

ETHNIC DIFFERENCES IN RELATIONSHIP ORIENTATION, MARITAL QUALITY AND AMBULATORY BLOOD PRESSURE

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Mexican Americans typically have better cardiovascular health than Caucasians, despite being relatively economically disadvantaged. Given research indicating the importance of relationship quality on one's health, our study examined whether certain relationship orientations (eg, communal or exchange) differed between Caucasians and Mexican Americans and if these orientations could help explain the Hispanic Paradox. We recruited 582 adults from a community being primarily Caucasian (40%) and foreign-born Mexican Americans (55%). Participants wore 24-hour ambulatory blood pressure (ABP) monitors and completed self-report measures of relationship satisfaction and relationship orientation. Results indicated that Caucasians tended to have more of a communal relationship orientation compared to foreign-born Mexican Americans. Communal orientation was predictive of higher relationship satisfaction and while higher relationship satisfaction predicted lower systolic blood pressure when ethnicity was added into the model this relationship was eliminated and foreign-born Mexican Americans had higher ABP compared to Caucasians. Even though communal and exchange relationship orientation don't seem to give us any more information to unravel the Hispanic Paradox, there are important ethnic differences in how we engage in marriage relationships and future research will need to examine the health effects of these differences. (*Ethn Dis.* 2013;23[2]:175-181)

Key Words: Ambulatory Blood Pressure, Mexican American, Communal, Exchange, Marriage

INTRODUCTION

Overall Mexican Americans, especially those foreign-born, experience a disproportionate amount of unemployment, access to health care, education, and income.¹ Yet even while being socioeconomically disadvantaged, compared to Caucasians, foreign-born Mexican Americans typically have better health and lower mortality rates,^{2,3} thus researchers commonly refer to this as the Hispanic Paradox. One aspect of health where this paradox has received considerable attention is cardiovascular disease (CVD).

As the leading cause of death in the United States, CVD affects one in three American adults.⁴ Compared to Caucasians and US-born Mexican Americans, foreign-born Mexican Americans have significantly lower CVD mortality.⁵ Foreign-born Mexican Americans also have fewer heart attacks, lower cholesterol,³ and lower self-reported hypertension⁶ compared to Caucasians. These findings were confirmed by the National Health and Nutrition Examination Survey⁷ and in a recent American Heart Association update on CVD statistics.⁴

To understand what accounts for this paradox researchers have examined the psychosocial differences between Caucasians and Mexican Americans. One area that has received scant attention is how marital relationship factors affect Mexican Americans' health. There is demonstrated support that marriage relationships influences health⁸⁻¹² and the general view has been that married individuals fair better than their unmarried peers^{11,12} but recent studies suggest the relationship between marriage and health is moderated by the quality of the relationship,^{10,13} influencing ambulatory blood pressure,¹⁰ cardiovascular re-

activity,¹⁴ and overall mortality.⁹ There needs to be additional attention given to potential ethnic differences in relationship quality, and one area to explore these differences is a couple's orientation to engage in communal or exchange relationships.¹⁵

Recent work suggests that exchange relationships could be damaging to health. Exchange relationships pose a threat because people seek to maintain a balance between closeness and rejection in relationships. One would not request too much of a casual friend since that relationship is more volatile than close relationships.¹⁶ The risk management in these relationships and subsequent decision making about whether to seek help could be a significant stressor and have deleterious effects on marital satisfaction and cardiovascular health. Women who are not able to communicate negative feelings to their spouses are at greater risk for overall mortality.⁹ Similarly, marital conflict has shown to alter cardiovascular functioning and put one at greater risk for cardiac disease.¹⁷ Marital conflict could be a trademark of exchange relationships because negative behavior increases during conflict that is reciprocated and results in a downward spiral.^{9,17} This suggests that reciprocity norms coupled with negative affect could lead to aversive cardiovascular outcomes.

Seeing the potentially aversive health effects of exchange relationships, what might be the effects of communal relationships on health within marriage? Since communal relationships operate under norms of giving out of genuine care for the other's well-being one would assume to see greater marital satisfaction, positive affect, and positive interaction in communal relationships. Previous findings on the relationship

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between health and marriage indicate that negative behaviors have a more potent effect on health than do positive behaviors.¹² It is likely then that the potentially deleterious effects of exchange relationships on health will have a more powerful, and statistically noticeable, effect than the potentially positive impact of communal relationships.

