Children and Youth Services Review 130 (2021) 106250

Contents lists available at ScienceDirect

Children and Youth Services Review

journal homepage: www.elsevier.com/locate/childyouth

Discrimination and internalizing symptoms in rural Latinx adolescents: An ecological model of etiology

Giovanni Ramos [a,*,1], Desiree Delgadillo [a,*,1], Jessica Fossum [a], Amanda K. Montoya [a], Hardian Thamrin [b], Amy Rapp [a], Emily Escovar [a], Denise April Chavira [a]

[a] Department of Psychology, University of California Los Angeles, United States
[b] Department of Psychology, Arizona State University, Tempe, AZ 85281, United States

ARTICLE INFO

Keywords:
Discrimination
Internalizing
Spillover
Rural
Latinx

ABSTRACT

Introduction: There is a well-documented relationship between perceived discrimination and internalizing symptoms among Latinx adolescents. However, few studies have examined how this psychosocial stressor relates to multiple domains of functioning in rural Latinx adolescents simultaneously. This study tested a *spillover* model of internalizing symptom development, where the negative effects of perceived discrimination are experienced through peer and family relationships.

Methods: Rural Latinx adolescents ($n = 639$; $M_{age} = 15.62$, $SD_{age} = 1.09$; 53% female) provided information on social, familial, and individual risk and resilience factors that affect adolescents' mental health. A serial mediation model was conducted using structural equation modeling. Exploratory analyses examined whether these effects varied based on adolescents' age, gender, and acculturation level.

Results: Perceived discrimination was significantly associated with peer victimization. In turn, higher peer victimization was significantly associated with lower familism, where higher familism was significantly associated with lower internalizing symptoms. The serial indirect effect (i.e., perceived discrimination → peer victimization → familism → internalizing symptoms) was statistically significant, indicating a pathway through which perceived discrimination affects peer and family domains of functioning. Age emerged as a significant moderator of the indirect effect specifically by moderating the discrimination → peer victimization path.

Conclusions: The results are consistent with a spillover model where perceived discrimination increases risk for peer victimization, which in turn erodes protective family-oriented values such as familism, especially among older adolescents. These findings highlight a potential etiological model by which experiences of discrimination may lead to the development of internalizing symptomatology.

1. Introduction

Internalizing disorders such as anxiety and depression are among the most common forms of youth psychopathology with Latinx populations having similar, and in some cases, higher prevalence rates than their non-Latinx White counterparts (Merikangas et al., 2010). Furthermore, epidemiological work has found higher prevalence rates of internalizing disorders among females compared with males (Kessler et al., 2012), a pattern also found among Latinx adolescents (Anderson & Mayes, 2010). Despite well-documented sources of resilience (Cardoso & Thompson, 2010; Ramos et al., 2021), some studies show that Latinx youth report more severe internalizing symptomatology than youth from other racial/ethnic minority groups (Anderson & Mayes, 2010; McLaughlin, Hilt, & Nolen-Hoeksema, 2007). The number of Latinx individuals affected is particularly concerning as this group is less likely to seek or receive treatment for internalizing disorders compared to non-Latinx White individuals, even when there is severe clinical impairment (Gudiño, Lau, Yeh, McCabe, & Hough, 2009). This treatment seeking disparity is further magnified among less acculturated families (Galvan & Gudiño, 2019) and those living in rural communities (García, Gilchrist, Vazquez, Leite, & Raymond, 2011).

Adolescents in rural communities are exposed to numerous

* Corresponding author at: Department of Psychology, University of California, Los Angeles, 1285 Franz Hall, Los Angeles, CA 90095, United States.
E-mail addresses: gioramos@ucla.edu (G. Ramos), desireed22@ucla.edu (D. Delgadillo), jfossum@g.ucla.edu (J. Fossum), akmontoya@g.ucla.edu (A.K. Montoya), hthamrin@asu.edu (H. Thamrin), amyrapp@ucla.edu (A. Rapp), emilyescovar@ucla.edu (E. Escovar), dchavira@psych.ucla.edu (D.A. Chavira).
[1] D. Delgadillo and G. Ramos share first co-authorship in this paper.

https://doi.org/10.1016/j.childyouth.2021.106250
Received 9 October 2020; Received in revised form 27 July 2021; Accepted 13 September 2021
Available online 16 September 2021

contextual stressors, including poverty, harsh working conditions, geographic and social isolation, as well as a lack of health care services (Carpenter-Song & Snell-Rood, 2017). As such, some rural adolescents present with more acute mental health problems than adolescents in urban settings (Heflinger, Shaw, Higa-McMillan, Lunn, & Brannan, 2015). For Latinx adolescents, additional stressors, such as immigration concerns and language barriers further heighten the risk of developing mental illness (Andrews et al., 2019; Taylor & Ruiz, 2017). Among the numerous stressors that rural Latinx adolescents encounter, discrimination is a consistent predictor of internalizing symptomatology (Benner et al., 2018).

Discrimination is the subjective experience of unfair and differential treatment based on marginalized identities, such as phenotype, language proficiency, sexual preference, and religion (Vargas, Huey, & Miranda, 2020). Experiences of discrimination trigger physiological (e.g., cardiovascular reactivity, dysregulated HPA axis), cognitive/affective (e.g., rumination, anger), and behavioral (e.g., avoidance, aggression) changes that increase adolescents' vulnerability to internalizing disorders (Benner et al., 2018; Pascoe & Smart Richman, 2009). Among rural Latinx adolescents, experiences of perceived discrimination are associated with higher internalizing symptoms (Andrews et al., 2019; Smokowski & Bacallao, 2007; Smokowski, Bacallao, & Buchanan, 2009; Smokowski et al., 2014; Taylor & Ruiz, 2017). Furthermore, experiences of discrimination among Latinx adolescents seem to vary according to their level of acculturation such that less accultured individuals more often experience discrimination based on their ethnic identity (Rodríguez-Hidalgo et al., 2019), language proficiency (Fisher, Wallace, & Fenton, 2000), and immigration status (Vargas et al., 2020) compared with acculturated individuals. Similarly, the nature of discrimination seems to change as adolescents age, becoming more pervasive and leading to worse mental health outcomes (Benner et al., 2018). As such, researchers have hypothesized that the negative effects of discrimination on the development of internalizing symptoms could vary depending on Latinx adolescents' level of acculturation (Fox et al., 2017) and age (Benner et al., 2018). Considering that discrimination occurs in multiple contexts (Benner et al., 2018), this psychosocial stressor may affect both peer and family dynamics.

