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A Test of the Main-Effects, Stress-Buffering, Stress-Exacerbation, and Joint-Effects Models Among Mexican-Origin Adults

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Social relationship research among Mexican-origin adults often focuses on the positive exchanges and supportive functions that close relationships provide, with growing attention directed at understanding the less positive side of these relationships. To gain a more nuanced understanding of important social relationships among Mexican-origin adults, we examined both positive (social support) and negative (social undermining) aspects of these relationships, and how they function directly and in interaction with each other and with life stress to contribute to psychological well-being. We tested four social relationships models (main-effects, stress-buffering, stress-exacerbation, and joint-effects) in a sample of 248 (124 women, 124 men) Mexican-origin adults using a cross-sectional design. Multiple regression analyses showed support for the main-effects, stress-buffering, and joint-effects models, and no support for the stress-exacerbation model. Social support, but not social undermining, was directly and positively associated with psychological well-being (main effects). High social support (vs. low social support) buffered against life stress (stress buffering), but in the face of high social undermining (vs. low social undermining) was associated with poorer psychological well-being (joint effects). The results of this study are discussed in the context of the cultural importance of establishing and maintaining strong harmonious relationships among Mexican-origin adults. The findings highlight the prominence of social support, especially from family, in important relationships for adults of Mexican origin, and the simultaneous damaging role that social undermining from these same relationships plays in their psychological well-being. Implications for prevention and intervention programs with Mexican-origin adults are offered.

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Public Significance Statement
The results of this study highlight the importance of social support, whose primary source is the family, for the psychological well-being of Mexican-origin adults. Within the context of their most important relationships, social support protects against life stress (noninterpersonal stress), but social support in the context of social undermining (interpersonal stress) is associated with poorer psychological well-being. Prevention and intervention programs with people of Mexican origin should aim to strengthen social support and reduce social undermining among important social relationships.

Keywords: social support, social undermining, stress buffering, stress exacerbation, Mexican Americans

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Social relationships have their ups and downs—they can be a source of great joy, support, and comfort, yet they can also be a source of unpleasantness, criticism, and interpersonal conflict. Research on the quality of social relationships among Mexican-origin adults often focuses on the positive exchanges and supportive functions that these relationships provide, with several studies documenting the benefits of social support on mental health (Almeida, Subramanian, Kawachi, & Molnar, 2011; Aranda, Castaneda, Lee, & Sobel, 2001; Diaz & Bui, 2017; Rodriguez, Mira, Myers, Morris, & Cardoza, 2003). Growing attention has been directed at understanding the negative side of social relationships—social undermining—and has shown that family cultural conflict and family burden contribute to negative mental health outcomes in Mexican-origin and other Latino adults (Alegria et al., 2007; Aranda et al., 2001; Rivera et al., 2008). To gain a more nuanced understanding of social relationships among Mexican-origin adults, research should simultaneously consider both positive and negative aspects of these relationships, and how they function directly and in interaction with each other and with life stress to contribute to psychological well-being. Thus, in this study, we tested and compared four prevailing conceptual models of social relationships in a sample of Mexican-origin adults: (a) main-effects: are social support and social undermining directly related to psychological well-being independent of life stress?; (b) stress-buffering: does social support weaken the negative relationship between life stress and psychological well-being?; (c) stress-exacerbation: does social undermining strengthen the negative relationship between life stress and psychological well-being?; and (d) joint-effects: does social support weaken or strengthen the negative relationship between social undermining and psychological well-being?

Definitions of Social Support and Social Undermining

There has been considerable variability in the definition and conceptualization of social support (Martin & Brantley, 2004; Mutran, Reed, & Sudha, 2001; Streeter & Franklin, 1992). In this article, we used Cohen and Wills' (1985) framework of social support that differentiates between structure and function. *Structure* refers to the existence and characteristics of social networks, such as network density, composition, and frequency of contact with social ties. *Function* refers to the type of support provided, actual or perceived, such as emotional support, instrumental support, and informational support. Several studies have shown that perceived support, as opposed to received support or counts of the number of individuals providing support, exerts a stronger effect on mental health outcomes (Finch, Okun, Pool, & Ruehlman, 1999; Santini, Koyanagi, Tyrovolas, Mason, & Haro, 2015). In the present study, social support was operationalized as perceived support in the form of information, comfort, care, or material aid.

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Considerable variability also exists in conceptualizing and defining negative aspects of social relationships, with terms including social undermining, social strain, social conflict, social hindrance, and negative social interactions or exchanges being used interchangeably (Brooks & Dunkel Schetter, 2011; Finch et al., 1999). Social undermining involves the expression of negative emotions and behaviors that undermine or injure the quality of an interpersonal relationship. In this study, we used Vinokur and van Ryn's (1993) construct of social undermining—behaviors that express negative affect, negative evaluations, or make it difficult to achieve goals—to represent interpersonal stress. In the present study, social undermining was operationalized as perceived undermining in the form of unpleasantness or anger, criticism, or challenges that make life difficult.

Research has shown that social support and social undermining are not polar-opposites along a continuum, but rather are separate independent factors with different effects on mental health (Finch, Okun, Barrera, Zautra, & Reich, 1989; Rafaeli, Cranford, Green, Shrout, & Bolger, 2008). However, some studies have shown that a moderate, inverse relationship exists between social support and social undermining when assessed in specific individual relationships, most notably spousal or significant other relationships (Okun & Lockwood, 2003). In this study, we asked about perceived support and undermining from the four most important people in participants' lives because of the significance and meaning ascribed to important relationships and their potential for exerting effects on mental health (Campos & Kim, 2017; Dunkel Schetter, 2017; Ruehlman & Wolchik, 1988).