OUR STUDY

Our study seeks to help unravel the Hispanic Paradox and examine the association between marriage and health through the communal/exchange framework. Our study examined the association between one's orientation to engage in communal/exchange relationships, marital satisfaction, and ambulatory blood pressure (ABP) between Caucasians and foreign-born Mexican Americans. Surprisingly these associations have not been examined in the literature. Therefore, four main hypotheses were tested. First, we predicted that if marital satisfaction is related to communal and exchange relationships, those with communal relationships would report higher satisfaction in marriage. Second, foreign-born Mexican Americans will report their relationships being more communal than Caucasians.

Our study examined the association between one's orientation to engage in communal/exchange relationships, marital satisfaction, and ambulatory blood pressure (ABP) between Caucasians and foreign-born Mexican Americans.

Third, based on the Hispanic Paradox Mexican Americans will have lower ABP than Caucasians. Lastly, one's communal or exchange orientation will moderate the effects of marital satisfaction on ABP.

METHOD

Participants

The sample consists of 582 community dwelling adults recruited through flyers, newspaper, and radio ads. Participants (male=29%, female=71%) were primarily Caucasian (40%) and foreign-born Mexican Americans (55%) aged 18–75 ($M=34$). Participants were excluded from participating if they had cardiovascular disease, were taking medications that influenced blood pressure, or were pregnant.

Procedure

To assure accurate communication of the procedure research assistants working with Mexican American participants spoke fluent Spanish and English. Research assistants manually measured BP using a sphygmomanometer and stethoscope. Blood pressure was measured three times and participants were then instructed on the ambulatory monitoring procedure. For validation purposes, a minimum of three readings from the ambulatory monitor were compared against a sphygmomanometer using a T-tube adapter. Readings were considered valid if three consecutive readings matched up (± 5 mm Hg). Participants wore the monitor during normal activity for the following 24-hours.

Measures

Mexican Americans received versions of the measures translated into Spanish. To ensure accurate translation native Spanish speakers who were also fluent in English followed a three-step process for translation. First, one translator would translate the English version

into Spanish, then a different translator would translate the Spanish version back into English and after that the original English scale was compared to the back translated version. The comparison process involved group discussion among translators and the investigator to resolve discrepancies.

Relationship Quality

To assess marital adjustment the revised Dyadic Adjustment Scale (RDAS) was administered. The RDAS is a 14-item revision of the original 32-item Dyadic Adjustment Scale (DAS).¹⁸ The RDAS yields a total score, with higher scores indicating better adjustment. The RDAS and DAS have a correlation coefficient of .97 ($P<.01$). The correlation coefficient between the RDAS and Marital Adjustment Test (MAT) is .68 ($P<.01$) where the DAS and MAT have a coefficient of .66 ($P<.01$).¹⁹ In less than half the items, the RDAS measures the same constructs as the DAS.

Communal/Exchange Orientation

To assess participants' relationship orientation the Communal Orientation Scale and the Exchange Orientation Scale were utilized. The 14-item Communal Orientation Scale (1–5 Likert scale) was designed to measure a person's tendency to look out for other people's welfare and if the person has expectations for others to look out for their needs. The scale has demonstrated reliability, $\alpha=.78$ as well as an intraclass correlation of .68 for 11-week test-retest reliability.²⁰ The Exchange Orientation Scale is composed of nine items (1–5 Likert scale) designed to measure one's exchange orientation on three dimensions: keeping track of joint effort inputs, whether an individual seeks to repay benefits received, and whether an individual expects benefits given to be repaid. The Exchange Orientation Scale also has demonstrated reliability and validity.²¹ For analysis both scales yielded an individual total score, with

higher scores indicating higher communal or exchange orientation.

Blood Pressure

To measure ambulatory systolic and diastolic BP, our study used the Accutrack II (Suntech Medical Instruments, Raleigh, NC) monitor. The Accutrack II is a noninvasive device that reads BP through the auscultatory technique. The auscultatory technique processes and records Korotkoff sounds, from the brachial artery, through a microphone and correctly identifies the Korotkoff sounds through the use of ECG R-wave gating. Prior research has demonstrated that the Accutrack II accurately corresponds with intra-arterial BP measures during rest, isometric exercise, and bicycle exercise.²² For the purposes of this study, the monitor was set to randomly measure BP three times an hour during the day and once every hour during the night.

Average systolic and diastolic ABP values as well as BP dipping values were used as our primary dependent variables. BP dipping describes the diurnal decrease in BP during the nighttime. It is considered healthy for BP to drop about ten percent from day to nighttime. Twenty-four hour ABP values were calculated by taking the average of the daytime and nighttime systolic values (same for diastolic values). Blood pressure dipping was also calculated separately for systolic and diastolic values by subtracting the nighttime from the daytime value and dividing by the daytime value, this total was then multiplied by 100.

