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Authors

Ponting, Carolyn
Lee, Steve S
Escovar, Emily L
[et al.](#)

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Family factors mediate discrimination related stress and externalizing symptoms in rural Latino adolescents

Carolyn Ponting^{a,*}, Steve S. Lee^a, Emily L. Escovar^a, Amy M. Rapp^a, Alvaro Camacho^b, Ignacio Calderon^c, Denise A. Chavira^a

^aDepartment of Psychology, University of California, Los Angeles, Los Angeles, CA, USA

^bDepartment of Psychiatry, University of California, San Diego, San Diego, CA, USA

^cDepartment of Psychiatry, University of California, Los Angeles, Los Angeles, CA, USA

Abstract

Introduction: Externalizing disorders are more prevalent in rural than urban settings and account for disproportionately high mental health service costs for rural adolescents. Although cultural stressors such as discrimination have been associated with externalizing problems in ethnic minority youth broadly, this relationship is understudied in Latinos, particularly those in rural settings. Further, though the associations of family processes such as familism and family conflict have been studied in relation to youth externalizing symptoms, whether these processes change in the face of adolescent discrimination stress remains unknown.

Methods: A moderated multiple mediation model was used to examine the association between perceived discrimination, externalizing symptoms, and the indirect effect of family factors (familism, and family conflict) in a large sample ($n = 455$) of rural Latino youth. We also evaluated whether indirect and direct effects of discrimination on externalizing symptoms differed in boys versus girls.

Results: Familism and family conflict each independently mediated the relationship between discrimination related stress and externalizing symptoms. However, discrimination had a direct effect on externalizing symptoms for boys only. In girls, this association held only when family factors were accounted for. Post-hoc analyses reveal that the moderating effect of sex on discrimination is driven by differences in rule-breaking behavior, as opposed to aggressive behavior.

Conclusion: Findings suggest that discrimination is associated with changes in the family environment which in turn invoke elevated risk for externalizing problems. Further, family-focused interventions that address externalizing problems may be especially effective for adolescent girls.

Keywords

Latino; Adolescent; Discrimination; Family factors; Externalizing

*Corresponding author. Carolyn Ponting, 1171A Franz Hall, 502 Portola Plaza, Los Angeles, CA, 90095, USA. cponting@ucla.edu (C. Ponting).

Characterized by emotion dysregulation and impulsivity, externalizing disorders include maladaptive behaviors directed toward other people and their property (American Psychiatric Association, 2013), and are most often associated with mental health referrals in childhood and adolescence (Kazdin, 1991). Externalizing disorders are associated with poor academic performance (Nelson, Benner, Lane, & Smith, 2004), peer and parental rejection, and delinquency during adolescence (Barnow, Lucht, & Freyberger, 2005), as well as substance use and criminal activity in adulthood (Farrington, 1989). The National Comorbidity Survey Replication-Adolescent supplement estimates the prevalence of externalizing disorders in adolescents is 19.6% (Merikangas et al., 2010), and that the presence of externalizing disorders in young adulthood is correlated with being male, Latino and from a rural community (Forster, Grigsby, Soto, Schwartz, & Unger, 2015; Kessler et al., 2005).

Overall, Latino youth exhibit rates of externalizing disorders comparable to their non-Latino white counterparts; however, beginning in early adolescence, Latinos and Native Americans show higher rates of alcohol and illicit drug use (De La Rosa, Holleran, Rugh, & MacMaster, 2005). In addition, Latinos are more likely to engage in and be criminalized for delinquent behavior (Davalos, Chavez, & Guardiola, 2005), a salient feature across externalizing disorders. Latinos are 30% more likely to exhibit stable externalizing spectrum problems in adulthood relative to White Americans (Kessler et al., 2005) and thus are functionally impaired for longer. It bears mentioning that English language competency and difficulties with standardized test interpretation may partially account for the elevated prevalence of externalizing problems in Latino youth, in particular for disorders such as oppositional defiant disorder (ODD) and conduct disorder (CD) whose rates seem to vary by culture (Canino & Alegría, 2008). Although few studies have examined rates of externalizing problems in rural youth, 23% of ethnically diverse youth from the Rural Adaptation Project self-reported elevated levels of aggression, considerably exceeding national norms for adolescents (Smokowski, Cotter, Robertson, & Guo, 2013). Further, disorders such as CD, ODD and attention deficit hyperactivity disorder (ADHD), account for the largest proportion of service costs in rural adolescents due to significant comorbidity with other psychiatric disorders and increased use of inpatient and juvenile justice resources (Costello, Copeland, Cowell, & Keeler, 2007). Greater structural disadvantages along with fewer social supports (e.g. prosocial school programming) may help to explain higher rates of externalizing behavior in rural communities, as community instability (e.g. recent moves in the community, number of residents with high school diplomas) and density of alcohol sales are associated with higher rates of adolescent substance use in rural, but not urban communities (Lo, Weber, & Cheng, 2013).