Conceptual Models: Main-Effects, Stress-Buffering, Stress-Exacerbation, and Joint-Effects

We tested and compared four conceptual models that examine the role of social support and social undermining, either independently of stress (main-effects) or under high stress (stress-buffering, stress-exacerbation, and joint-effects). The main-effects model examines the direct association between social support or social undermining and psychological well-being. The remaining three models test the moderating role of social support or social undermining in the link between life or interpersonal stress and psychological well-being. Considerably more research is available on the main-effects model as researchers have not always tested interactions or measured life stress (Cohen, 2004; Rook, 1990a, 2015). Next, we review literature testing these different models in the general population, and when available, among people of Mexican origin, other Latinos, or both.[1]

Main-Effects Model

Evidence From the General Population

The main-effects model posits that social support and social undermining are directly associated with psychological well-being independent of life stress (Cohen, 2004; Rook, 1990a), with extensive evidence documenting the benefits of social support (Beehr, Farmer, Glazer, Gudanowski, & Nair, 2003; Bertera, 2005; Campos & Kim, 2017; Cranford, 2004; Rook, August, & Sorkin, 2011) and the detrimental effects of social undermining (August, Rook, & Newsom, 2007; Bertera, 2005; Cranford, 2004; Oetzel et al., 2014; Rook, 2015). "Domain-specific" effects may be observed, such that social support is associated with positive well-being and social undermining is associated with negative well-being (Finch, 1998; Fiori & Consedine, 2013; Ingersoll-Dayton, Morgan, & Antonucci, 1997), but social undermining may be especially potent and have "crossover effects," negatively impacting both positive and negative psychological well-being (Finch et al., 1989). Furthermore, domain-specific effects may be more evident in cross-sectional data (Ingersoll-Dayton et al., 1997; Newsom, Nishishiba, Morgan, & Rook, 2003; Ruehlman & Wolchik, 1988) and crossover effects may be more evident in longitudinal data

[1] People of Mexican origin comprise 64.1% of the U.S. Latino population (U.S. Census Bureau, 2014), with the next two largest groups of Latinos (Puerto Ricans—9.3%; Central Americans—9.0%) being considerably smaller. Because of the greater representation of Mexicans in the United States, research on Latinos has tended to focus on people of Mexican origin. In this article, we reviewed literature specific to people of Mexican origin when available; otherwise, we presented research on Latinos more broadly but that included people of Mexican origin in their samples.

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(Newsom et al., 2003; Pagel, Erdly, & Becker, 1987), suggesting that social support may have a more immediate impact on positive psychological well-being, and social undermining may have a greater, long-term effect on both positive and negative psychological well-being (Newsom et al., 2003).

Although main effects have been observed across multiple studies, the mechanisms by which they operate have been less well established. Relational Regulation Theory has been proposed to explain these main effects (Lakey & Orehek, 2011). According to Lakey and Orehek (2011), people need continuing personal relationships for psychological well-being. Relationships provide opportunities for everyday ordinary social interactions and shared activities, and primarily through these routine interactions and exchanges, recipients regulate their affect, actions, and thoughts. Social interactions that successfully regulate affect assist in affirming perceived social support and psychological well-being. Thus, the observed main effects between perceived social support and mental health can be understood as a reflection of these routine, ordinary social interactions.

Evidence From People of Mexican Origin and Other Latinos

Among people of Mexican origin, family plays an important and central role, with the cultural significance and value of family expressed in self-identities, loyalties, and attachments (Katiria Perez & Cruess, 2014). Thus, not surprisingly, social support and social undermining research on people of Mexican origin and other Latinos typically focus on the family as a primary source of support (Rodriguez et al., 2003) as well as a source of conflict or burden (Alegria et al., 2007; Mulvaney-Day, Alegría, & Scribney, 2007). This research has primarily shown domain-specific effects such that psychological adjustment is positively associated with social support (Diaz & Bui, 2017; Mulvaney-Day et al., 2007; Rodriguez et al., 2003) and negatively associated with social undermining (Alegria et al., 2007; Mulvaney-Day et al., 2007; Rivera et al., 2008). Aranda and Lincoln (2011) did not find any associations among these variables, but this may have been because of their sample characteristics (low-income older adults [M_{age} = 69.36] using health care services and with considerable financial strain). These sample characteristics may have contributed to distinct social networks that limited participants' opportunities for routine, everyday interactions that promote perceived support and well-being.

Stress-Buffering Model

Evidence From the General Population

The stress-buffering model asserts that social support protects against or moderates the detrimental effects of life stress on mental health, with buffering effects being greatest under high stress and when an individual perceives that support will be provided when needed (Cohen, 2004; Thoits, 2011). There is considerable evidence in support of the stress-buffering model (Cohen & Wills, 1985; Santini et al., 2015; Thoits, 2011). However, some studies have found no evidence of stress buffering (Cranford, 2004; Ingram, Betz, Mindes, Schmitt, & Smith, 2001), but these studies have typically measured enacted or received support, and not perceived support. Stress buffering is more likely to be observed with measures of perceived social support because it is the perception that at least one reliable individual will provide appropriate support when needed that is critical (Cohen, 2004; Santini et al., 2015).

Evidence From People of Mexican Origin and Other Latinos

Research testing the stress-buffering model with Latinos is limited and mixed, and focuses primarily on adolescents and young adults. Using Latino college samples, some researchers have found support for the stress-buffering model (Crockett et al., 2007; Solberg & Viliarreal, 1997), but others have not (Rodriguez et al., 2003; Solberg, Valdez, & Villarreal, 1994). Although these studies have all assessed perceived social support, these findings may be inconsistent because of the use of college student samples; the support that is needed to offset the stressors that college students experience may be qualitatively different than the support and stressors that other adults experience, contributing to these contradictory findings. Additional research is needed to better understand whether and under what circumstances social

support buffers the effect of life stress among Mexican-origin adults.

