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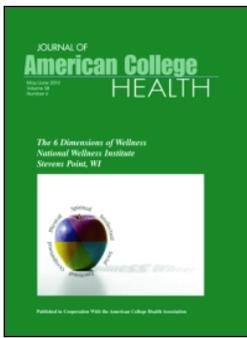
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Relations between stress, coping strategies, and prosocial behavior in U.S. Mexican college students

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ABSTRACT

Objective: We explored the explanatory roles of active and avoidant coping in the link between stress and emotional prosocial behavior in U.S. Mexican college students. **Participants:** Participants included 148 college students ($M_{age} = 23$ years, 67% female, 84% born in the U.S.) who self-identified as Mexican or U.S. Mexican or noted that their parents or grandparents were of Mexican or U.S. Mexican origin. **Methods:** Introduction to Psychology students at state universities in California and Texas completed a self-report survey packet and received class credit for their participation. Data were analyzed via path analysis using Mplus 8.1 software. **Results:** U.S. Mexican college students' stress was indirectly associated with their emotional prosocial behavior through both active and avoidant coping strategies. **Conclusions:** Relations between stress and adjustment (i.e., emotional prosocial behavior) is dependent upon individuals' coping tendencies. U.S. Mexicans may cope with their stress by engaging in emotional prosocial behavior.

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Stress; coping; prosocial behavior; Mexican-origin

An estimated 60.5 million people of Hispanic, Latinx, or Mexican origin reside in the United States (as of 2019),¹ and approximately 12.1 million of these individuals are college-aged students (i.e., youth between the ages of 18 and 29 years).² A disproportionate number of Mexican origin college-aged youth attend college or university,² perhaps because these individuals are vulnerable to the intersectionality of culture-related stress and ubiquitous stress related to the transition from adolescence to adulthood, or lack needed support. Understanding the role of stressful experiences on U.S. Mexican college students' positive social adjustment, and possible explanatory mechanisms of this association, is a public health priority that, if addressed, can inform future basic research and applied workers' efforts to support these individuals' general adjustment during a stressful period. One marker of positive social adjustment is prosocial behavior,³ which is defined as behavior intended to benefit others.⁴ Although there are several forms of prosocial behaviors, one important form of prosocial behavior linked to other indicators of social well-being is *emotional prosocial behavior* (i.e., helping others in emotionally salient situations⁵) Emotional prosocial behavior is of interest to scholars because individuals who are able to help others in emotionally evocative situations are likely able to regulate their emotionality and avoid personal distress,⁶ perhaps even in the face of numerous sources of stress (i.e., stressors). Indeed, in light of the U.S. Latinxs' experiences with culture-specific stressors such as experienced bias and discrimination,^{7,8} examining the links between general stress and

prosocial engagement may be particularly important to better understand U.S. Latinx social adjustment.⁹ Stress theories^{10,11} and empirical work on U.S. Latinxs¹² indicate that the way that individuals cope with stress can influence their behavioral adjustment.^{8,12} Therefore, the purpose of the current study was to examine relations between a culturally-sensitive measure of stress and U.S. Mexican college students' emotional prosocial behavior, while investigating coping strategies as explanatory mechanisms in this association.

Relations between stress and prosocial behavior

Stress refers to physical or psychological demands placed on an individual and the accompanying physiological, psychological, and behavioral responses.^{13,14} For young adult college students, stressors may involve balancing academic workloads, transitioning from living with one's family of origin to living alone, paying for one's needs and wants, as well as adjusting to cultural norms and expectations (the latter are specific for ethnic/racial/cultural minority youth). These stressors (i.e., academic, social, financial) and many others are relevant to most young adults, though cultural stressors compound with widespread stressors during the young adult period for Latinx college students,^{15,16} leaving them at a heightened vulnerability for less-than-optimal adjustment.