From a *spillover* framework (Almeida et al., 1999; Bolger et al., 1989), discrimination experienced in one area of adolescents' lives can trickle down into other areas, including peer relations at school and family dynamics at home. Spillover theory posits that psychosocial stressors trigger maladaptive cognitive/affective and behavioral responses that can transfer from one domain to another (Almeida et al., 1999). Multiple longitudinal studies support the spillover model by showing that, during adolescence, negative interactions at school often lead to discord at home within days (Bai, Reynolds, Robles, & Repetti, 2017; Chung, Flook, & Fuligni, 2011; Flook & Fuligni, 2008; Lehman & Repetti, 2007). Considering the amount of time that adolescents spend with peers (Lam, McHale, & Crouter, 2014), it is possible that discriminatory experiences also affect the peer domain.

Metanalytic research suggests that youth who experience discrimination develop negative attitudes and beliefs about themselves that increase their risk of adverse interactions with peers, including peer victimization (Cook, Williams, Guerra, Kim, & Sadek, 2010). Peer victimization is being the target of aggressive acts perpetrated by equals, ranging from spreading rumors and exclusion, to serious acts of physical aggression (Reijntjes et al., 2010). Latinx youth experiencing discrimination seem to withdraw from sources of social support (e.g., friends, school staff, family members), which make them targets for victimization by peers (Lorenzo-Blanco et al., 2016). Previous research also suggests that although somewhat intertwined, perceived discrimination and peer victimization are distinct from one another, can occur independently, and have differential effects on the mental health outcomes of racial/ethnic minority youth (Garnett et al., 2014; Lorenzo-Blanco et al., 2016; Niwa et al., 2014). Importantly, previous studies show that experiences of discrimination often precede those of peer victimization (Melander et al., 2013; Seaton et al., 2013; Tobler et al., 2013). Furthermore, some studies indicate that the relationship between discrimination and peer victimization changes as adolescents age such that older adolescents experience more discrimination from adults and fewer instances of peer victimization than their younger counterparts (Greene, et al., 2006; Niwa et al., 2014). This pattern would suggest that the relationship between perceived discrimination and peer victimization may be weaker among older adolescents. As such, spillover studies examining how the negative effects of discrimination and peer victimization may vary by age are necessary.

As suggested by the spillover model, the adverse effects of peer victimization could affect other proximal areas in adolescents' lives, including their family interactions. When youth experience peer victimization, they might bring home maladaptive emotions and behaviors associated with being rejected and excluded (Chung et al., 2011). This spillover of anger, sadness, and worry may, in turn, elicit negative responses from family members, such as rejection or the withdrawal of affection (Chung et al., 2011; Lehman & Repetti, 2007). Moreover, external stress associated with negative peer interactions seems to lead to the erosion of adolescents' endorsement of family values over time (Smokowski et al., 2007, 2009). In turn, this deterioration of family-oriented values seems to increase the likelihood of developing internalizing symptoms among Latinx adolescents (Smokowski et al., 2009; Valdivieso-Mora, Peet, Garnier-Villarreal, Salazar-Villanea, & Johnson, 2016). Such disruption of family closeness is relevant among Latinx youth due to the salience of family-oriented values such as familism (Hernández & Bámaca-Colbert, 2016; Valdivieso-Mora et al., 2016). Familism is a cultural value that emphasizes family unity, support, close family bonds, and prioritization of the family's needs over the self (Campos, Ullman, Aguilera, & Dunkel Schetter, 2014; Valdivieso-Mora et al., 2016). In the case of rural Latinx adolescents, adherence to this cultural value may be even more relevant as rural adolescents endorse more collectivistic attitudes and most of their social interactions occur among family members compared with their urban counterparts (Greenfield, 2009). Previous studies suggest that low levels of familism are associated with a higher risk for internalizing symptoms (Campos et al., 2014; Hernández & Bámaca-Colbert, 2016; Smokowski et al., 2009, 2014; Valdivieso-Mora et al., 2016). Furthermore, in both longitudinal and cross-sectional research, familism has been shown to significantly mediate the relationship between perceived discrimination and Latinx adolescents' internalizing symptoms (Smokowski & Bacallao, 2007; Smokowski et al., 2014; Hernández & Bámaca-Colbert, 2016; Valdivieso-Mora et al., 2016). Notably, researchers have hypothesized that these associations could vary by level of acculturation such that adolescents with higher levels of acculturation may be more likely to experience a loss of family-oriented values, which weakens the promotive effect of family resilience on psychopathology (Lorenzo-Blanco et al., 2012), leading to higher internalizing symptomatology in this group (Lawton & Gerdes, 2014).

1.1. The present study

Using the spillover theory (Almeida et al., 1999; Bolger et al., 1989) as an organizing framework, we posit that peer victimization and the subsequent deterioration of familism values serve as a potential pathway through which perceived discrimination might increase vulnerability for internalizing symptoms in rural Latinx adolescents. Given that youth are actively involved in various contexts simultaneously, and that mental health outcomes are shaped by a host of factors that co-occur at multiple ecological levels, the current study examines how variables operate in tandem and may be exceptionally informative for existing etiological models of internalizing disorders (Lorenzo-Blanco, Unger, Baezconde-Garbanati, Ritt-Olson & Soto, 2012; Smokowski et al., 2009). As such, the purpose of this study was to test a serial mediation model that explored whether perceived discrimination predicts internalizing symptomatology through peer relationships (i.e., peer victimization)

and family dynamics (i.e., familism), among rural Latinx adolescents. We hypothesized that 1) perceived discrimination would be associated with higher internalizing symptoms; 2) perceived discrimination would be associated with higher peer victimization; 3) peer victimization would be associated with lower endorsement of familism; 4) lower familism would be associated with higher internalizing symptomatology; and 5) as a whole, peer victimization and familism would sequentially mediate the relationship between perceived discrimination and internalizing symptoms. Fig. 1 depicts this conceptual model.

