, marital length, and family income were controlled for, throughout the analyses.
* $p < 0.05$; ** $p < 0.01$, *** $p < .001$