The additive model of stress suggests that greater exposure to stress leads to distress, which includes a heightened risk of negative development as well as a decreased

likelihood of positive development,¹¹ particularly when stress is perceived as taxing, disconcerting, and harmful.¹⁷ This theory is well supported by research that shows increased exposure to stress is associated with a greater likelihood of negative adjustment among Hispanic college students, including increased depression and decreased life satisfaction.¹⁵ Theories of eustress, on the other hand, suggest stress can be a positive factor in individuals' lives, particularly when stress exposure occurs in optimal amounts, is not chronic, and is perceived as positive.^{10,18} This type of stress is referred to as eustress and can act as a facilitator of adjustment outcomes. For example, one study on primarily European American college students and adults suggested that experiencing stress makes individuals more aware of others' suffering, which is in turn related to engagement in future prosocial behavior.¹⁹ Taken together, not all stress similarly influences adjustment outcomes, and eustress might actually facilitate positive social adjustment outcomes like prosocial behavior.

With this in mind, we are interested in understanding how stress relates to U.S. Mexican college students' emotional prosocial behavior. To date, there are a limited number of studies aimed to assess the relations between these constructs. This empirical work found that U.S. Mexican college students (who are likely more advantaged than their non-college attending counterparts)²⁰ reported higher levels of emotional prosocial behavior when they experienced elevated levels of [acculturative] stress.^{21–23} Based on this compelling research, and analogous to theories of eustress,^{10,11,17} we expected that U.S. Mexican college students who experience elevated levels of stress will be more likely to engage in emotional prosocial behavior.

The potentially explanatory roles of coping strategies

Coping is best defined as the process through which an individual modifies their behaviors and cognitions in order to adapt to internal and external pressures that exceed the currently available resources.¹⁰ The additive model of stress suggests that exposure to stress is theoretically tied to the coping mechanism(s) that individuals employ, which is in turn associated with subsequent adaptation.^{10,11} Thus, above and beyond experiences with stress, the ways in which individuals *cope* with stress helps determine the influence of stress on adjustment outcomes. In line with efforts to better understand relations between coping and subsequent adjustment, we chose to examine the potentially explanatory roles of two specific forms of coping: active and avoidant.^{10,24–26} Given the dearth of studies that directly examine stress and coping in U.S. Mexican college students in relation to adaptational outcomes, we somewhat extrapolate from some research conducted using samples of primarily European Americans in the following sections.

Active coping includes confronting a problem by changing the stressor or how the stressor is perceived.^{25,26} For example, a young adult who takes small steps to complete tasks that ultimately reduce his or her levels of stress demonstrates active coping. The main tenets of active coping

include positive reframing, planning, and purposeful action. In past work, active coping has facilitated prosocial competencies (in a sample of ethnic/racially diverse early adolescents).^{21–23,27,28} In contrast, avoidant coping includes withdrawing or distancing oneself from stressors and the associated consequences.^{25,26} For instance, a young adult who avoids dealing with a disagreement in the workplace by quitting his or her job engages in avoidant coping. Previous research links employment of avoidant coping strategies to lower levels of prosocial competencies (i.e., self-esteem, strength of interpersonal relationships) compared to those who rely on active coping strategies or a combination of both strategies (in ethnic/racially diverse early adolescents).²⁸

Relevance of stress and coping to U.S. Mexicans' prosocial behavior

Although research focusing on associations between stress, coping, and prosocial behavior that has been presented thus far seems to produce a clear message regarding the nature of these relations, research that utilizes samples of Hispanic, Latinx, and/or U.S. Mexican youth is less consistent than studies that use ethnically/racially diverse or primarily European American samples. For instance, some findings (consistent with those based on European American samples) on Hispanic/Latinx youth indicate that higher levels of active coping is associated with better adjustment outcomes (e.g., more prosocial behavior, fewer internalizing and externalizing symptoms),^{8,21} and that higher levels of avoidant coping is associated with worse adjustment outcomes (i.e., increased health risk behaviors).^{28,29} However, other research that utilizes samples of U.S. Mexican or Latinx adolescents shows that higher levels of active coping may relate to maladjustment outcomes, such as decreased positive adjustment (i.e., academic competence),²⁹ while higher levels of avoidant coping may be linked to increased psychological adjustment (among human immunodeficiency virus (HIV) positive Latinas³⁰ and Mexican-American adolescents³¹). Therefore, additional research on associations between stress, coping, and adjustment specific to U.S. Mexican young adults is especially needed, in order to better understand behavioral adjustment in this increasing demographic.