Considering researchers' calls to test acculturation (Fisher et al., 2000; Lawton & Gerdes, 2014; Lorenzo-Blanco et al., 2012; Rodríguez-Hidalgo et al., 2019, Vargas et al., 2020), age (Benner et al., 2018; Greene, et al., 2006; Niwa et al., 2014), and gender (Anderson & Mayes, 2010; Kessler et al., 2012) as potential moderators of the relationship between discrimination and internalizing symptom development, we also conducted exploratory moderation analyses with this rural Latinx sample. Acculturation was tested as potential moderator of the paths, discrimination → internalizing symptoms, and familism → internalizing symptoms. Age was tested as potential moderator of the paths, discrimination → internalizing symptoms, and discrimination → peer victimization. Finally, gender was tested as potential moderator of all paths in the serial mediation model simultaneously. These exploratory analyses may provide information regarding whether spillover effects are consistent across Latinx adolescents from different cultural contexts, and whether they vary depending on relevant demographic characteristics.

2. Method

2.1. Procedures

Participants were recruited from a high school in a rural area in Southern California. The residents of this U.S.-Mexico border community are majority Latinx (about 80%) and experience more than double the poverty rate of other counties in California and the broader United States (U.S. Census Bureau, 2017). Announcements about the study were made in school during class time, and students received parent consent and assent forms to take home. Follow-up contact with families was made if they returned completed consent and assent forms to the school to explain study procedures further and answer questions. Students who agreed to participate were given class time to complete a packet of self-report questionnaires about their social and emotional functioning. Participants were given the option to complete the forms in Spanish or English; all adolescents preferred English. Two hours were allowed to complete the questionnaires; most adolescents finished within an hour. Participants received a $10 gift card as compensation; students who chose not to participate were given an alternate classroom activity for extra credit. The Institutional Review Board at the University of California, Los Angeles approved these study procedures.

2.2. Participants

Approximately 1100 students were invited to participate, and a total of 791 students consented to be part of this study. From those students, adolescents who self-identified as Latinx and were between the ages 14 and 17 were included in this study ($n = 639$; $M_{age} = 15.62$, $SD_{age} = 1.09$; 53% female). Students were enrolled in 9th (29.4%), 10th (23.3%), 11th (26%), or 12th (21.3%) grade. Most adolescents reported being born in the United States (89.8%) and having at least one foreign-born parent (i.e., 50.5% of mothers and 51.9% of fathers). Of these foreign-born parents, 97% of mothers and 95% of fathers were from Mexico. Although most adolescents did not know their yearly family income, 19.5% reported that their family had "not enough money," 66.6% had "just enough," and 13.9% had "more than enough."

2.3. Measures

2.3.1. Perceived discrimination

The 10-item discrimination subscale of the Social, Attitudinal, Familial, and Environmental Acculturative Stress-Child Scale (SAFE-C; Chavez, Moran, Reid, & Lopez, 1997) was used to assess perceived discrimination experiences. Participants rated items on a scale ranging from 1 (Not at all true) to 4 (Very true), with higher scores indicating more perceived discrimination. Items included "I feel bad when others make jokes about or put down Latinxs" and "Many people have stereotypes about Latinxs and treat me as if those were true." The perceived discrimination subscale of the SAFE-C has shown to be a valid measure of perceived discrimination experiences in Latinx youth (Roche & Kuperminc, 2012). In this sample, the reliability of the discrimination subscale was acceptable ($\omega = 0.751$).

2.3.2. Peer victimization

The peer victimization subscale of the Illinois Bullying Scale (IBS; Espelage & Holt, 2001) was employed to measure perceived victimization by peers. This subscale consists of four items addressing the frequency in the past month of both verbal (e.g., "Other students called me names") and physical victimization by peers (e.g., "I got hit and pushed by other students"). The items were rated on a scale ranging from 0 (Never) to 4 (7 or more times). The peer victimization subscale has been used with racially/ethnically diverse youth showing good validity and reliability (Espelage & Holt, 2013). In this sample, the reliability of the scale was excellent ($\omega = 0.932$).

2.3.3. Familism

The 7-item Familism Scale (FS; Gil et al., 2000) was used to measure adherence to familism values. The scale included items such as "Family members respect one another" and "Family members feel loyal to the family." Participants rated items on a scale ranging from 1 (Not at all true) to 5 (Very much true). This measure has been employed in previous studies with Latinx youth showing good reliability (Gil et al.,

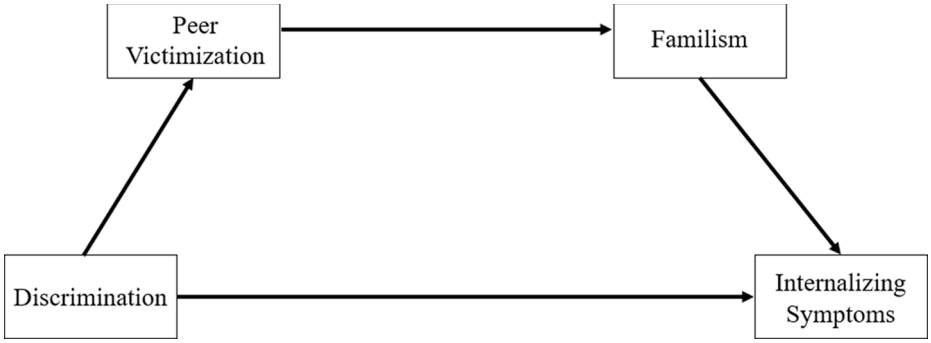

Fig. 1. Serial mediation model of the indirect effect of perceived discrimination on internalizing symptoms via peer victimization and familism.