While the examination of group differences is an important avenue of research, it is helpful for studies to extend beyond distal variables such as ethnic group membership or rural versus urban status to understand how more proximal characteristics may be related to mental health outcomes. Investigating proximal characteristics such as acculturative stress—stress due to assimilating to a new culture (Romero & Piña-Watson, 2017)—discrimination, and family factors as predictors of psychopathology may help to tease apart indirect effects of ethnicity and rurality on the mental health outcomes of minority youth. Grant et al. (2003) provide a model for the role of stress on the development of adolescent

psychopathology that usefully organizes proximal variables that may lead to increased externalizing symptoms in rural Latino youth. Specifically, stressors (e.g. major life events, minor events, chronic conditions) are mediated by social processes (e.g. family dynamics), moderated by youth characteristics (e.g. sex), and predict psychopathology (e.g. symptoms, disorders). This model has been used extensively to study the mediating effect of family environment on proximal stressors and externalizing problems in minority youth (e.g. Manongdo & Ramirez Garcia, 2007; Wilson, Foster, Anderson, & Mance, 2009).

Contextual and chronic stressors such as perceived discrimination show associations with externalizing behaviors in Native American and African American adolescents (Gallagher, Jones, & Dahl, 2011; Gaylord-Harden & Cunningham, 2009), yet these effects are insufficiently studied in Latinos and rural communities. Discrimination is a salient risk factor in the Latino community, particularly for individuals of Mexican origin. For instance, 50% of Mexican American young adults in a national sample reported experiencing discriminatory treatment several times a year or more due to their ethnicity (Pérez, Fortuna, & Alegria, 2008). Similarly, about 50% of Latino high school students report having experienced or observed discriminatory actions against other Latinos (Martinez, DeGarmo, & Eddy, 2004). Experiences of discrimination in Latino adolescents increase over the course of high school (Benner & Graham, 2011), and are reported in and outside of school settings (Fisher, Wallace, & Fenton, 2000). Discrimination is linked to internalizing symptoms (Umaña-Taylor & Updegraff, 2007), poor self-esteem (Edwards & Romero, 2008; Smokowski & Bacallao, 2007) and poorer academic outcomes (Martinez et al., 2004) in U.S.-born and foreign-born Latino adolescents (Smokowski & Bacallao, 2007; Umaña-Taylor & Updegraff, 2007). Yet, less is known about the association of discrimination with externalizing problems during adolescence. In studies with immigrant and refugee youth in Europe results are inconsistent—some support the link between experiences of discrimination based on adolescents' foreign status and self-reported externalizing symptoms (Stevens, Vollebergh, Pels, & Crijnen, 2005), while others find no relationship (Montgomery & Foldspang, 2007). In the United States, reliable links between discrimination and substance use are supported in African American (Brody, Kogan, & Chen, 2012; Gibbons et al., 2010; Wiehe, Aalsma, Liu, & Fortenberry, 2010) and Latino adolescents (Kam & Cleveland, 2011). Interestingly, findings from the Rural Adaptation Study showed that discrimination was associated with both aggression and anxiety only for those students with high teacher turnover, suggesting that stable relationships may reduce the burden of discrimination (Smokowski et al., 2013).

Thus, while social factors (e.g. rurality) and cultural-stress (e.g. acculturative stress, discrimination) may increase risk for externalizing disorders, data also support the importance of protective social processes. Familism, a cultural construct which refers to family loyalty, solidarity and cohesion (Vega, 1990), has been identified as a protective factor for externalizing problems in low income Latino youth (Loukas & Prelow, 2004). In a cross-sectional sample of 149 Latino immigrant families, higher levels of familism were related to lower levels of aggressive behavior, and fewer conduct problems and rule breaking behaviors in adolescents, which the authors hypothesized was due to a stronger inclination to follow rules set forth by their families (Marsiglia, Parsai, & Kulis, 2009). Familism is also associated with better parenting practices (e.g. strong communication

between parents and children), and indirectly negatively associated with problem behaviors such as antisocial behavior, defiant behavior at school, and physical hostility in Mexican-American adolescents (Santisteban, Coatsworth, Briones, Kurtines, & Szapocznik, 2012). Similarly, in neighborhoods where parents report concerns about safety, Mexican-origin mothers with high levels of familism engage in parenting practices rated as less harsh than mothers with low levels of familism (White, Roosa, & Zeiders, 2012). Germán, Gonzales, and Dumka (2009) found further support for the buffering effect of familism in their study of Mexican-origin adolescents. Their results showed that familism predicted lower levels of externalizing behaviors as rated by their teachers, even for those who socialized with deviant peers—demonstrating a buffering effect of this culturally linked family construct. Collectively, this literature suggests that familism is an important interpersonal factor that may serve to protect Latino adolescents in the face of acculturative stress and adverse neighborhood contexts.