The current study will therefore directly address these gaps, and will further our understanding of relations between stress, coping, and behavioral adjustment in college-attending U.S. Mexican young adults. This is especially needed, given past research has largely failed to examine the explanatory role of multiple coping strategies in associations between stress and prosocial behavior within one study.^{32,33}

Study hypotheses

Taken together, the purpose of this study was to build on theories of stress and eustress by investigating whether active and avoidant coping strategies help explain the association between the U.S. Mexican college students' stress and emotional prosocial behavior. We hypothesized that higher

levels of stress would be associated with higher levels of active coping, avoidant coping, and emotional prosocial behavior.³⁴ Additionally, we expected higher levels of active coping would be associated with higher levels of emotional prosocial behavior, while higher levels of avoidant coping would be linked to lower levels of emotional prosocial behavior. Finally, we hypothesized that active and avoidant coping would help account for links between stress and emotional prosocial behavior. Because past research has suggested that girls are more vulnerable to experienced stress,³⁵ are more likely to engage in active coping strategies,³⁶ and engage in prosocial behavior than boys^{4,22} we also controlled for gender in all analyses in order to account for the possible influence of gender on study variables.

Method

Participants

Participants included 148 U.S. Mexican university students ($M_{age} = 23.05$ years, 67% female). Approximately 37% of participants attended University of California at Los Angeles, 17.57% attended California Polytechnic State University, and 55.41% attended Texas A&M University. At each of these universities, there is a significant student minority population of Hispanics/Latinxs (i.e., ranging from 16% to 23.3% of the total student population). Participants were selected from a larger dataset ($N = 500$) because they self-identified as Mexican or U.S. Mexican or noted that their parents or grandparents were of Mexican or U.S. Mexican origin. Eighty-four percent of study participants were born within the U.S.; of the remaining minority of participants born outside of the U.S., 80% had lived in the U.S. for 10 or more years at the time of data collection, while 20% had lived in the U.S. between 2 and 8 years. On average, participants who were born outside of the U.S. had lived in the US for 16.77 years at the time of data collection. These nativity characteristics are reflected in the preferred native languages reported by participants; more specifically, 5.13% of participants reported that English and Spanish were both their native languages, 70.08% reported Spanish was their native language; and 24.79% reported English was their native language. In terms of parental education, 63.31% of participants' fathers and 61.54% of mothers completed elementary or high school, while 36.71% of fathers and 38.47% of mothers completed some college or more. Fifty-percent of participants lived at home with their families, while the remaining participants lived in apartments or houses (39.19%), dorms (4.05%), a sorority or fraternity house (1.35%), or elsewhere (5.41%).

Procedures

Participants were recruited from undergraduate classrooms (mostly Introduction to Psychology courses) at state universities located in California and Texas. Informed consent was obtained when participants completed a pen-and-paper survey packet. Participants spent approximately 45 minutes

during class completing a survey packet comprised of demographic items and measures of personality, psychological, and behavioral adjustment. Students received class credit for their participation. The Institutional Review Board (IRB) number for the current project is [number omitted for blind review].

Measures

Stress

The College Stress Inventory for Use with Hispanic Populations was used to measure U.S. Mexican young adults' stress.³⁷ Subscales included the 7-item academic stress subscale, the 8-item social stress subscale, and the 6-item financial stress subscale. These were averaged together and used as a composite that represented general stress that U.S. Mexican young adults experience.^{37,38} Items such as "In the last month, how often have you experienced the following: Difficulty because of feeling the need to perform well in school (academic)/Difficulty handling relationships (social)/Difficulty paying for food or rent (financial)" were responded to on a 6-point Likert scale ranging from 0 (*never*) to 5 (*very often*). In the current study, this composite measure was found to be reliable ($\alpha = .93$).