2000; Marsiglia, Parsai, & Kulis, 2009). In this sample, the reliability of the scale was excellent ($\omega = 0.905$).

2.3.4. Internalizing symptoms

Thirty-one items consisting of subscales anxious/depressed, withdrawn/depressed, and somatic complaints of the Youth Self-Report (YSR; Achenbach & Rescorla, 2001) were used to measure internalizing problems. These subscales included items, such as "Feels sad," "Feels nausea," and "Feels worries." The items were rated on a scale ranging from 0 (Not true) to 2 (Very true). The YSR broad-band internalizing scale has been used with Latinx youth with good reliability (Smokowski & Bacallao, 2007; Smokowski et al., 2009, 2014). In this sample, the reliability of the scale was excellent ($\omega = 0.917$).

2.3.5. Acculturation

The 12-item Short Acculturation Scale for Hispanics-Youth (SASH-Y; Barona & Miller, 1994) was used to assess level of acculturation. Participants rated items on a scale ranging from 1 (Only Spanish/All Hispanic) to 5 (Only English/All White) with higher scores indicating more assimilation to U.S. culture. Items included, "In which language(s) do you usually think?" and "Your close friends are." The SASH-Y was explicitly developed for Latinx youth and data suggest it is a valid unidimensional measure of acculturation in rural Latinx samples (Serrano & Anderson, 2003). In this study, the reliability of the SASH-Y was good ($\omega = 0.887$).

2.4. Data analytic plan

Following established recommendations (see Tabachnick & Fidell, 2012), we first screened the data for multivariate outliers utilizing Mahalanobis distance, Cook's distance, and leverage values. Based on these indexes, no cases were excluded from the final model. Furthermore, normality, linearity, homogeneity, multicollinearity, and homoscedasticity assumptions were tested. No outliers or clear violations of statistical assumptions were detected.

Considering a potential construct overlap between perceived discrimination and peer victimization as measured by the SAFE and IBS, we conducted a model comparison via confirmatory factor analysis (CFA) using lavaan Version 0.6.5 (Rosseel et al., 2017). We fit a 1-factor solution where all items on these two constructs loaded onto one factor. We also fit a 2-factor model where items for perceived discrimination loaded on one factor and items for peer victimization loaded on a second factor. Finally, we contrasted both models to determine the best fit for these data. We evaluated model fit based on a Chi-square to degrees of freedom ratio (χ^2/df), the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR).

After determining the best factor structure, we employed Structural Equation Modeling (SEM) using lavaan Version 0.6.5 to test all models. The serial mediation model in Fig. 1 was used to test the direct effect of perceived discrimination on internalizing symptoms and percentile confidence intervals were used to test indirect pathways using 5,000 bootstraps. Participants' age and gender were included as covariates. Three exploratory moderated mediation models were fit starting from the mediation model in Fig. 1, each adding in a single moderator (see Fig. 3). Acculturation was examined as a moderator of the discrimination → internalizing symptoms and the familism → internalizing paths based on previous work (Fisher et al., 2000; Lawton & Gerdes, 2014; Lorenzo-Blanco et al., 2012; Rodríguez-Hidalgo et al., 2019, Vargas et al., 2020). Acculturation was treated as a latent variable, and we used the product indicator method for estimating the latent interactions (Kenny & Judd, 1984). Age was examined as a moderator of the discrimination → internalizing symptoms and discrimination → peer victimization paths based on previous work supporting this interaction (Benner et al., 2018; Greene, et al., 2006; Niwa et al., 2014). Age was treated as an observed variable, but because discrimination is latent, the product indicator method was also used. To test gender as a moderator, we compared a model with measurement invariance (i.e., loadings and intercepts fixed to be equal across groups) but no structural invariance (i.e., regression slopes allowed to vary across groups) to a model with both measurement and structural invariance (i.e., loadings, intercepts, and regression slopes fixed equal across groups). We had no clear hypotheses about which paths would be moderated by gender (Anderson & Mayes, 2010; Kessler et al., 2012), thus we allowed gender to moderate all structural paths in the model by fitting a multiple group model and testing whether a single group or multiple group model fit best (Dimitrov, 2006). These models were particularly complex not lending well to the use of bootstrapping. As such, we relied on the asymptotic statistical results for tests of significance. Missing data were managed using a full information maximum likelihood (FIML) procedure as it leads to superior estimation in SEM compared to other missing data methods, including listwise deletion, pairwise deletion, and similar response pattern imputation (Enders and Bandalos, 2009). Results from these exploratory models should be interpreted with caution given that the analyses could be underpowered because the sample size was not selected with these analyses in mind. Additional information about the moderated mediation analyses, power analyses conducted, and the results can be found in the Appendix.

3. Results

Results from the CFAs showed that the 1-factor model for perceived discrimination and peer victimization together had less than optimal fit ($\chi^2(65) = 549.751$, $p < .001$; CFI = 0.686, TLI = 0.623, RMSEA = 0.111, SRMR = 0.228). In contrast, the 2-factor model had reasonable fit ($\chi^2(64) = 232.041$, $p < .001$; CFI = 0.891, TLI = 0.867, RMSEA = 0.066, SRMR = 0.074). The estimated correlation among the two factors was 0.33, suggesting that the factors were only moderately correlated and represented distinct factors. The 2-factor model also fit significantly better than the 1-factor model ($\chi^2(1) = 317.71$, $p < .001$), further supporting the utility of the two-factor model.