It is well documented that family processes can also have deleterious effects for Latino adolescents. In a study of family dynamics and aggressive behavior in Latino adolescents, poor family cohesion was associated with more symptoms of aggression and higher ratings of family conflict (Smokowski, Rose, Bacallao, Cotter, & Evans, 2017). Differing levels of acculturation in parents and children often result in intergenerational cultural conflicts, associated with greater internalizing and conduct problems in adolescents (Gonzales, Dearthoff, Formoso, Barr, & Barrera, 2006). Un-matched levels of acculturation in Latino families may lead less acculturated parents to engage in more restrictive parenting behaviors to prevent a further loss of their home culture, or conversely, to reduce supervision of their child due to the belief that their guidance is not valued in the host country (Prado, Szapocznik, Maldonado-Molina, Schwartz, & Pantin, 2008). This change in parenting process is believed to increase family conflict, which in turn is associated with adolescent substance use (e.g. alcohol, tobacco) (Martinez, 2006; Prado et al., 2008), and to decrease parental involvement and family support, associated with aggressive behavior in Latino youth (Schwartz, Zamboanga, & Jarvis, 2007). Parent-adolescent conflict may compound the effects of contextual and cultural stressors, such as discrimination, and impact the expression of externalizing symptoms in Latino immigrant families over and above positive influence of familism (Smokowski, Chapman, & Bacallao, 2007). Thus, it seems that even in the presence of protective factors, family conflict has a separate and unique effect on mental health outcomes for Latino youth.

Beyond these main effects, adolescent sociodemographic factors (e.g., sex) are plausible moderators. Sex differences in externalizing problems are well documented: whereas boys show higher rates of childhood externalizing problems (King, Iacono, & McGue, 2004; Moffitt & Caspi, 2001), this difference attenuates substantially in adolescence, particularly when broader measures of externalizing behavior are employed (Moffitt & Caspi, 2001). Additionally, boys show a more precipitous increase in externalizing problems through late adolescence and early adulthood relative to girls (Hicks et al., 2007). However, in stark contrast with these findings, Latina adolescents exhibit more aggression and clinically significant externalizing symptoms as compared to non-Latino white or black adolescent girls or boys (McLaughlin, Hilt, & Nolen-Hoeksema, 2007). Additionally, findings from an ethno-racially diverse rural sample of middle schoolers demonstrated that girls were over a

third more likely to show externalizing symptoms than boys (Smokowski et al., 2013). It is possible that these sex differences are due in part to differences in susceptibility to family social processes as they relate to the development of psychopathology in Latina/o girls and boys. For example, familism demonstrates a more protective role for girls than boys (e.g. Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson, & Soto, 2012; Morcillo et al., 2011) while family conflict disproportionately worsens both internalizing and externalizing outcomes for Latina girls as compared to boys (Crean, 2008).

1. The current study

Given gaps in the literature and the implications of current findings, this study sought to test a model of the development of externalizing symptoms in rural Latino adolescents that considered discrimination as a primary stressor, and familial variables such as familism and family conflict as important mediating social processes, consistent with Grant and colleagues' model (2003). Additionally, we sought to identify if there was a moderating role of sex—a childhood characteristic that impacts both externalizing symptom presentation and family dynamics—on the direct and indirect paths of discrimination to externalizing symptoms. We hypothesized that both familism and family conflict would mediate the relationship between perceived discrimination and externalizing disorders. Further, we hypothesized that sex would moderate the relationship between familism and family conflict, such that family factors would account for more of the variance in externalizing symptoms for adolescent girls than boys. These associations have not been examined in rural communities. Individuals from these communities often experience additional stressors of geographic isolation and report that their mental health needs remain largely unmet due to a dearth of adequate resources (Gamm, Stone, & Pittman, 2003). As rates of perceived discrimination fluctuate based on political climate, geographic location, and degree of environmental ethno-racial homogeneity, understanding its impact on the mental health of Latino youth in these understudied contexts may provide important information about communities who are most “at risk” for negative mental health consequences.

2. Method

2.1. Procedure

Youth were recruited from participating high schools in a rural area in Southern California. Residents of this community are majority Latino, and experience 1.5 times the rate of poverty of other counties in California, and the broader United States (US Census Bureau, 2017). Announcements about the study were made during class time and students received consent and assent forms to take home. Consent and assent forms were provided in both English and Spanish, and study staff made follow up contact with participants who returned completed consent forms to the school to further explain study procedures and answer questions. Students who brought their consent and assent forms back to school were given class time to complete a packet of self-report questionnaires about their social and emotional functioning. All measures were completed in English, although Spanish translations of measures were available. Students were given a ten-dollar gift card as compensation for their time. Anyone currently enrolled in participating high schools qualified for study

participation. For the purposes of this study, only students who identified as Latina/o were included in analyses.

2.2. Participants

Approximately 1100 adolescents were approached, and data were collected from 791 adolescents who returned consent and assent forms as part of a larger study examining predictors of risk and resilience to psychopathology in rural communities. For the purposes of this study, the 455 youth who self-identified as Latina/o (M age = 15.75 yrs. SD = 1.22yrs, 51% male) were included in analyses. Adolescents were recruited from four grades in high school (27.6% 9th grade, 23.3% 10th grade, 23.2% 11th grade, 25.7% 12th grade), and were mostly born in the United States (87.2% born in the United States, 9.7% born in Mexico). Over half (57%) of adolescents reported that at least one parent was foreign-born; the remaining parents were born in the United States. Of the foreign-born parents, over 95% were born in Mexico, making this a predominantly Mexican-American sample. For additional sociodemographic characteristics of the sample, see Table 1.