Stress-Exacerbation Model

Evidence From the General Population

In the stress-exacerbation model, social undermining exacerbates the negative effects of life stress on mental health, with these effects being greatest under high stress (Rook, 1998). Accordingly, dealing with two sources of stress is more taxing than dealing with each stressor independently. Although significantly fewer studies have tested exacerbation effects in comparison with buffering effects, these studies typically test both models. Some studies report evidence for stress exacerbation but not stress buffering (Cranford, 2004; Ingersoll-Dayton et al., 1997), others for stress buffering but not stress exacerbation (Okun, Melichar, & Hill, 1990), one study reports no evidence for either model (Ingram et al., 2001), and at least one study reports evidence for both (Sandler & Barrera, 1984). These inconsistent findings may be because of differing methodological approaches in measuring life stress (ranging from a count of stressful life events to negative daily events), social undermining (ranging from one's spouse to others' unsupportive responses following a stressful event), and mental health outcomes (ranging from depression to positive and negative affect, and psychological distress). To evaluate the utility of this model, it is important for researchers to use comparable methodological approaches when evaluating each of these models.

Evidence From People of Mexican Origin and Other Latinos

We were unable to find any studies examining the stress-exacerbation model that focused on Latinos. This absence does not necessarily translate into no effect for people of Mexican origin, as past research has shown that social undermining (Alegria et al., 2007; Mulvaney-Day et al., 2007; Rivera et al., 2008) and noninterpersonal life stress (Crockett et al., 2007; Solberg & Viliarreal, 1997) are negatively and independently associated with psychological adjustment among Latinos. Furthermore, in the case of Latinos, when social undermining does occur in the context of close, important relationships, it may be more salient because of the importance and value placed on maintaining and promoting harmonious relationships (Campos & Kim, 2017) and, thus, it may magnify the effect of perceived life stress on well-being. Research is needed to test the stress-exacerbation model with people of Mexican origin.

Joint-Effects Model

Evidence From the General Population

The stress-buffering and stress-exacerbation models both examine *noninterpersonal* stressors, specifically life stresses (e.g., relationship losses, illness, financial problems) that may be offset by social support or amplified by social undermining. In contrast, in the joint-effects model, social undermining is conceptualized as an *interpersonal* stressor that may be buffered by social support (Cranford, 2004; Walen & Lachman, 2000). Distinguishing between interpersonal and noninterpersonal stressors is important, as research has shown that among daily stressors, interpersonal ones are particularly distressing (Rook, 1990b).

In understanding joint effects, buffering effects may be more intuitively appealing, but greater evidence has been found for "reverse-buffering" effects. These findings have been interpreted as social support *amplifying* the negative effects of social undermining on psychological well-being (Duffy, Ganster, & Pagon, 2002; Major, Zubek, Cooper, Cozzarelli, & Richards, 1997; Okun & Keith, 1998; Pagel et al., 1987). Social undermining may be especially distressing because of its unexpectedness and inconsistency in an otherwise highly supportive relationship (Duffy et al., 2002), or can be seen as a "cost" or as "strings attached" to the support received in a relationship (Pagel et al., 1987). Although these reverse-buffering effects have been described as amplifying social undermining, these results could also be interpreted as social undermining attenuating the positive effects of social support.

A study by Oetzel et al. (2014) tested but found no evidence of joint effects. These discrepant findings may be because of the distinct measures of social support and social undermining used. Duffy et al. (2002), Major et al. (1997), Okun and Keith (1998), and Pagel et al.

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(1987) assessed social support and social undermining from individual providers or groups of providers (e.g., family, friends, and most important people), whereas Oetzel did not isolate the sources of social support and social undermining and instead assessed these constructs more generally across participants' social networks. To more adequately evaluate this model and the specific role of social support and social undermining, it is important for researchers to assess support and undermining from particular sources.

Evidence From People of Mexican Origin and Other Latinos

We found only one study of joint effects using a Latino sample of older, predominantly Cuban-origin adults (Cruza-Guet, Spokane, Caskie, Brown, & Szapocznik, 2008). Results supported reverse buffering—psychological distress was greatest for those with high levels of negative interactions and high levels of received social support. Although the specific sources of social support and social undermining were not isolated in this research, Cruza-Guet et al. (2008) nevertheless found evidence for joint effects. This discrepancy with the general population findings may be partially because Cruza-Guet et al. assessed received rather than perceived social support, and focused on a Latino sample. The limited research on joint effects with Latinos makes it evident that more research is needed to better understand these processes.

Study Purpose

We find some convergence, but also divergence, in research findings when comparing the main-effects, stress-buffering, stress-exacerbation, and joint-effects models in the general population and in people of Mexican origin. Across both groups, we find greatest support and testing of main-effects and stress-buffering models. We also find support, albeit less support and less testing, for stress-exacerbation and joint-effects models in the general population, but limited or no evidence of these models in people of Mexican origin and other Latinos; the latter may simply be because of limited research on these models, rather than no evidence of these associations. Below we discuss what may account for some of the variations between both groups, and what we expected to find in this research.

Based on past research in the general population and Latino populations, we expected to find support for all four conceptual models among people of Mexican origin, and that the composition and nature of their social relationships would reflect cultural practices, values, and beliefs. People of Mexican origin tend to have larger and more intimate networks than other groups (Keefe, 1984; Mindel, 1980), and family plays an important and central source of social support for Latinos more broadly (Hurtado-de-Mendoza et al., 2016; Katiria Perez & Cruess, 2014; Sabogal, Marin, Otero-Sabogal, Vanoss, & Perez-Stable, 1987). Additionally, given the cultural ideal of establishing and maintaining close and harmonious relationships among Latinos (Campos & Kim, 2017), social support may play a more prominent role than social undermining in their psychological well-being. Consequently, it follows that people of Mexican origin would be more apt to name family members among their most important relationships. Within these relationships, given the importance and expectation of promoting positive exchanges, social support should play an especially important and protective role in the psychological well-being of people of Mexican origin.