Coping strategies

Participants' use of active (9 items) and avoidant (9 items) coping strategies were measured using a modified version of the Cope Inventory.³⁹ The active coping scale was composed of three subscales: active coping, positive reframing, and planning. The avoidant subscale was composed of four subscales: behavioral disengagement, mental disengagement/distraction, denial, and substance use. Relying on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*), participants responded to items such as "When you feel stressed, how often do you do the following: I do what needs to be done, one step at a time" (active) and "When you feel stressed, how often do you do the following: I pretend it hasn't really happened" (avoidant). Higher scores represented individuals' increased likelihood of employing either of these strategies. Reliability coefficients were .78 (avoidant) and .87 (active) in the current sample.

Emotional prosocial behavior

A 4-item subscale of the Prosocial Tendencies Measure was used to assess participants' emotional prosocial behavior.⁴ Items such as "It is most fulfilling to me when I can comfort someone who is very distressed" were responded to on a 5-point Likert scale ranging from 1 (*does not describe me at all*) to 5 (*describes me greatly*). Higher scores indicated higher levels of emotional prosocial behavior. This measure was reliable based on the current sample ($\alpha = .80$).

Gender

Participants indicated their sex by noting whether they were (0) female or (1) male.

Table 1. Standardized bivariate correlations between stress, coping strategies, and emotional prosocial behavior.

	1.	2.	3.	4.
1. Stress	–			
2. Avoidant coping	.45***	–		
3. Active coping	–.19*	–.25**	–	
4. Emotional prosocial behavior	.20*	.16*	.30***	–
<i>M(SD)</i>	1.51(1.02)	2.11(.61)	3.52(.71)	3.39(.94)

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

Analysis plan

We first we conducted preliminary analyses by considering the mean and standard deviation of each study variable, along with bivariate correlations between study variables. We then conducted a path analysis that analyzed direct associations between study variables using Mplus v. 8.1 software.⁴⁰ Stress was specified as an exogenous variable, gender as a control variable, active and avoidant coping strategies as mediating variables, and emotional prosocial behavior as an endogenous variable. For comparative fit indices (i.e., AIC, BIC, SABIC), smaller values indicate a model that better fits the data; for absolute fit indices, a non-significant chi-square test of model fit, a CFI greater than or equal to .95, and RMSEA and SRMR values less than or equal to .06 indicate good model fit.⁴¹ Lastly, indirect associations were examined between study variables. Five-thousand bootstraps were used and bias-controlled confidence intervals were requested.⁴¹

Missing data

Missing data were minimal (i.e., < 5% on all study variables, which is equivalent to 6 participants or fewer failing to respond on a given construct). In order to assess whether missingness was significantly associated with study variables, a dichotomous “missing” variable was created, with values ranging from 0 (*missing*) to 1 (*present*). Participants received a score of 1 only when data on *all* study variables were present. T-tests were conducted, where each study variable was analyzed by the dichotomous missing variable.⁴² Results showed stress, $f(143) = .63$, $p = .4296$; active coping, $f(144) = 1.47$, $p = .2270$; and emotional prosocial behavior, $f(145) = 1.23$, $p = .2700$ did not vary based on missingness. However, avoidant coping did, $f(145) = 7.47$, $p = .007$. We employed Maximum Likelihood (ML) estimation in order to account for this missingness.

Results

Preliminary analyses

Descriptive statistics were conducted in order to assess characteristics of the sample and preliminary relations between variables. Results showed stress was significantly positively correlated with avoidant coping and emotional prosocial behavior and was significantly negatively correlated with active coping. In addition, both active and avoidant coping were significantly positively correlated with emotional

prosocial behavior. Estimated means, standard deviations, and correlations among stress, active coping, avoidant coping, and emotional prosocial behavior are displayed in Table 1.