2.3. Measures

2.3.1. Youth Self Report (YSR)—Externalizing behaviors were measured continuously using the Youth Self Report (YSR; Achenbach, 1991), which measures both competencies and problem behavior among 11–18 year-old youth. Consisting of 112 items, the following domains are queried: anxious/depressed, withdrawn/depressed, somatic complaints, social problem, thought problems, attention problems, rule breaking behavior, and aggressive behavior. It also assesses school and social functioning. For the purposes of this study, only the externalizing subscale was used as an outcome. The YSR has well established psychometric properties including reliability, criterion and content validity, and has been used successfully with Latino adolescents (Sisteré, Massons, Pérez, & Ascaso, 2014). The internal consistency for the entire scale was 0.95 in our sample.

2.3.2. Societal, attitudinal, familial, and environmental acculturative stress scale for children (SAFE-C)—Discrimination was measured using a subscale of the SAFE-C (Chavez, Moran, Reid, & Lopez, 1997). The SAFE-C is a 36-item measure designed to assess acculturative stress in school-age children. Acculturative stress is the stress that arises as a result of contact and interaction between two or more cultural groups. The scale is designed to cover stressors as they arise in societal, attitudinal, familial, and environment contexts. The discrimination subscale includes 8 items rated on a Likert scale ranging from 1, “Not Stressful” to 5, “Extremely Stressful.” Items on the discrimination subscale include: “Because I am Latino/a I do not get enough credit for the work that I do”, and “Because I am Latino/a I feel that others (neighbors, students) don’t include me in their activities”, among others. The SAFE-C has been validated with Latino children, and showed convergent, discriminant and predictive validity for the scale as a whole, as well as for the perceived discrimination and immigration-related experiences subscales (Suarez-Morales, Dillon, & Szapocznik, 2007). In our sample, the internal consistency for the scale as a whole was 0.83, and 0.70 for the perceived discrimination subscale.

2.3.3. The Familism Scale—Adolescents' family values were measured using The Familism Scale (Gil, Wagner, & Vega, 2000). The Familism scale is a seven-item scale that has been used with multiple Latino samples to measure family closeness and values. It includes items such as “We are proud of our family” and “We share similar values and beliefs as a family.” Responses are rated on a 4-item Likert scale from “strongly agree” to “strongly disagree”, with a range of possible responses from 6 to 24. The scale developers report an internal consistency of 0.87, and in our sample the internal consistency was 0.89.

2.3.4. The family relationship index (FRI)—Family conflict was measured using the conflict subscale of the FRI (Holahan & Moos, 1981). The FRI assesses the quality of support found in social relationships within the family environment. It is comprised from a total of 9 true-false items that make up three subscales of the Family Environment Scale (FES; Moos & Moos, 1994): Cohesion, Expressiveness, and Conflict. The Conflict subscale includes items such as “Family members sometimes get so angry they throw things” and “Family members hardly ever lose their temper”. Construct validity of the overall scale score as well as both Family Conflict and Family Cohesion have been previously established (Hoge, Andrews, Faulkner, & Robinson, 1989), and the scale has also been shown to be useful in identifying psychopathology in families (Edwards & Clarke, 2005). This scale has been validated in ethnically diverse youth (e.g. Brookman-Frazee, Haine, Baker-Ericzén, Zoffness, & Garland, 2010; Garland, Haine, & Boxmeyer, 2007).

2.4. Data analytic plan

A moderated multiple mediation model was used to examine the association between perceived discrimination, externalizing symptoms, and the indirect effect of family factors (familism, and family conflict); we also evaluated whether indirect effects differed in boys versus girls. We implemented multiple mediation with simultaneous tests of moderation using bootstrapping, a powerful procedure that utilizes nonparametric resampling and enables evaluation of the contingency of multiple mediators simultaneously with adjustment for potential covariates (MacKinnon, Krull, & Lockwood, 2000), which reduces confounding and suppression by the variables included in the regression model (Preacher & Hayes, 2008). Notably, evaluation of mediation through bootstrapping is not contingent on a significant direct effect of the predictor on the outcome (MacKinnon et al., 2000; MacKinnon et al., 2000). In addition to evaluating the total mediation effect in the model, multiple mediation stringently controls for intercorrelations among the mediators, and calculates the unique role of each individual mediator over and above the other. Finally, bootstrapped-based multiple moderated mediation is robust to distributional assumptions and improves statistical power relative to traditional approaches (i.e., Sobel test; Zhao, Lynch, and Chen (2010)) by constructing a bias corrected confidence interval, in order to account for the asymmetry of the bootstrap distribution.

In the case of moderated multiple mediation—or *conditional process models*—a conditional indirect and direct effect of an independent variable on an outcome variable are calculated, which tests if the association of independent variables and mediating variables differ across another variable (Hayes, 2012). We utilized the PROCESS macro, which allows for multiple mediators and moderators to be placed in one model, and provides several models based on

what specific paths researchers specify they would like to test for moderation. Additionally, this macro provides information about the proportion of the total variance of the dependent variable that is independently attributable to the interactions.