Rook (1990b) has found that negative interactions occur less frequently than positive ones, but when negative exchanges do occur, they are perceived as more salient against a backdrop of generally positive exchanges. In the case of Latinos, when social undermining does occur in the context of close, important relationships, it may be more salient because of the importance and value placed on maintaining and promoting harmonious relationships (Campos & Kim, 2017). It would then follow that social undermining would amplify the deleterious effects of life stress on well-being, and that social undermining in the context of otherwise supportive relationships would be particularly distressing for people of Mexican origin.

To gain a more nuanced understanding of social relationships among Mexican-origin adults, we tested and compared four prevailing conceptual models of social relationships in a sample of Mexican-origin adults. By testing these four conceptual models in the same sam-

ple, we are able to advance our understanding in applications of these models to adults of Mexican origin. In the present study, we asked Mexican-origin adults to first identify the four most important people in their lives and then to report perceived social support and social undermining from each. We asked about the "most important people" instead of "people whom you turn to for support" to avoid privileging the selection of network members who may be more supportive (Pagel et al., 1987).

Our study also addresses some of the methodological limitations noted above. Specifically, we isolated the sources of social support and social undermining by asking participants to report perceived social support and social undermining from the four most important people in their lives. Additionally, by testing and comparing the four conceptual models of social relationships in one sample, we were able to eliminate potential confounds because of different measures and different samples.

Consistent with past research, we hypothesized that: (a) social support would be positively, and social undermining negatively associated with psychological well-being (main effects); (b) that social support would buffer the negative effects of perceived life stress on psychological well-being (stress buffering); (c) that social undermining would exacerbate the negative effects of perceived life stress on psychological well-being (stress exacerbation); and (d) that social support would amplify the negative effects of social undermining on psychological well-being (joint effects). In testing our hypotheses, we controlled for gender, age, education, income, generation level, and acculturation to account for sociocultural differences in Latino mental health (Wassertheil-Smoller et al., 2014). We did not test these sociocultural variables beyond their role as control variables because the focus of this article was on testing the models themselves, while accounting for potential variations from sociocultural factors.

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Method

Participants

We interviewed 248 adults of Mexican origin (124 women, 124 men), aged 18 to 64 (M = 36.44, SD = 11.93). Participants reported a median income of $30,000 and a mean of 12.37 years of schooling (SD = 3.60), with the majority (n = 177; 71.4%) completing at least a high school education. More than half of the participants were married or living with a partner (n = 150; 60.5%), and the majority were employed either full- or part-time (n = 168, 67.7%). A little more than half of the participants (n = 127) were born in Mexico, with the remaining 121 born in the United States (see online supplemental Table 1 for additional descriptives).

Sampling Procedure

We recruited Mexican-origin adults in the Los Angeles area through advertisements in English and Spanish as part of a larger study (Rodriguez, Mira, Paez, & Myers, 2007). Participation was restricted to Mexican-origin adults between 18 and 65 with no current alcohol, drug, or mental health problems. Of the 271 individuals who inquired about participating, 21 did not meet eligibility criteria because of current mental health, drug, and/or alcohol problems, and two did not have transportation to the research lab. After providing written informed consent, participants were interviewed in English or Spanish with an ethnically- and linguistically matched interviewer. Interviews lasted 2 to 3 h, and participants were compensated $50 for their time. Participants were treated in accordance with the American Psychological Association ethical guidelines. This study was reviewed and approved by the corresponding Institutional Review Board.

Measures

We developed all materials in English, translated them into Spanish, and then a professional translation firm translated them back into English. Language discrepancies were resolved; thus, "decentering" the original English version (Brislin, 1993). Of the 248 participants, 121 participants chose to be interviewed and completed measures in English and 127 participants chose to be interviewed and completed measures in Spanish.

Sociocultural controls. We gathered self-reports of gender, age, education, income, generation level, and administered the 22-item Multidimensional Acculturation Scale II (MAS-II; Rodriguez et al., 2007). The MAS-II assesses degree of involvement in and identification with

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Mexican culture (e.g., "How much do you enjoy celebrating Mexican holidays or traditions, e.g., Día de los Muertos, Quinceañeras?") and American culture (e.g., "How strongly do you identify with American cultural beliefs, values, and traditions?") separately, using a 6-point scale, ranging from 0 = *does not apply* to 5 = *very well/very much*. We computed four mean acculturation factor scores: English Proficiency, Spanish Proficiency, American Cultural Identity, and Mexican Cultural Identity (overall Cronbach's αs = .93, 92, .78, and .81, respectively; Cronbach's αs for English subsample = .74, .91, .63, and .84; Cronbach's αs for Spanish subsample = .92, .77, .81, and .76).

Perceived stress. We used the 14-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) to measure perceived life stress. The PSS assesses the extent to which life events are evaluated as uncontrollable, emotionally overloading, and unpredictable (e.g., "In the last month, how often have you been upset because of something that happened unexpectedly?"). Items are rated on a 5-point scale, ranging from 1 = *never* to 5 = *very often*. We calculated a mean PSS score (overall Cronbach's α = .82; Cronbach's α for English subsample = .79; Cronbach's α for Spanish subsample = .84). The PSS has been shown to be reliable with Mexican-origin adults (Flores et al., 2008).