RESULTS

Data Analysis

From the overall sample of 582 adults only participants who were married and Caucasian, or foreign-born Mexican American were included for analysis. These exclusion criteria resulted in a sample of 386 participants for

Table 1. Characteristics of participants^a

Characteristic	Total (n=386)	Foreign-born Mexican American (n=201)	Caucasians (n=185)
Sex			
Male, n (%)	122 (33)	32 (17)	90 (49)
Female, n (%)	264 (77)	169 (83)	95 (51)
Age, years, M ± SD	35.3 ± 10.9	38.3 ± 10.0	32.0 ± 10.9
Employed, n (%)	328 (86)	176 (90)	152 (82)
Education, n (%) ^b			
Low	56 (15)	55 (28)	1 (1)
Medium	98 (25)	65 (32)	33 (18)
High	232 (60)	81 (40)	151 (81)
Income, n (%) ^c			
Low	230 (64)	92 (51)	138 (76)
Medium	111 (31)	82 (45)	29 (16)
High	21 (5)	7 (4)	14 (8)

^a Demographics with unmarried (36%) removed.

^b Low < high school education; medium ≤ 2 year of college; high > 2 years of college.

^c Low > 10,000 to 39,999, medium = 40,000–69,999; high ≥ 70,000.

analysis (52% Mexican American and 48% Caucasian, see Table 1 for full participant characteristics). From this sample roughly five percent of data was missing. The majority of missing values were BP values most likely due to machine error, thus missing data was left untreated and listwise deletion was performed.

Multiple regression analyses were performed to test relationship orientations influence on RDAS scores and ethnicity. Since communal and exchange orientation were correlated, $r = -.23$ $P < .001$, they were tested in separate models to avoid multicollinearity. Based on previous evidence^{23–25} associations between age, sex, education, income, and employment status with ABP were examined to test if they should be included as covariates. Age, income and employment status were significantly correlated ($P < .05$) with at least one of the ABP values and were included as covariates in subsequent models.

To test if ethnicity and relationship orientation have an impact on ABP seemingly unrelated regression (SUR) analyses²⁶ were performed. In these analyses the four ABP values were used as the dependent variables in separate

equations all entered into one model allowing us to account for correlations between error terms. Multivariate regression was not used since the BP values were highly correlated. All analyses were performed using Stata 11 software²⁷ with tests of significance being two-tailed with alpha set at .05.

Communal/Exchange Orientation and RDAS

Multiple regression analyses were performed to examine the relationship between relationship orientation and marital adjustment. The overall model for predicting RDAS score communal orientation accounting for demographic covariates and ethnicity was significant, $F(5, 332) = 48.96$, $P < .001$, and accounted for 42% of the variance in RDAS score. However communal orientation did not significantly predict RDAS score, $\beta = .08$, $SE = .05$, $P = .14$, 95% CI $(-.02, .18)$ and ethnicity was the strongest predictor, $\beta = -10.01$, $SE = .83$, $P < .001$, 95% CI $(-11.64, -8.37)$ such that Mexican Americans had lower RDAS scores holding constant the other variables in the model.

The overall model for predicting RDAS score from exchange orientation with added covariates was also significant,

$F(5, 332)=49.15$ $P<.001$, and accounted for 42% of the variance in RDAS score, with exchange orientation being non-significant, $\beta=-.10$, $SE=.06$, $P=.11$, 95% CI $(-.23, .02)$ and ethnicity again being the strongest predictor of RDAS score, $\beta=-10.09$, $SE=.83$ $P<.001$, 95% CI $(-11.72, -8.46)$ holding constant the other variables in the model. These results indicate that compared to Caucasians, the foreign-born Mexican Americans in our sample displayed lower marital adjustment.

Communal/Exchange Orientation and Ethnicity

Contrary to our second hypothesis point biserial correlation (r_{pb}) analysis revealed that the foreign-born Mexican Americans had lower communal orientation scores, $r_{pb}=-.35$, $P<.001$, and higher exchange orientation scores, $r_{pb}=.18$, $P<.001$, compared to Caucasians. When examining mean differences between ethnicities Caucasians had higher communal orientation scores, $M=51.67$ ($SD=7.41$), compared to Mexican Americans, $M=46.46$ ($SD=7.39$), and Mexican Americans reported higher exchange orientation scores, $M=23.67$ ($SD=5.29$), compared to Caucasians, $M=20.80$ ($SD=5.81$).