According to fit indices interpretation guidelines (Sellbom & Tellegen, 2019), the final serial mediation model (see Fig. 2) had a reasonable fit ($\chi^2(1366) = 3594.599$, $p < .001$; CFI = 0.799; TLI = 0.789; RMSEA = 0.051; SRMR = 0.067). Unstandardized coefficients are reported as b and standardized coefficients are reported as β. Perceived discrimination was associated with higher peer victimization ($b = 1.108$, $SE = 0.406$, $\beta = 0.316$, $p = .006$), lower familism ($b = -0.647$, $SE = 0.231$, $\beta = -0.247$, $p = .005$), and higher internalizing symptomatology ($b = 0.448$, $SE = 0.141$, $\beta = 0.315$, $p = .002$). Peer victimization was associated with lower familism ($b = -0.167$, $SE = 0.065$, $\beta = -0.247$, $p = .011$), but it was not significantly associated with internalizing symptoms ($b = 0.064$, $SE = 0.040$, $\beta = 0.159$, $p = .107$). Familism was associated with lower internalizing symptomatology ($b = -0.183$, $SE = 0.039$, $\beta = -0.304$, $p < .001$). Being female was associated with higher internalizing symptoms ($b = 0.178$, $SE = 0.034$, $\beta = 0.222$, $p < .001$), and lower familism ($b = -0.194$, $SE = 0.057$, $\beta = -0.146$, $p = .001$), but it was not significantly associated with peer victimization ($b = 0.035$, $SE = 0.148$, $\beta = 0.017$, $p = .816$). Age was not significantly associated with peer victimization ($b = -0.096$, $SE = 0.066$, $\beta = -0.106$, $p = .144$), familism ($b = -0.015$, $SE = 0.025$, $\beta = -0.025$, $p = .547$), or internalizing symptomatology ($b = 0.007$, $SE = 0.013$, $\beta = 0.020$, $p = .574$). There were two significant indirect effects, including the perceived discrimination → peer victimization → familism → internalizing symptoms pathway ($b = 0.034$, $\beta = 0.024$ 95% CI for b [0.007, 0.080]), as well as the perceived discrimination → familism → internalizing symptoms pathway ($b = 0.118$, $\beta = 0.083$ 95% CI for b [0.054, 0.232]). Through both pathways, higher perceived discrimination was associated with higher internalizing symptoms. The indirect effect through the discrimination → peer victimization → internalizing symptoms pathway was not statistically significant ($b = 0.071$, $\beta = 0.050$, 95% CI for b [-0.016, 0.198]). Fig. 2 provides a visual representation of these results.

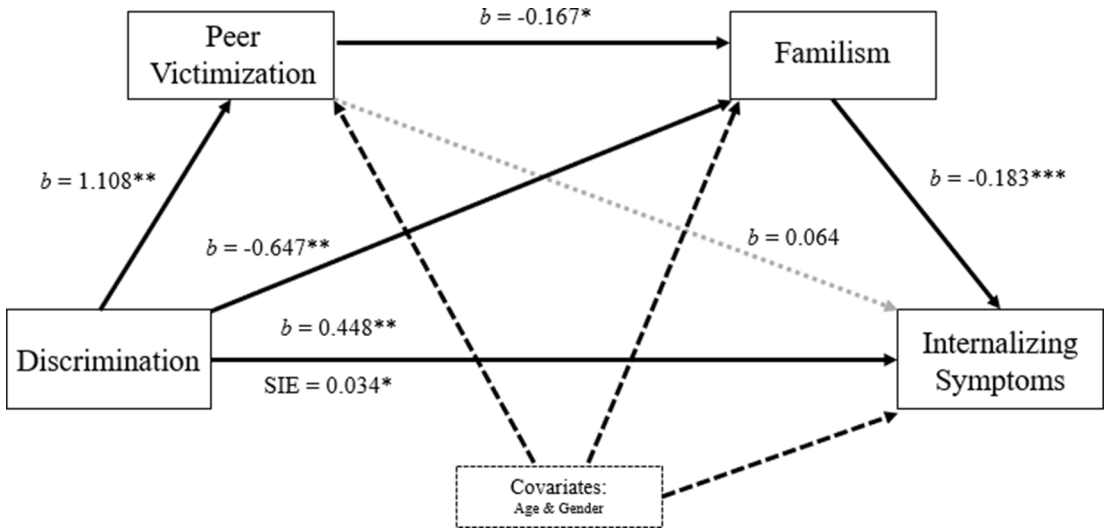

Fig. 2. Pathway effects of the serial mediation model. Note: Unstandardized coefficients are reported. Gray dotted lines represent non-significant pathway effects. SIE = Serial Indirect Effect. * $p < 0.05$, ** $p < 0.01$, ***$p < 0.001$.

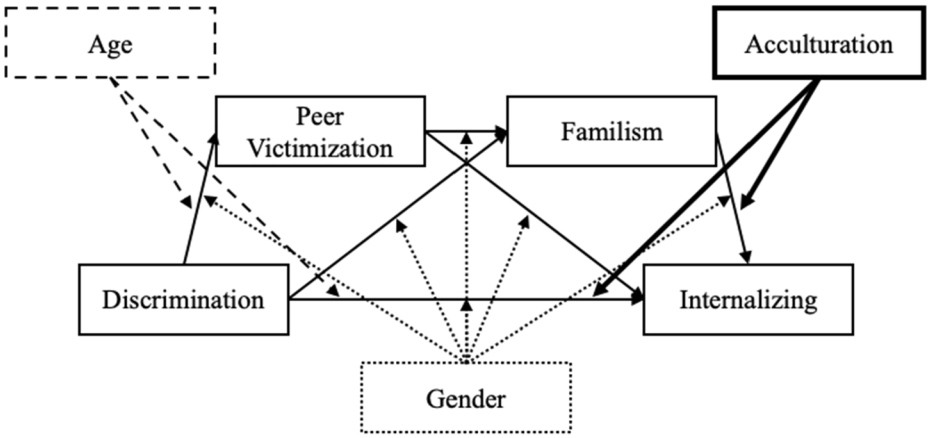

Fig. 3. The serial mediation model of discrimination → peer victimization → familism → internalizing is used for all three exploratory models. The three moderators (i.e., acculturation, age, gender) are each used in separate moderated mediation models. Different line types indicate that the moderators were tested individually. Bold lines indicate the paths included in the model with acculturation as a moderator. Dashed lines indicate the paths included in the model with age as a moderator. Dotted lines indicate the paths included in the model with gender as a moderator.