Social support and social undermining. We used short measures of social support and social undermining that were adapted from Vinokur and Van Ryn (1993). We asked participants to identify the four most important people in their lives, and to report perceived social support and social undermining from each. For social support (four items), we asked participants to identify and rate on a 5-point scale, ranging from 1 = *not at all* to 5 = *extremely*, the extent to which the four most important people in their lives: "give you useful information or advice," "listen to you when you need to talk," "show you that they care about you," and "help you with specific problems or give you things you need." We calculated a mean social support score (overall Cronbach's α = .87; Cronbach's α for English subsample = .87; Cronbach's α for Spanish subsample = .89). For social undermining (three items), participants rated (using the same 5-point scale) the extent to which the four most important people identified: "act in an unpleasant or angry manner toward you," "criticize you," or "make your life difficult." We calculated a mean social undermining score (overall Cronbach's α = .82; Cronbach's α for English subsample = .81; Cronbach's α for Spanish subsample = .83). Both scales have been shown to be reliable and valid with ethnically diverse, clinically depressed women (Myers et al., 2002).

Psychological well-being. We used the 22-item Psychological General Well-Being Index (PGWBI; Dupuy, 1984) to measure psychological well-being. The PGWBI taps both positive (e.g., "How much energy, pep, or vitality did you have or feel during the past month?") and negative (e.g., "Have you been bothered by nervousness or your 'nerves' during the past month?") affective states. Items are rated on a 6-point scale with higher scores representing greater well-being. We computed an overall mean psychological well-being score (overall Cronbach's α = .93; Cronbach's α for English subsample = .91; Cronbach's α for Spanish subsample = .94). The PGWBI has been shown to be reliable and valid with Mexican-origin adults (Poston et al., 1998).

Data Diagnostics

We observed no missing data. Four items exceeded the 2.0 critical value for skewness, and one item exceeded the 7.0 critical value for kurtosis (West, Finch, & Curran, 1995); however, these deviations from normality did not warrant any transformations. We observed in regression models that included variables and their product terms (e.g., perceived stress and Perceived Stress × Social Support) that these variables often exceeded the 10.0 critical value for variance inflation factor (VIF), but not the 30.0 for condition index (CI; Hair, Anderson, Tatham, & Black, 1995). Allison (2012) notes that high VIFs caused by inclusion of product terms can be safely ignored (see online supplemental Table 2 for intercorrelations among study variables).

We used the power analysis program, G*Power (Faul, Erdfelder, Lang, & Buchner, 2007), to conduct a post hoc power analysis. We selected *F* tests from the test family and a linear multiple regression fixed model test with R^2 deviation from zero. Input parameters included α = .05, N = 248, 15 predictors, and R^2 = .57,

with PGWBI as the dependent variable. A combination of a large R^2 and a large sample size yielded a power value of 1.0, indicating maximum power.

Results

Descriptives of Four Most Important People Named

A frequency analysis revealed that of those named among the four most important people, 89% were family members (parents, children, significant other, siblings, and extended relatives), and 11% were nonfamily members (friends, religious figures, professional associations, and other). Additionally, 24 participants (9.7%) reported no social undermining across all four people identified, and zero participants reported no social support across all four people identified.

Testing Our Conceptual Models

We performed a multiple regression analysis with psychological well-being as the dependent variable, and sociocultural controls, perceived stress, social support, and social undermining as predictor variables. To test moderating effects, we included as predictors the three first-order interactions of perceived stress, social support, and social undermining. We centered all continuous predictor variables and multiplied corresponding centered predictor variables to generate interaction terms (Aiken & West, 1991).

We entered variables in three steps. In Step 1, we entered sociocultural control variables. To evaluate the main-effects hypothesis, in Step 2, we entered perceived stress, social support, and social undermining. To evaluate the stress-buffering, stress-exacerbation, and joint-effects hypotheses, we entered the three first-order interactions of perceived stress, social undermining, and social support in Step 3. If a step significantly increased the proportion of variance explained, we examined the contribution of individual variables in that step. We examined all three interactions simultaneously as has been done in past research (Cranford, 2004; Cruza-Guet et al., 2008; Duffy et al., 2002; Ingram et al., 2001; Oetzel et al., 2014; Xu & Chi, 2013), as opposed to examining each interaction in a separate model. Examining all interactions simultaneously allowed us to control concurrent main effects and interactive effects, and also allowed for more adequate comparisons with past research.

To probe significant interactions, we performed simple slopes analyses at low (1 *SD* below the mean) and high (1 *SD* above the mean) levels of a given moderator (i.e., social support and social undermining). The regression equation predicting psychological well-being explained 57.2% of the variance, $F(15, 232) = 20.65$, $p < .001$. Below, we disaggregate the results of the different steps in the equation and report the findings associated with each of the four models (see online supplemental Table 3 for the regression analyses presented below).

Main effects. We found that social support ($B = 0.18$, $SE = 0.06$, $p < .01$), but not social undermining ($B = -0.08$, $SE = 0.06$, $p = .21$), supported the main-effects model in predicting psychological well-being. Step 2 was significant with perceived stress and social support predicting significant unique variance in psychological well-being over and above the other variables in the equation. After controlling for sociocultural variables and social undermining, participants who reported lower perceived stress and higher social support experienced better psychological well-being.

Stress buffering. We found support for the stress-buffering model in predicting psychological well-being. Step 3 was significant. The interaction between perceived stress and social support ($B = 0.27$, $SE = 0.10$, $p < .01$) predicted significant unique variance in psychological well-being over and above other variables in the equation. As seen in Figure 1a, for participants with low and high levels of social support, increases in perceived stress were associated with decreases in psychological well-being ($B = -1.00$, $SE = 0.08$, $p < .001$; $B = -0.68$, $SE = 0.08$, $p < .001$, respectively). This result demonstrates stress-buffering—high social support (vs. low social support) in the presence of high stress was associated with better psychological well-being.