Multiple regression analysis examining if ones ethnicity could predict communal and exchange orientation score revealed that ethnicity was the strongest predictor of both communal, $\beta=-5.07$, $SE=.77$, $P<.001$, 95% CI $(-6.57, -3.56)$, and exchange orientation, $\beta=2.78$, $SE=.62$, $P<.001$, 95% CI $(1.57, 3.98)$, such that Mexican Americans were lower in communal and higher in exchange orientation relative to Caucasians holding the effects of age and SES constant.

Ethnicity and Blood Pressure

To test if Mexican Americans had lower ABP than Caucasians SUR analyses were performed using the following equations:

$$\text{SUR 1: } BP_{ij} = b_{0i} + b_{1i} (\text{age}) + b_{2i} (\text{income}) + b_{3i} (\text{employment status}) + b_{4i} (\text{ethnicity})$$

$$\text{SUR 2: } BP_{ij} = b_{0i} + b_{1i} (\text{age}) + b_{2i} (\text{income}) + b_{3i} (\text{employment status}) + b_{4i} (\text{ethnicity}) + b_{5i} (\text{RDAS}) + b_{6i} (\text{RDAS} * \text{ethnicity})$$

The first SUR model revealed that the only relationship that was significant was ethnicity predicting systolic ABP, $\beta=3.47$, $SE=1.57$, $P<.05$, 95% CI $(.39, 6.55)$, while controlling for demographic covariates. This, contrary to our hypothesis, indicates that the foreign-born Mexican Americans had higher systolic ABP than our Caucasian sample.

To examine if marital satisfaction moderated the association between ethnicity and ABP we ran the same SUR with the inclusion of an interaction between ethnicity and RDAS score. To create the interaction term both ethnicity and RDAS scores were centered on their mean and multiplied together. None of the SUR's revealed a significant effect for marital satisfaction to moderate ethnicities relationship with ABP.

Communal/Exchange Orientation and Blood Pressure

To test the potential moderating effect of communal and exchange orientation SUR was again employed. The following equations were used in the SUR models (all SUR models also include demographic covariates):

$$\text{SUR 1: } BP_{ij} = b_{0i} + b_{1i} (\text{RDAS}) + b_{2i} (\text{communal})$$

$$\text{SUR 2: } BP_{ij} = b_{0i} + b_{1i} (\text{RDAS}) + b_{2i} (\text{exchange})$$

$$\text{SUR 3: } BP_{ij} = b_{0i} + b_{1i} (\text{RDAS}) + b_{2i} (\text{communal}) + b_{3i} (\text{RDAS} * \text{communal})$$

$$\text{SUR 4: } BP_{ij} = b_{0i} + b_{1i} (\text{RDAS}) + b_{2i} (\text{exchange}) + b_{3i} (\text{RDAS} * \text{exchange})$$

Contrary to our final hypothesis, there were no direct effects found for communal or exchange orientation and when testing for the moderating effect of communal and exchange orientation only one of the models revealed signif-

icant effects. Exchange orientation moderated the effects of RDAS score on diastolic dipping, $\beta=-.03$, $SE=.01$, $P=.016$, 95% CI $(-.06, .01)$, when holding the other variables in the model constant. This could suggest that those who were in satisfying relationships and had a stronger exchange orientation experienced blunted diastolic BP dipping.

DISCUSSION

With lingering questions in the literature about how specific aspects of marriage relationships influence ABP and what this relationship might look like comparing different ethnic groups, we examined the potential role of communal and exchange relationship orientations. Our study presents findings that show differences between foreign-born Mexican Americans and Caucasians in how communal and exchange orientations are experienced as well as ethnic differences in relationship satisfaction and ABP. However, despite previous research suggesting a potential link between communal and exchange orientations with health, little evidence was found indicating that communal or exchange orientations have direct or indirect influences on ABP. Thus, our findings add to the current literature about ethnic disparities in health, ethnic differences in marital quality and help to rule out one possible explanation of the Hispanic Paradox.

...little evidence was found indicating that communal or exchange orientations have direct or indirect influences on ambulatory blood pressure...