The exploratory model examining acculturation as a potential moderator of this serial mediation model had an inadequate fit ($\chi^2(33259) = 149735.743$, $p < .001$; CFI = 0.225; TLI = 0.228; RMSEA = 0.074; SRMR = 0.096). The interaction between discrimination and acculturation predicting internalizing symptoms was not statistically significant ($p = .592$). Similarly, the interaction between familism and acculturation predicting internalizing symptoms was not statistically significant ($p = .166$). Finally, the index of moderated mediation was also not significant ($p = .170$). The exploratory model examining age as a potential moderator had an adequate fit ($\chi^2(1892) = 4476.983$, $p < .001$; CFI = 0.787; TLI = 0.780; RMSEA = 0.046; SRMR = 0.066). The interaction between discrimination and age predicting peer victimization was statistically significant ($b = -0.479$, $SE = 0.162$, $\beta = -0.272$, $p = .003$). This effects is depicted in Fig. 4. Similarly, the index of moderated mediation was also statistically significant (effect = -0.016; $SE = 0.007$, $p = .019$), suggesting the serial indirect effect became more negative as age increased. The interaction between discrimination and age predicting internalizing symptoms was not statistically significant ($p = .876$). Finally, the chi-square difference showed that this serial mediation model was not moderated by gender ($\chi^2(9) = 5.498$, $p = .789$). More detailed results of these exploratory models and power analyses are presented in the Appendix.

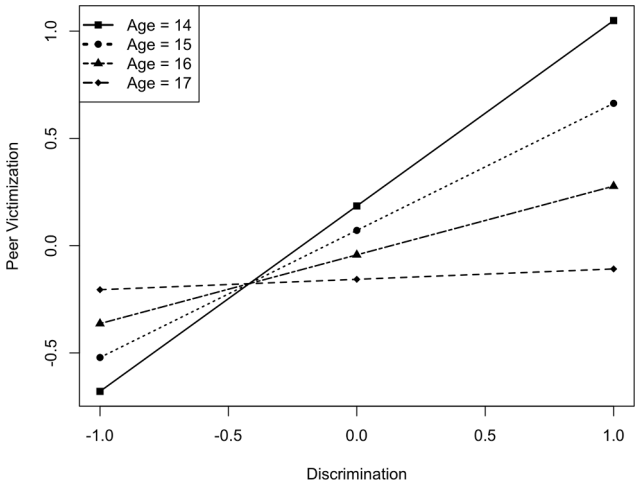

Fig. 4. Interaction between age and discrimination predicting peer victimization. The effect of discrimination on peer victimization was significant across all observed values of the moderator. All values of age in the data (14, 15, 16, and 17) were included in the graph. All regression coefficients and the discrimination variable were standardized.

4. Discussion

The present study was conducted in response to previous calls to integrate multiple risk and resilience factors into etiological models of internalizing disorders in rural Latinx adolescents (Lorenzo-Blanco et al., 2012; Smokowski et al., 2009, 2014). Specifically, we examined how perceived discrimination sequentially relates to two salient contexts of adolescent development: peer interactions and family dynamics. Not surprisingly, perceived discrimination was associated with higher internalizing symptoms, which is consistent with previous studies with Latinx youth samples (Smokowski et al., 2009, 2014). However, this study did not find that the negative effect of discrimination varied across gender or level of acculturation. Although these results need to be replicated with sufficiently powered analyses, these findings may highlight the importance of helping rural Latinx adolescents cope with the negative effects of discrimination regardless of their gender or level of assimilation to the dominant culture (Ramos et al., 2021).

As hypothesized, experiences of perceived discrimination were also related to higher peer victimization. This finding adds to data suggesting that youth who experience discrimination are at higher risk of being victimized by their peers (Cook et al., 2010; Lorenzo-Blanco et al., 2016). Consistent with previous findings showing that the negative effects of discrimination are more deleterious in early adolescence (Benner et al., 2018), we also found that the negative relationship between discrimination and peer victimization is stronger among younger rural Latinx youth. This finding may suggest that younger rural Latinx adolescents could be especially vulnerable to the negative effects that discrimination has on their peer relationships. Importantly, our results also indicated that, at least in this rural Latinx sample, instances of perceived discrimination and peer victimization were distinct from one another (as indicated by the examination of measurement models) and had differential relationship with internalizing symptoms in adolescents as supported by previous literature (Garnett et al., 2014; Lorenzo-Blanco et al., 2016; Niwa et al., 2014). This distinction is important, as peer victimization was not directly related to the development of internalizing symptoms in our model. Rather, the adverse effects of peer victimization seemed more associated with the erosion of family-oriented values such as familism.

Consistent with our hypothesis, peer victimization was associated with lower familism among rural Latinx youth. As previously suggested, victims of peer aggression may develop maladaptive emotional and behavioral responses (e.g., anger, sadness, worry, aggression, withdrawal) that promote negative interactions with family members (e.g., arguments, withdrawing affection, showing rejection). As a result, adolescents might feel further isolated and unsupported by family members, thereby weakening adolescents' adherence to family-oriented values such as familism (Padilla et al., 2016). Although previous studies in the spillover literature have examined how peer victimization leads to family conflict and other forms of negative family interactions (e.g., Bai et al., 2017; Chung et al., 2011; Flook & Fuligni, 2008; Lehman & Repetti, 2007), to our knowledge this is the first study to focus on the erosion of familism, a culturally prominent value among Latinx families, as a potentially negative outcome of being victimized by peers. As such, this study bridges the spillover literature with extant empirical data showing the prominent promotive role of familism among Latinx individuals (e.g., Smokowski & Bacallao, 2007; Smokowski et al., 2014; Valdivieso-Mora et al., 2016).