Stress exacerbation. We found no support for the stress-exacerbation model in predicting psychological well-being. In Step 3, the interaction between perceived stress and social undermining ($B = 0.01$, $SE = 0.12$, $p = .92$) did not significantly predict psychological well-

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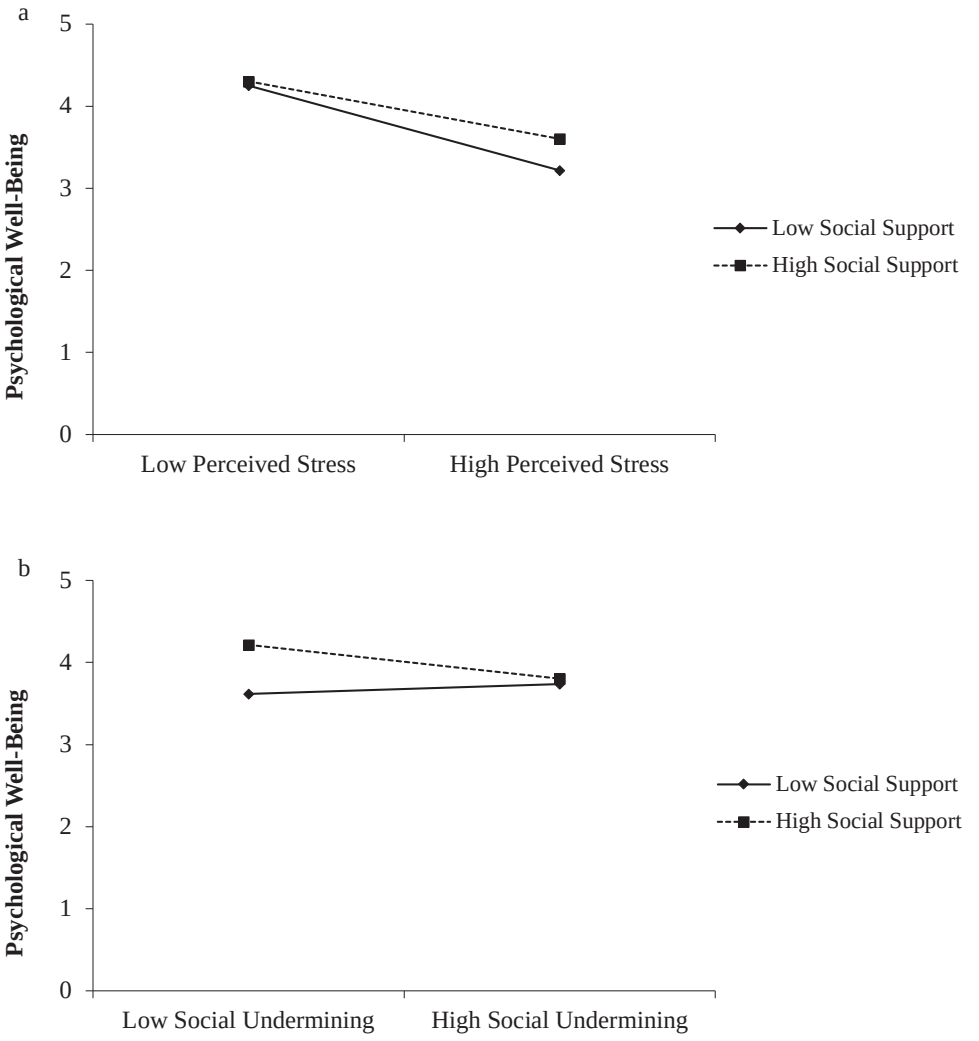


Figure 1. (a) Stress-buffering model: Simple slopes figure depicting the relationship between perceived stress and psychological well-being at low (1 *SD* below the mean) and high (1 *SD* above the mean) levels of social support; both slopes were significant. (b) Joint-effects model: Simple slopes figure depicting the relationship between social undermining and psychological well-being at low (1 *SD* below the mean) and high (1 *SD* above the mean) levels of social support; only the slope for high social support was significant.

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being over and above other variables in the equation.

Joint effects. We found support for reverse-buffering effects in predicting psychological well-being. Step 3 was significant. The interaction between social support and social undermining ($B = -0.25$, $SE = 0.10$, $p = .01$) predicted significant unique variance in psychological well-being over and above other variables in the equation. As seen in Figure 1b, for participants with high levels of social support, increases in social undermining were associated with decreases in psychological well-being ($B = -0.24$, $SE = 0.09$, $p = .01$). For participants with low levels of social support, this relationship was not significant ($B = 0.05$, $SE = 0.08$, $p = .51$). This result demonstrates reverse buffering—high social support in the presence

of high social undermining (vs. low social undermining) was associated with reduced psychological well-being.

Discussion

To gain a more nuanced understanding of social relationships among Mexican-origin adults, we tested and compared four prevailing conceptual models of social relationships. We found support for main effects, stress buffering, and joint effects, but not for stress exacerbation.

Main Effects

Consistent with the main-effects model, and after controlling for sociocultural factors, perceived stress, and social undermining, participants who reported higher social support experienced greater psychological well-being. These findings from our sample of Mexican-origin adults indicate that social support is beneficial for psychological well-being, irrespective of stress level.