Following published recommendations (Hayes, 2012) the multiple moderated mediation model estimated the following parameters: (a) the total effect of perceived discrimination on externalizing symptoms (i.e., excluding the mediators), (b) the specific effect of discrimination on each family factor mediator variable (i.e. familism, family conflict), (c) specific effects of each family factor mediator variable on externalizing problems, (d) the direct effect of discrimination with respect to externalizing problems through each proposed mediator, (e) the interaction between sex and the mediating family factors, (f) the interaction between adolescents' sex and perceived discrimination, and (g) the direct and indirect effects of discrimination on externalizing symptoms as a function of adolescent sex. Because data were collected from adolescents with a range of ages (13–19), and externalizing behaviors demonstrate changing trajectories over adolescence (Bongers, Koot, Van Der Ende, & Verhulst, 2004), all analyses controlled for age. Parameter estimates and 95% bias-corrected and accelerated confidence intervals for total and specific indirect effects were generated based on 50,000 bootstrap resamples (Preacher & Hayes, 2008). Mediation analyses were conducted using SPSS 24.0 and the publicly available SPSS macro for multiple moderated mediation (<http://afhayes.com/spss-sas-and-mplus-macros-and-code.html>).

3. Results

Frequencies from the SAFE-C revealed that 5.2% of adolescents reported no stressful discriminatory experiences, while 94.8% reported at least one discriminatory experience that was somewhat stressful, 49.6% reported at least one discriminatory experience that was very stressful, and finally, 21.3% reported having at least one discriminatory experience that was extremely stressful. For descriptive statistics and correlations between study variables, see Tables 2 and 3.

3.1. Moderated mediation analyses

We used Model 15 to test for moderated mediation (Preacher, Rucker, & Hayes, 2007). This model examines the moderating effect of an outside variable on both the pathway between the independent variable and the dependent variable, and the pathways between the mediating variables and the dependent variable.

The full model including the independent variable (degree of perceived discrimination), covariates (age), mediators (familism and family conflict), and moderators (biological sex) accounted for 29.2% of the variance in rural Latino adolescents' externalizing symptoms ($F=22.99$, $R^2 = 0.292$, $p < .0001$). This effect was due to a negative indirect effect of adolescent reported familism (*point estimate* = -0.38, $SE=0.10$, 95% $CI=[-0.5749, -0.1819]$) and a positive indirect effect of family conflict, (*point estimate* = 0.93, $SE=0.26$, 95% $CI=[1.4485, 0.4180]$). These results suggest that familism and family conflict, both mediate the relationship between perceived discrimination and externalizing symptoms for this sample of rural Latino adolescents. See Fig. 1.

The sex by familism and sex by family conflict interactions were not significantly related to externalizing symptoms (familism: $B=-0.10$, $SE=0.14$, $p=.49$; family conflict: $B=0.03$, $SE=0.35$, $p=.93$) and thus there was no evidence of moderated mediation; however, results showed that the discrimination x sex interaction was significantly associated with externalizing problems ($B=2.88$, $SE=1.43$, $p=.044$). To further probe this interaction, we examined the conditional direct effect, which revealed that perceived discrimination was positively associated with externalizing problems for adolescent boys (*point estimate*=3.84, $SE=0.99$, 95% $CI=[1.8986, 5.7735]$) but not for girls (*point estimate*=.95, $SE=1.03$, 95% $CI=[-1.0727, 2.9804]$). That is, although the magnitude of the indirect effect of both familism and family conflict were equal for rural adolescent boys and girls, perceived discrimination was more strongly associated with externalizing problems (independent of degree of family conflict and familism) in boys than girls. In girls, perceived discrimination was only related to externalizing symptoms when family factors were accounted for.

In an effort to further investigate whether our model best fit a particular subscale of the broader externalizing scale, we ran post hoc analyses to examine the model described above with two additional outcomes: the rule-breaking and aggressive problems subscales. The full model for rule-breaking behavior accounted for 23.7% of the variance in rural Latino adolescents' externalizing symptoms ($F=17.29$, $R^2 = 0.238$, $p < .0001$). There was a negative indirect effect of adolescent reported familism *point estimate*=-0.19, $SE=0.05$, 95% $CI=[-0.2934, -0.0970]$ and a positive indirect effect of family conflict, (*point estimate*=0.36, $SE=0.13$, 95% $CI=[0.1024, 0.6174]$). Thus, familism and family conflict, both mediate the relationship between perceived discrimination and rule-breaking behaviors.

The sex by familism and sex by family conflict interactions were not significantly related to rule-breaking behaviors (familism: $B=-.10$, $SE=0.14$, $p=.49$; family conflict: $B=0.03$, $SE=0.35$, $p=.93$) and thus there was no evidence of moderated mediation; however, results showed that the discrimination x sex interaction was significantly associated with externalizing problems ($B=1.43$, $SE=0.13$, $p=.045$). We examined the conditional direct effect, which revealed that perceived discrimination was positively associated with rule-breaking behaviors in adolescent boys (*point estimate*=1.06, $SE=0.49$, 95% $CI=[0.0927, 2.0292]$) but not for girls (*point estimate*=-0.374, $SE=0.52$, 95% $CI=[-1.3867, 0.6388]$). Thus, while the magnitude of the indirect effect of both familism and family conflict were equal for rural adolescent boys and girls, perceived discrimination was more strongly associated with rule breaking behavior (independent of degree of family conflict and familism) in boys.