Aligned with our hypotheses, this etiological model suggests that lower levels of familism are related to higher levels of internalizing symptoms. This finding is consistent with previous work that shows that the disintegration of familism in Latinx families fosters feelings of sadness, loneliness, and anxiety as youth no longer feel connected and supported by family members (Smokowski et al., 2009). Similarly, as Latinx adolescents adhere less to family-oriented values, they may experience additional distress related to violating cultural norms and family disappointment (Huq et al., 2016), which might be even more disruptive among rural adolescents who spend more time interacting with family members compared with their urban counterparts (Greenfield, 2009). Given that family support serves as a buffer against stressful life experiences (Corona, Campos, & Chen, 2017; Ramos et al., 2021; Valdivieso-Mora et al., 2016), youth who endorse low levels of familism may hesitate to turn to family members for social support, thus increasing their risk for developing internalizing symptoms (Campos et al., 2014). The exploratory analyses did not find a significant difference in the relationship between familism erosion and internalizing symptoms across level of acculturation, but these findings need to be replicated with sufficiently powered analyses.

Results from additional mediation paths also highlighted the importance of familism in developing internalizing symptoms among rural Latinx adolescents. In our model, only indirect paths including familism were statistically significant (i.e., perceived discrimination → peer victimization → familism → internalizing symptoms; perceived discrimination → familism → internalizing symptoms), which is consistent with numerous studies and metanalytic research indicating the significant role of this cultural value as a mediator in the development of internalizing symptoms (Campos et al., 2014; Corona et al., 2017; Hernández & Bámaca-Colbert, 2016; Lorenzo-Blanco et al., 2012; Smokowski et al., 2014; Valdivieso-Mora et al., 2016).

The significant pathway of perceived discrimination → peer victimization → familism → internalizing symptoms also supported the spillover model of internalizing symptom development in rural Latinx adolescents. As we hypothesized, perceived discrimination seemed to be associated with higher self-reported peer victimization, peer victimization was, in turn, associated with a lower endorsement of familism, and the promotive effect of familism against internalizing symptoms was reduced. Further, we found that this whole indirect effect was stronger among younger adolescents; a novel finding that is consistent with metanalytic studies showing that the negative effects of discrimination on mental health are especially deleterious during the early adolescence, leading to subsequent internalizing symptoms (Benner et al., 2018).

Findings from these models are consistent with the spillover model, showing that negative and stressful experiences in one ecological context (i.e., individual level discrimination) are connected with interpersonal interactions in other ecological contexts (i.e., peer interactions, family dynamics), which may lead to psychological distress (Bai et al., 2017; Chung et al., 2011; Flook & Fuligni, 2008; Lehman & Repetti, 2007). Our results expand on previous studies examining independent predictors of internalizing symptoms among Latinx youth (e.g., Smokowski et al., 2009, 2014) by suggesting a potential pathway by which these adverse effects may occur sequentially. Similarly, our models fill a gap in the spillover literature by showing that such sequential effects can occur at different ecological levels (i.e., family-home, peers-school) as previous studies have only focused on domains at the same level of analysis, such as peer or family dynamics (e.g., Bai et al., 2017; Chung et al., 2011; Flook & Fuligni, 2008; Lehman & Repetti, 2007).

4.1. Limitations

Despite the importance of these results, findings should be considered in the context of some study limitations. The cross-sectional nature of the data does not allow us to make causal claims. Although we recognize that cross-sectional mediation analyses can often overestimate real indirect effects (Maxwell & Cole, 2007), the lack of data on rural Latinx communities may justify this design to elucidate potential etiological pathways for internalizing symptoms to be further examined using longitudinal approaches. Further, this study cannot distinguish between alternative causal orders of the variables included in this model. For instance, a recent study found that instances of peer victimization were preceded by internalizing disorders such as depression (Saint-Georges & Vaillancourt 2020). Similarly, it is possible that peer victimization has a causal effect on discrimination (rather than the reverse), and statistical analyses of cross-sectional data cannot

distinguish between these two effects. Future research using longitudinal data or experimental manipulations is needed to better understand the directionality of these associations. Similarly, results of exploratory moderation and moderated mediation analyses should be interpreted with caution, given the modest statistical power in the present study (see Appendix). As such, these results need to be replicated in sufficiently powered studies. Our sample consisted of rural Latinx adolescents mostly of Mexican American origin, living in a predominantly Latinx community in rural California. Thus, these results may not generalize to other settings (e.g., urban, suburban) or other Latinx subgroups. Besides, our perceived discrimination and peer victimization measures do not differentiate between multiple reasons to be discriminated against or victimized for (e.g., intra/inter-group aggression, nativity status, sexual orientation, gender identity, documentation status). Future studies would benefit from more comprehensive scales that capture these phenomena beyond race/ethnicity, using theoretical frameworks that recognize the potential contribution of multiple stigmatized identities such as intersectionality (Rosenthal, 2016). Finally, data for this study came from self-report, which is subject to demand characteristics and common-method invariance. Research employing multi-trait and multi-method approaches is warranted.

4.2. Future directions

Given additional evidence supporting the proposed causal order of these factors, these findings could facilitate the design of culturally robust interventions for this underserved population. Considering the central role of familism among rural Latinx adolescents, mental health interventions for this group could involve family members to improve their cultural relevance and "buy-in" from parents (Hernández & Bámaca-Colbert, 2016). By helping family members to change parenting practices, behaviors strongly associated with the mental health outcomes of Latinx youth (Ramos et al., 2018), interventions could strengthen family ties and communication and teach adolescents strategies to cope with experiences of discrimination and peer victimization (Gonzales et al., 2012). Thus, helping break potential spillover effects that lead to internalizing symptom development (Perrino et al., 2016). In rural contexts, where there are clear barriers to accessing mental health care and a high need for services, data-driven cultural adaptations to interventions for internalizing disorders that incorporate relevant risk, promotive, and protective factors, along with innovative delivery approaches (e.g., Barnett et al., 2018; Merianos et al., 2017; Ramos & Chavira, 2019) have the potential to improve treatment outcomes and reduce disparities in these underserved communities.