Given the cultural ideal of fostering and cultivating harmonious, close relationships among Latinos (Campos & Kim, 2017), it is not surprising that social support played a significant role in predicting psychological well-being. For Latinos, including those of Mexican origin, familism is an important cultural value that manifests itself behaviorally in family approval seeking, obligation, and social support (Knight et al., 2009; Schwartz, Unger, Zamboanga, & Szapocznik, 2010; Stein et al., 2014) and may drive why family is a vital source of support in this population (Rodriguez et al., 2003). In this study, the vast majority of the four most important people named by participants were family members, and very few were nonfamily members. The importance of immediate and extended family members to people of Mexican origin that we observed in our study is consistent with previous research on Latinos documenting the centrality of family (Campos & Kim, 2017; Hurtado-de-Mendoza et al., 2016; Katiria Perez & Cruess, 2014; Sabogal et al., 1987). Perhaps support, whose primary source is family as in our study, may contribute to psychological well-being by facilitating social integration and providing opportunities for everyday social interactions and shared activities, and thereby attenuating negative experiences (Cohen, 2004; Lakey & Orehek, 2011).

It is important to note that perceived stress (noninterpersonal life stress), and not social undermining (interpersonal stress), was significantly and negatively associated with psychological well-being. Although Rook (1990b) has shown that interpersonal stress is more predictive of well-being than noninterpersonal stress, our results may be due, in part, to the low socioeconomic status (SES) of our sample and/or to the measure of interpersonal stress used. There is evidence that low SES individuals carry a disproportionate burden of life adversities (Durden, Hill, & Angel, 2007). Having difficulty meeting basic needs (e.g., paying rent, buying food) or living in unsafe homes or neighborhoods contributes to greater psychological distress than do emotional demands made by others (Durden et al., 2007). Thus, it follows that life stresses would be more important in psychological well-being than interpersonal stress for our sample of Mexican-origin adults. This is supported by the strong relationship observed between perceived stress and psychological well-being ($r = -.71$), and the weaker, but moderate relationship between social undermining and psychological well-being ($r = -.33$). Furthermore, the relationship between perceived stress and social undermining is moderate ($r = .36$). Taken together with our regression analysis, our findings suggest that although life stress and interpersonal stress are moderately correlated, life stress (and not social undermining) predict psychological well-being in this sample of Mexican-origin adults.

Stress Buffering

The stress-buffering model posits that social support mitigates the negative impact of life stress on psychological well-being (Thoits, 2011), which is confirmed by our results with a low-income Mexican-origin adult sample. Simple slopes analyses revealed that at high levels of life stress, high social support (vs. low social support) was associated with better psychological well-being.

Stress-buffering mechanisms can be understood within a transactional model of stress and coping (see Lazarus & Folkman, 1984). Social support may completely thwart or mitigate the appraisal response of the stressful event(s), di-

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rectly reduce the detrimental impact of stress on physiological and affective responses, or support active coping. Research by Crockett et al. (2007) showed a significant and positive association between social support and active coping among Mexican American college students, suggesting that these mechanisms operate in conjunction with each other. Inadequate social support in the face of high stress may hinder effective coping; thus, increasing the risk of experiencing poorer psychological well-being. For our sample of Mexican-origin adults, the support from the most important people in their lives may be especially important in dealing with general life stress.

Stress Exacerbation

The stress-exacerbation model postulates that social undermining exacerbates the detrimental impact of life stress on psychological well-being (Rook, 1998). Our results did not support the stress-exacerbation model, which is consistent with evidence in other populations (Okun et al., 1990). Cranford (2004) notes, however, that discrepancies in findings between the stress-buffering and stress-exacerbation models may be because of differing ways of assessing support and undermining. Research supportive of stress exacerbation, but not stress buffering, has generally assessed support and undermining across multiple network members (e.g., Ingersoll-Dayton et al., 1997; Xu & Chi, 2013). In our study, we used a similar level of assessment (support and undermining from the four most important people), and found the opposite results, possibly because of ethnic differences in the study samples. As noted previously, it is possible that the magnitude of life stress experienced by this sample of low-income Mexican-origin adults is so overwhelming and all-encompassing that interpersonal stress in the form of social undermining pales in comparison.

Joint Effects

The joint-effects model probes the interaction effect of social support and social undermining on psychological well-being, and examines whether social support buffers the impact of social undermining, an interpersonal stressor, on psychological well-being (Cranford, 2004). Consistent with past research (Duffy et al., 2002; Major et al., 1997; Okun & Keith, 1998; Pagel et al., 1987), our results supported reverse-buffering effects for psychological well-being. High social support in the face of high social undermining (vs. low social undermining) was associated with decreases in psychological well-being. Duffy et al. (2002) contend that social support from individuals who also undermine may contribute to relationship insecurity and unpredictability, necessitating greater emotional resources to deal with those inconsistencies. As mentioned previously, given the importance and expectation of promoting positive, close relationships among Latinos (Campos & Kim, 2017), relationships that are characterized by both positive and negative exchanges may be particularly distressing. In our study, because the majority of important people named by participants were family members, we can infer that high social support and high social undermining, particularly from family members, are associated with poorer psychological well-being.

Overall, our findings showed that a combination of high social support and high interpersonal stress (vs. low interpersonal stress) was associated with poorer psychological well-being. In contrast, a combination of high social support (vs. low social support) and high life stress was associated with greater psychological well-being. A possible explanation for the dissimilar interaction between social support with interpersonal stress and life stress is the distinct nature of the stressor. The combination of high social support and high social undermining characterizes ambivalent network ties (Uchino, Holt-Lunstad, Smith, & Bloor, 2004) or relationship uncertainty associated with distress (Cranford, 2004; Major et al., 1997), whereas high social support under conditions of high life stress likely activate and affirm the strength and utility of the relationship. Additionally, high social support and high life stress, in absence of or with low interpersonal stress, may equip individuals with the necessary coping skills to effectively combat the detrimental impact of life stress (Aranda et al., 2001; Crockett et al., 2007).