Path analysis

Direct associations between variables

A path model was estimated that examined direct associations between stress, active coping, avoidant coping, and emotional prosocial behavior. We tested a trimmed model, in order to avoid just-identifying out model (i.e., in order to estimate model fit indices and therefore assess how well our model fit the data). We used comparative fit indices to test whether trimming non-significant paths from the control variable (gender) to other study variables significantly decreased model fit. Trimming non-significant paths improved model fit from our full model (AIC = 1545.35, BIC = 1605.29, SABIC = 1541.99) to our trimmed model (AIC = 1542.13, BIC = 1596.08, SABIC = 1539.12), so we proceeded with the trimmed model. This model fit the data well, $\chi^2(2) = .789$, $p = .67$, CFI = .99, RMSEA = .001, [.001–.12], SRMR = .02.⁴¹ Results revealed that higher levels of stress were associated with lower levels of active coping, and higher levels of avoidant coping and emotional prosocial behavior. Active coping and avoidant coping were each positively associated with emotional prosocial behavior. Additionally, being female was associated with higher reported emotional prosocial behavior. The path analysis model collectively accounted for 21% of the variability in emotional prosocial behavior ($R^2 = .21$, $p = .001$). Results are presented in Figure 1.

Indirect associations between variables

Next, we tested for indirect associations between variables. Results showed that stress was indirectly related to emotional prosocial behavior through both active ($\beta = -.07$, $p = .041$) and avoidant coping ($\beta = .08$, $p = .035$).

Discussion

The primary purpose of this study was to examine the explanatory roles of active and avoidant coping strategies in relations between stress and emotional prosocial behavior in U.S. Mexican college students. Hypotheses were partially supported such that both active and avoidant coping strategies helped explain the association between stress and emotional prosocial behavior. The implications for theory, future research, and field work are discussed below.

The role of stress

Theories of eustress suggest that optimal levels of stress can foster motivation and positive adaptation.^{10,18,19} The measure of stress employed in the current study was developed to capture U.S. Mexican’s prudential stressors relevant to day-to-day tasks and responsibilities.³⁷ Accordingly, the

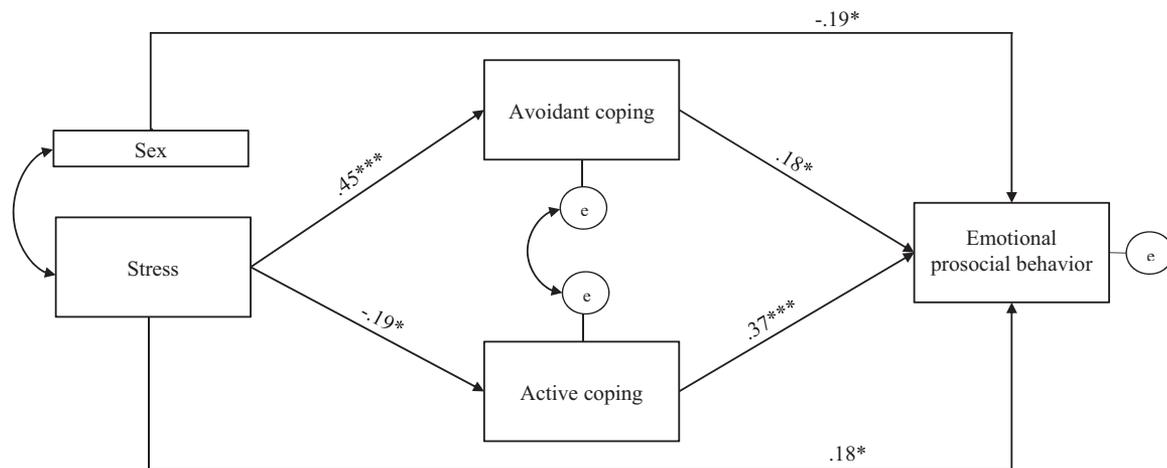


Figure 1. Direct associations among stress, active and avoidant coping, and emotional prosocial behavior.