The full model for aggressive behavior accounted for 28.56% of the variance in rural Latino adolescents' externalizing symptoms ($F=22.9$, $R^2 = 0.286$, $p < .0001$). There was a negative indirect effect of adolescent reported familism *point estimate*=-0.18, $SE=0.06$, 95% $CI=[-0.3054, -0.0609]$ and a positive indirect effect of family conflict, (*point estimate*=0.57, $SE=0.16$, 95% $CI=[0.2527, 0.8941]$). These results suggest that familism and family conflict both mediate the relationship between perceived discrimination and aggressive behavior.

The sex by familism, sex by family conflict and sex by discrimination interactions were not significantly related to aggressive behavior (familism: $B=-.08$, $SE=0.09$, $p=.39$; family

conflict: $B=-0.05$, $SE=0.22$, $p=.80$; discrimination: $B=1.45$, $SE=0.16$, $p=.11$) and thus there was no evidence of moderated mediation or conditional direct effects.

4. Discussion

In a large and well-characterized sample of rural Latino adolescents, the present study examined the association of discrimination with externalizing problems, as well as the potential mediating role of key familial variables (i.e., familism, family conflict) and the moderating role of sex. Our findings demonstrate that familism, and family conflict partially mediated the relationship between discrimination related stress and externalizing symptoms. Further, moderation analyses revealed that perceived discrimination stress was positively associated with externalizing problems as a function of family factors for adolescent girls. For boys on the other hand, perceived discrimination related stress was independently associated with externalizing symptoms, even after accounting for family factors. In other words, whereas familism and family conflict fully accounted for the relationship between discrimination and externalizing symptoms for girls, the family variables only partially explained this relationship for boys.

Among adolescents who experienced stress related to unfair treatment due to their ethnicity, increased familism was associated with fewer externalizing symptoms. These results are consistent with prior work where familism was inversely associated with externalizing symptoms, as well as social competence in four independent samples of Mexican-origin adolescents (see Stein et al., 2014 for review). Further, these findings align well with studies that have identified familism as a salient treatment target for increasing academic wellbeing in Latino adolescents who experience discrimination (DeGarmo & Martinez, 2006).

While familism buffered the association of discrimination with externalizing symptoms, we found that adolescents who experienced discrimination-related stress and endorsed family conflict also had an increased likelihood of experiencing externalizing symptoms. Most studies which have examined the effects of family conflict on externalizing behaviors in Latinos have focused on outcomes related to substance abuse and aggression. For example, family conflict has been identified as a significant predictor of lifetime alcohol use and binge drinking in a sample of Mexican-heritage adolescents (Marsiglia et al., 2009; Marsiglia, Kulis, et al., 2009), and has been shown to mediate the effects of acculturation on marijuana use and deviant behavior (McQueen, Greg Getz, & Bray, 2003). Our results extend the mediating role of family conflict to a broader assessment of externalizing problems, such as rule-breaking behaviors that are not substance-use related.

Finally, we found that discrimination was positively associated with externalizing symptoms and with family conflict in rural Latino youth. Our results are in agreement with previous literature that demonstrates a positive relationship between discrimination and externalizing problems such as substance abuse and violence in Latino middle schoolers (Romero, Martinez, & Carvajal, 2007), and CD and ODD symptoms in Latino adolescents (Berkel et al., 2010). Although the association between discrimination and family conflict has lacked investigation, a study of Chinese-American adolescents showed a moderating role of family

conflict in the presence of discrimination, such that higher levels of family conflict resulted in poorer adaptive outcomes such as loneliness and somatization (Juang & Alvarez, 2010).

While our multiple mediational model was supported for both rural Latino adolescent girls and boys, the moderation of the direct path (between discrimination and externalizing symptoms) provides insight into sex differences present in the association between discrimination related stress and externalizing symptoms. The direct effect of discrimination and externalizing symptoms was significant for boys, but not for girls. In the presence of discrimination, girls with high levels of familism were more protected from externalizing symptoms than boys with high levels of familism. Conversely, adolescent girls were more vulnerable to externalizing symptoms when they reported higher levels of family conflict relative to boys who reported high levels of family conflict. It may be that adolescent girls are more sensitive to family factors (e.g., family conflict, familism), perhaps reflecting culturally-influenced gender roles for Latina girls to stay more connected to their home lives (Raffaelli & Ontai, 2004). Although not examined in this study, it is also possible that the adolescent boys in our sample saw attenuated effects of family conflict and familism due to the utilization of fewer active coping strategies within their families (e.g., seeking emotional and instrumental support) as compared to girls (Rose & Rudolph, 2006). Future research will benefit from continued examination of discrimination specific coping styles in Latino youth (e.g. Brittian, Toomey, Gonzales, & Dumka, 2013) to further understand the mechanisms through which sex may moderate the effects of discrimination on externalizing symptomatology.

Post-hoc analyses revealed that family conflict and familism held as mediators for rule-breaking and aggressive behavior outcomes, though the strength of the effects were reduced. The conditional direct effect of sex x discrimination was only significant for rule-breaking behavior, revealing that the moderating effect of sex on discrimination for overall externalizing symptoms is likely driven by differences in rule-breaking behavior, as opposed to aggressive behavior. This suggests that in contexts of less discrimination and more family support, adolescent girls may be especially protected from rule-breaking behaviors, but that in the context of aggression, which is thought to be more genetically influenced (Platje et al., 2013), stress and social processes may have similar impacts for adolescent boys and girls.