It is also possible that high social support in the face of high interpersonal stress was associated with poorer psychological well-being because the support perceived was not sufficient or was a mismatch or incongruent

with the type of support needed. In the case of Latinos, when social undermining does occur in the context of close, important relationships, it may be more salient because of the importance and value placed on maintaining and promoting harmonious relationships (Campos & Kim, 2017). It is also possible that the reversing-buffering effect that we observed may be partially explained by family conflict. Research with Mexican-origin and other Latino adults has shown that family cultural conflict and family burden contribute to negative mental health outcomes (Alegria et al., 2007; Aranda et al., 2001; Rivera et al., 2008).

Although past research has interpreted the reverse-buffering effect as social support amplifying the detrimental effects of social undermining, the opposite is also possible, whereby social undermining could lessen the positive impact of social support. Thus, because of the cross-sectional nature of our study, the directionality of these effects cannot be determined, but the result is the same—one of poorer psychological well-being.

Limitations

There are several limitations in the present study. First, we studied a small nonrepresentative sample of convenience, which limits the generalizability of our results to the larger Mexican-origin adult population. Second, in assessing support and undermining, we asked respondents to identify the four most important people as opposed to individuals in specific relationships (e.g., significant other, mother, father). Asking participants to nominate the four most important people in their lives may have resulted in nominating people with whom they did not experience significant levels of interpersonal stress; however, in our study the proportion of social network members who elicited positive and negative exchanges was consistent with past research (Rook, 1990b). In our analyses, we did not examine social support and social undermining at the individual network member level, but instead, we examined social support and social undermining as an aggregate across the four most important people named. Thus, it is possible that one network member may provide *both* social support and social undermining, but there is also the possibility that one network member may provide social support *or* social undermining, or neither. Thus, our interpretation should be restricted to the net social support and social undermining *across* the four most important relationships in the participants' lives.

Finally, we used a cross-sectional design, capturing only a snapshot of the overall social relationship experience, whereas longitudinal studies enable assessment of the causal direction of social relationship variables and psychological well-being. The relationships between social support, social undermining, and psychological well-being may differ when assessed cross-sectionally versus longitudinally (Newsom et al., 2003); thus, for instance it is possible that we found main effects of social support and not social undermining because of our cross-sectional design.

Future Directions

It is advisable in future studies to solicit independent nominations of persons who provide support and then assess both support and interpersonal stress from that group, and additionally to solicit nominations of persons who are sources of interpersonal stress and then assess both interpersonal stress and support from that group. Research should also elucidate which domains of support (e.g., emotional, instrumental, and informational) exacerbate or fail to moderate the effects of life and interpersonal stress on psychological well-being in this population. Additionally, future research should seek to effectively parse out varying, but related, sources of stress. Moreover, longitudinal studies of close social relationships among people of Mexican origin across development stages would provide a greater understanding of the causal direction of social relationship variables and psychological well-being, and would allow us to disentangle age and cultural effects. Given that the vast majority of participants named family members among the four most important people in their lives, future research with people of Mexican origin should explore related concepts such as familism, family cohesion, family support, and family conflict to extend our understanding of social relationships among this group.

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Conclusion and Implications

The results of this study highlight the importance of social support in the lives of Mexican-origin adults. Among their most important social ties, social support is primarily drawn from the family and is instrumental in buffering against life stress. Prevention and intervention programs with people of Mexican origin should aim to strengthen social support and reduce social undermining among important social relationships. Specifically, it will be important to cultivate and maintain harmony in close relationships, especially among family members (Hurwich-Reiss, Rindlaub, Wadsworth, & Markman, 2014). Simultaneously, given the observed reverse-buffering effect, it is also vital to concurrently consider the damaging effects of stress deriving from those same relationships. Thus, interventions should help alleviate family stresses before they escalate to undermining and family conflict.

Abstracto

La investigación de relaciones sociales entre adultos de origen mexicano a menudo se centra en los intercambios positivos y las funciones de apoyo que proporcionan las relaciones cercanas, con una atención creciente dirigida a comprender el lado menos positivo de estas relaciones. Para obtener una comprensión más matizada de las relaciones sociales importantes entre los adultos de origen mexicano, examinamos los aspectos positivos (apoyo social) y negativos (socavación social) de estas relaciones, y cómo funcionan directamente y en interacción entre sí y con el estrés de la vida para contribuir al bienestar psicológico. Analizamos cuatro modelos de relaciones sociales (efectos directos, amortiguación del estrés, exacerbación del estrés, y efectos conjuntos) en una muestra de 248 (124 mujeres, 124 hombres) adultos de origen mexicano utilizando un diseño de corte transversal. Los análisis de regresión múltiple mostraron evidencia para el modelo de efectos directos, la amortiguación del estrés, y efectos conjuntos, y sin evidencia para el modelo de exacerbación del estrés. El apoyo social, pero no el socavamiento social, se asoció directa y positivamente con el bienestar psicológico (efectos principales). El alto apoyo social (vs. bajo apoyo social) amortiguado contra el estrés de la vida (estrés amortiguamiento), pero en vista del alto socavamiento social (vs. bajo socavamiento social) se asoció con un peor bienestar psicológico (efectos conjuntos). Alto apoyo social amortiguó contra el estrés de la vida, pero amplificó los efectos dañinos del alto estrés interpersonal. Los resultados de este estudio se discuten en el contexto de la importancia cultural de establecer y mantener relaciones sólidas y armoniosas entre los adultos de origen mexicano. Los hallazgos resaltan la prominencia del apoyo social, especialmente de la familia, en relaciones importantes para adultos de origen mexicano, y el papel dañino simultáneo que el socavamiento social de estas mismas relaciones desempeña en su bienestar psicológico. Se ofrecen implicaciones para los programas de prevención e intervención con adultos de origen mexicano.

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