Note. Standardized regression coefficients are reported. Values of exogenous variable correlations and endogenous error covariances are not depicted for parsimony. Indirect associations between variables are not depicted and are reported in text. * $p < .05$, *** $p < .001$

present findings tentatively suggest that U.S. Mexican young adults experience eustress, since their reports of stress were positively, directly associated with their emotional prosocial behavior.^{21–23} Thus, the current findings suggest that stress can motivate prosocial engagement in U.S. Mexican college students, amongst other ethnic/racial/cultural groups.³⁴

These findings suggest that experiences with eustress might sensitize U.S. Mexican college students to be more behaviorally responsive to persons who are emotionally distressed, thereby motivating prosocial behavior. This idea is similar to the concept of “altruism born of suffering”, which suggests that individuals’ experiences with stress and other negative experiences might promote emotional sensitivity to others in need as well as subsequent prosocial behavior.¹⁹ That is, individuals who experience acute or moderate levels of eustress may be more likely to feel empathy for and subsequently emotionally support others who experience related stressors (e.g., academic, social, financial).^{10,17} This finding is particularly important because it provides evidence of resilience among ethnic/racial/cultural minority group members, while simultaneously redressing the prior emphasis on pathology and deficit models with these groups.^{43–45} Future research should aim to replicate the findings of the current study in order to clarify the utility of theories of eustress in explaining U.S. Mexican college students’ and others’ positive social adjustment.

The relevance of coping strategies

We additionally found that U.S. Mexican college students’ stress was indirectly associated with prosocial behavior through both active and avoidant coping strategies. Therefore, the way U.S. Mexican college students cope with their experienced stress (i.e., actively or in an avoidant manner) helps partially explain their emotional prosocial behavior. These findings strengthen those of past studies.^{21–23} It could be that as U.S. Mexicans actively deal with their stress, they do not experience stress overload,^{46,47} which frees up emotional resources that can be accessed and then invested in helping others in emotional situations. Other promising

work frames prosocial behavior as an effective coping strategy in itself,⁴⁸ so it is also possible that U.S. Mexican college students who tend to actively deal with their stress do so by engaging in helpful behaviors, which diverts their attention in meaningful, constructive ways and connects them with others.^{49,50} It could also be that individuals simply evade their stress by choosing to help others.

Conceptualizing and empirically investigating prosocial behavior as a form of active and/or avoidant coping and resilience in itself is a noteworthy direction for future empirical work, one that should be actively pursued. This conceivable avenue is so important because findings have the potential to inform intervention programs or work with at-risk young adults. That is, practitioners such as program directors, guidance counselors, and therapists might consider helping U.S. Mexican college students modulate their stress by engaging in prosocial behaviors. It is worth briefly noting that relations between stress, eustress, coping, and positive social adjustment (i.e., prosocial behavior) are conceptually consistent across ethnic/racial/cultural groups, so we suggest researchers explore these links in samples of non-college-attending U.S. Mexican young adults, as well as samples of young adults belonging to additional ethnic/racial/cultural groups.

Study limitations

This study is not without some limitations. First, the sample was not recruited randomly and contained more educated than average U.S. Mexican young adults (i.e., college students). Therefore, the findings do not generalize to all U.S. Mexican youth; future researchers should consider collecting data from a more representative sample. Second, we did not include culture-specific control variables that are often used in extant research, such as acculturation. This should be a priority in future studies, especially when diverse samples are collected. Third, this study relied on a cross-sectional design. Research utilizing more rigorous methodological designs (e.g., longitudinal, intervention) can better address directionality and causality between stress, coping, and

prosocial behavior. And fourth, all measures used in this study were self-report instruments. Future research is needed using multiple methods or additional methods (e.g., physiological data, peer report) to reduce possible shared method variance or self-presentational demands.

Conclusions

Despite these limitations, the present study yields evidence that relations between stress and behavioral adjustment is dependent upon individuals' active or avoidant coping tendencies. These findings provide evidence that individuals might cope with their stress by engaging in emotional prosocial behavior. Moreover, findings inform risk and resilience mechanisms in an ethnic/racial minority group. As such, the present study helps to address the need for more research that focuses on explanatory mechanisms and positive social-behavioral adjustment outcomes in ethnic/racial/cultural minority youth and provides suggestive directions for future intervention efforts aimed at promoting positive adjustment outcomes in this demographic.

Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of United States of America and received approval from the University of Missouri.

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