Our findings substantiate the centrality of the family for practitioners interested in reducing externalizing symptoms in Latino youth (e.g. Germán et al., 2009). For example, creators of a family-based program designed to reduce youth violence in Latinos noted that intervening on family conflict was an effective way of preventing violent behaviors using ecological interventions (Leidy, Guerra, & Toro, 2012). While findings from this study support family conflict as an important intervention target, pro-social family values such as respect and collectivism, components of familism should also be targeted, as our model showed the independent role of familism on externalizing symptoms over and above family conflict. Interventions that emphasize familial engagement may be particularly acceptable to rural Latino populations, as parents in these communities report valuing social outcomes over other indicators of wellbeing (e.g. academic success) (Saenz & Torres, 2003). Lastly, given that the vast majority (94.8%) of our sample of Latino adolescents endorsed a discriminatory

experience that caused them some amount of stress, mental health professionals should evaluate to what extent Latino youth encounter and feel impacted by discrimination. For adolescents who endorse discrimination as a salient stressor, practitioners should keep in mind that family interventions may have differential impacts for adolescent boys versus girls.

These findings should be interpreted bearing in mind some limitations. All measures utilized in this study were collected via self-report, which come with the limitations of social desirability, shared method variance, as well as methodological considerations particular to adolescents—such as the tendency to over-report (e.g. report extreme answers) on psychosocial and behavioral health surveys (Fan et al., 2006). Additionally, though our discrimination measure has several strengths in the context of our sample (e.g., previous validation with Latino samples, discrimination questions specific to Latino identity), this measure, does not differentiate between the stress of discriminatory experiences across contexts (e.g. school, in public, institutional). Future research with Latino youth will benefit from a measuring discrimination across social contexts, where it may have differential effects. For example, discrimination at school, but not institutional discrimination (Fisher et al., 2000) is associated with worse self-esteem for minority adolescents (Benner & Graham, 2011).

Although we tested the mediating role of family factors, other important social processes such as quality of peer relationships were not measured in this study. Given evidence that peer relationships predict externalizing symptoms in the presence of difficult familial interactions in minority adolescents (Allen, Chango, Szewedo, Schad, & Marston, 2012; Chester, Jones, Zalot, & Sterrett, 2007), modeling peer networks or parent characteristics (e.g. parenting practices) may increment predictions of externalizing problems in rural youth. Finally, the cross-sectional design of the study does not allow for conclusions to be made in regard to causality. Maxwell and Cole (2007) note that cross-sectional mediation models typically produce biased estimates of longitudinal parameters, and thus a longitudinal test of our model should be carried out to increase confidence in these results. Though reverse mediation analyses (switching our significant mediator and outcome variable to test for the significance of this alternative model) have been used to increase researchers' confidence in the directionality of the indirect effects of their mediation models, controversy exists over whether this is an appropriate test to improve the conclusions we are able to make about causal processes (Lemmer & Gollwitzer, 2017). Given the changing nature of family environments particularly towards the end of high school, with opportunities for increased autonomy, it will be important to investigate the stability of familism and family conflict as mediators of the relationship between discrimination and externalizing symptoms. While rule breaking behaviors are most prominent in adolescence, aggressive behavior is persistent across time (Burt, 2012), thus it may be the case that our model best characterizes longitudinal trajectories of aggression, whilst rule-breaking behavior becomes less well explained by family factors over time.

Future research should aim to better understand adolescents' attributions of discrimination to elucidate potential mechanistic variables that explain how experiences of discrimination may impact psychological well-being. In rural contexts where adolescents often feel invisible

to those outside of their immediate communities, experiences of ethnic discrimination may compound their sense of disenfranchisement. The types of attributions made about discriminatory experiences not only affect the coping strategies individuals employ (Major, Quinton, & McCoy, 2002), but may also better differentiate the individuals who will experience clinically significant externalizing symptoms. Our results point to family environment as an important system through which coping strategies are learned. A family environment high in familism and low in conflict may serve as a proxy for adolescent social support, self-efficacy, and self-identity. Future studies should measure such facets of self-concept to better understand the ways in which familism may buffer sociocultural stress and increase positive coping styles.

In conclusion, the present study contributes to the literature by examining the relationship between rural Latino adolescents' perceived discrimination, family factors and externalizing symptoms, while investigating the moderating role of sex. Our results have identified that the construct of familism may be a domain within cultural resilience that serves to reduce risk for externalizing symptoms, while family conflict may expose adolescents to additional risk in the context of experiencing discrimination stress. These family factors may be an important target of treatment for future interventions with rural Latino youth who have externalizing psychopathology and may be especially effective for adolescent girls. Researchers should continue to study associations between sociocultural variables and externalizing symptoms in rural minority youth, which may inform intervention research in these settings, perhaps reducing mental health disparities for understudied geographic communities and ethnic minorities.