Contrary to our hypotheses, the Caucasians in our sample reported a tendency to engage in more communal relationships and foreign-born Mexican Americans reported a tendency to engage in more exchange relationships. Despite Mexican values that seem to be more communal in nature, one probable explanation for this finding is that the Mexican Americans in our sample could be more acculturated. The foreign-born Mexican Americans in our sample were very highly educated – 40% having \geq two years of college. The National Health and Nutrition Examination Survey (NHANES) 2001–2006 indicates that only 22.1% of Mexican Americans had some college.²⁸ This number would be expected to be even lower for foreign-born Mexican Americans. Education has been an important variable of SES linked with risk of mortality.²⁹ In addition to our sample being highly educated, a majority (72%) of the foreign-born Mexican Americans had lived in the United States for five years or more, many more than 20 years. While years spent living outside your country of origin is a rudimentary measure of acculturation, it is still used in the literature.³⁰ As immigrants spend more time in the United States it is likely that they will adopt certain values that are adaptive and diminish some of their once held cultural values. Some evidence suggests that once Mexican immigrants acculturate to Western society they let go of previous cultural scripts of how to communicate in marriage adopting more open and direct forms of communication – typically not a form of communication supported by traditional Mexican values.³¹ It is possible that this “release of cultural scripts” due to acculturation could also account for the foreign-born Mexican Americans in our sample being more exchange oriented than the Caucasians.

Confirming one of our hypotheses, higher relationship satisfaction was related with having a communal orientation and lower relationship satisfaction

was related with more of an exchange orientation. This is consistent with the theories of reciprocity stress and reciprocal conflict^{9,17} suggesting that the reciprocal norms of exchange relationships are damaging to marital quality. It seems reasonable that exchange relationships, typified by equal giving in relationships, could be associated with marital conflict – conflict being a key factor in poor marital functioning.³² While there are likely types of conflict that can enhance a marriage, conflict within an exchange relationship context would likely lead to reciprocal conflict where partners continue in a negative conflict patterns.¹⁷ While not only confirming prior research it also suggests that this type of reciprocal conflict and reciprocity stress has negative consequences for both Caucasians and Mexican Americans.

In contrast to the Hispanic Paradox, the foreign-born Mexican Americans in our sample displayed elevated levels of systolic ABP compared to Caucasians. While this relationship contradicts the Hispanic Paradox, the foreign-born Mexican Americans in our sample had a mean systolic ABP of 118.1 mm Hg and diastolic ABP of 68.1 mm Hg, which is still in a normal range for BP.³³ These ABP values are substantially lower in our sample compared to other national samples of Mexican Americans, while the Caucasians in our sample also had uncharacteristically low ABP, systolic ABP of 113.3 mm Hg and diastolic ABP of 68.5 mm Hg.³⁴ National averages suggest that roughly 30% of Caucasian men and women have high BP^{34,35} and in our sample only three percent were hypertensive. This is problematic when trying to compare the ethnic groups with national norms, especially when examining the Hispanic Paradox. In samples of higher SES (our sample being more highly educated than national averages) the mortality benefits of the Hispanic paradox do not typically hold.²⁹

Our study is also consistent with previous research documenting that

higher relationship satisfaction predicts lower systolic BP for Caucasians and African Americans¹³ and extends this relationship to foreign-born Mexican Americans. One potential reason for why we saw higher relationship satisfaction predicting lower systolic blood pressure across both ethnicities could again lie in the fact that our sample of Mexican Americans were highly educated and the majority of our foreign-born Mexican Americans had lived in the United States for more than five years – thus having adopted more Western values. Previous research indicates that cultural shifts can also influence BP.³⁶ Conversely, previous research suggests that poor relationship quality is stressful and has a negative impact on cardiovascular functioning.^{8,10,37} This could indicate that the benefits of being in a satisfying marriage are consistent regardless of one’s cultural background.

The results and conclusions of our study need to be considered in context of the study’s limitations. First, we only examined legally married couples. It is unclear the extent to which our findings may generalize to other groups such as homosexual or cohabiting couples. Second, our Caucasians were sampled from a highly educated and conservative population. Even though education was not a significant covariate in our study we did include income level and employment status which were statistically significant covariates. It is important to note that there are important differences socioeconomically between groups with high and low education levels, and these differences have been associated with subsequent BP trajectories.³⁸ Caution is warranted in extending the results of this study to other populations where there may be important baseline and demographic differences. Additionally, our sample was overall very healthy. This makes it difficult to extend results to a nation that displays higher BP on average. Despite these limitations, the current investigation provides important information for a subgroup of the population

that is of interest – healthy Caucasians and Mexican Americans.

Despite the limitations, our study has important results to contribute to the literature. Though communal and exchange orientation did not have any direct influences on ABP, they did strongly influence relationship quality. We also found evidence suggesting differences in relationship quality and ABP between Mexican Americans and Caucasians. Future research could explore why certain samples of Mexican Americans do not follow the Hispanic Paradox trends and continue to explore if relationship quality might help account for this paradox. It will also be important for future research to confirm that the constructs of communal and exchange orientation have little influence on BP. It could be that important relationships other than marriage (eg, friendship) have a significant influence on health via communal and exchange orientations.

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