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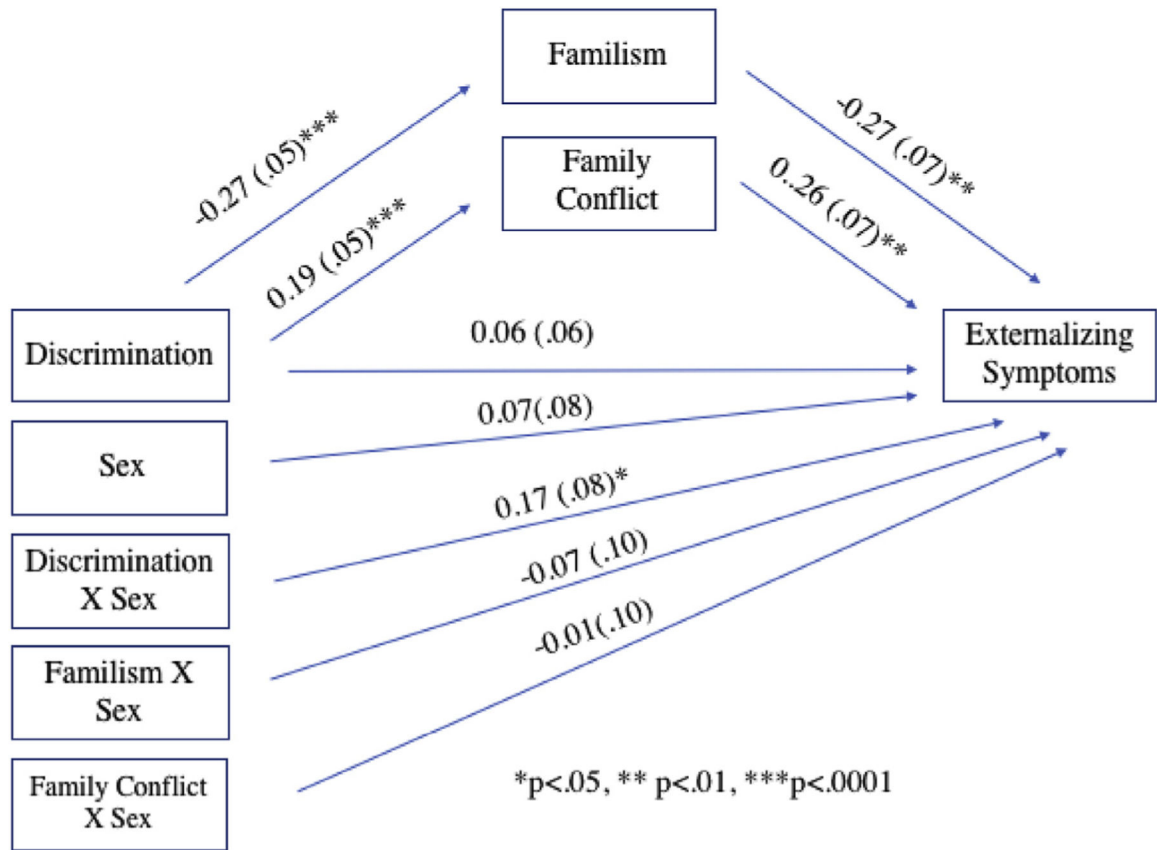


Fig. 1. Path coefficients for moderated mediation analysis (N=455). Coefficients are standardized logistic regression coefficients. Age was included as a covariate but is not visually represented here.

Table 1

Sociodemographic characteristics.

<i>Difficulty Paying Monthly Bills</i>	<i>Percent of households</i>
Very Difficult	2.0
Somewhat difficult	20.4
Not very difficult	37.2
Not at all difficult	22.5
Do not know	18.0
<i>Mother Education</i>	<i>Percent of mothers</i>
Did not graduate high school	18.5
High school graduate	24.2
Some College	22.6
College Graduate	26.4
Graduate School	7.3
<i>Father Education</i>	<i>Percent of fathers</i>
Did not graduate high school	22.1
High school graduate	28.6
Some College	19.4
College Graduate	18.8
Graduate School	7.4
<i>Languages Spoken at Home</i>	<i>Percent of families</i>
Only Spanish	9.4
Spanish Better than English	18.4
Both Equally	24.2
English better than Spanish	27.2
Only English	20.8

Table 2

Descriptive Statistics of the variables under study for the complete sample.

Measure	Boys		Girls	
	Mean(SD)	Range	Mean(SD)	Range
Externalizing Symptoms	11.92 (7.82)	0.0–46.0	12.35 (7.74)	0.0–42.0
Discrimination	1.58 (.46)	1.0–3.5	1.67 (.45)	1.0–3.8
Family Conflict	3.31 (2.08)	0.0–9.0	3.70 (2.15)	0.0–9.0
Familism Scale	28.44 (5.13)	11.0–35.0	27.51 (5.50)	8.0–35.0

Note. Externalizing Symptoms are reported as raw scores on the YSR.

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Table 3

Correlations between variables under study for the complete sample.

Measure	1.	2.	3.	4.	5.
1. Externalizing Symptoms	1				
2. Perceived Discrimination	.269**	1			
3. Family Conflict	.430**	.189**	1		
4. Familism	-.467**	-.273**	-.544**	1	
5. Sex	.019	.100*	-.023	-.017*	1

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

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