Funding

This research was made possible by funds from the Ford Foundation Fellowship, the UCLA Graduate Research Mentorship Fellowship, and the APF Queen-Nellie Evans Scholarship awarded to Giovanni Ramos. Additional funding came from the UCLA Psychology Research Opportunity Program awarded to Desiree Delgadillo.

CRediT authorship contribution statement

Giovanni Ramos: Conceptualization, Investigation, Methodology. **Desiree Delgadillo:** Conceptualization, Investigation. **Jessica Fossum:** Formal analysis. **Amanda K. Montoya:** Formal analysis, Supervision. **Hardian Thamrin:** Project administration. **Amy Rapp:** Project administration. **Emily Escovar:** Project administration. **Denise April Chavira:** Conceptualization, Methodology, Resources, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A

Three moderated serial mediation models were tested (see Fig. 3). All three had the same base serial mediation model, with discrimination as the independent variable, peer victimization and familism as mediators in that order, and internalizing as the outcome variable. Age and gender are covariates in all models. Three separate moderators were included. Two continuous moderators were tested: acculturation and age. Acculturation was tested on the path between familism and internalizing and the path between discrimination and internalizing. Age was tested as a moderator on the path between discrimination and peer victimization and the path between discrimination and internalizing. Gender as a dichotomous moderator was also tested on all structural paths in the model. On paths where age or gender are used as moderators, they are not included as additional covariates in the model. All models were fit using the lavaan package for R (Rosseel et al., 2017) because it is open source software for structural equation modeling with all the variables being latent except for age and gender which were observed. Missing data is handled using the full information maximum likelihood procedure built into the R package, and for significance testing we used the asymptotic statistical results instead of bootstrapping due to the complexity of these models.

Model fitting procedure for continuous moderators

Due to these models involving interactions and latent variables, we used the method proposed by Kenny and Judd (1984) and followed their recommendation to estimate the latent product using the cross products of all possible indicators to create the indicators of the interaction term. For the error variance equations of the latent indicators, variances of the latent products, and loadings of product indicators onto latent products we used equations derived by Jaccard and Wan (1995). Cortina et al. (2021) provided sample code for latent interactions where each latent variable had two indicators that we extended to accommodate the many indicators of the latent variables in this study.

Power analysis procedure for continuous moderators

A power analysis was performed to determine the effect size of the index of moderated mediation necessary to have sufficient (80%) power to detect a significant moderated mediation with the obtained sample size $n = 639$ for $\alpha = 0.05$ using a Monte Carlo simulation. This simulation used 10,000 generated data samples, and power was calculated as the proportion of samples in which the index of moderated mediation was significant ($p < .05$).

Data generation

Data was generated using the generate() function from the simsem package in R. The original sample size of 639 was used to generate samples with that number of observations. Each sample was drawn from a population model with parameters from the original sample coefficients, except for the coefficient on the interaction term. This coefficient was iteratively varied to get power estimates for that effect size on the interaction term until an effect size was found that achieved 80% power.

Serial mediation model with acculturation as moderator

Acculturation was a moderator on both the familism → internalizing path and the discrimination → internalizing path. All these variables are latent, so every cross product of the acculturation and familism indicators were included in the model for the first interaction and every cross product of the acculturation and discrimination indicators were included in the model for the second interaction. Acculturation had 12 indicators, familism had seven indicators, and discrimination had nine indicators.

Serial mediation model with age as moderator

Age is an observed variable, but it interacted with discrimination, which is latent, so every cross product of indicators, using one indicator for age, was included in the model. The coefficient of the interaction term of discrimination × age on peer victimization was tested to find the effect size needed for 80% power, and this interaction was chosen because it is directly involved in calculating the index of moderated mediation.

Power analysis results for the age model

For a moderated mediation model, the index of moderated mediation is what determines if the mediation is significantly moderated (Hayes, 2015). We varied the coefficient on the interaction term of discrimination × age on peer victimization until we found a coefficient that resulted in 80% power for the test of significance on the index of moderated mediation. In the original data, this coefficient was −0.479. To consider an effect size that would be comparable across samples, we would typically completely standardize all variables involved, but in this case standardizing age did not seem appropriate for two reasons: 1) the observed age range in the sample is not representative of natural variation in the population, and 2) using years as units is more interpretable. So, we standardized discrimination and peer victimization to get a partially-standardized coefficient in the original data of −0.272, 95% CI [-0.457, −0.087]. This estimate means that for two groups of people that differ by one year in age, the standardized relationship between discrimination and peer victimization is estimated to differ by 0.272, where the older group has a smaller (more negative) relationship. A power analysis found that a standardized coefficient on this interaction term of −0.159 is needed for 80% power to detect a significant index of moderated mediation, so while our point estimate of the effect size is larger than what is needed for 80% power to detect the effect, the confidence interval around that estimate also includes parameter values which would lead to inadequate power (values greater than −0.159) and so we cannot be confident that our sample is properly powered to test age as a moderator in the serial mediation. Additionally, it is important to note that this analysis assumes no uncertainty in any of the other paths (i.e., all the estimates from the original model are exact, which is unlikely to be true).

Model fitting procedure for a two group model

To test gender as a moderator on all paths in this serial mediation, a model was fit where regression slopes were allowed to differ for males and females. This model was compared to another model of the same serial mediation where the regression slopes were constrained to be the same for both males and females using a chi-square difference test. Both models constrained the measurement model to be equal across the two groups, meaning intercepts and loadings were the same for both groups in each model. Equal variances on the variables included in the models between the groups was not assumed. A p-value<0.05 would indicate a statistically significant difference in fit between the model where males and females were allowed to have different slopes and the model where slopes were forced to be the same, indicating the structural paths differ between the two groups (i.e., moderation). If the difference test was not significant, we would have no evidence that the model allowing slopes to differ was a better fit and conclude that the structural models are not significantly different across the two groups.

Power analysis procedure for a two group model

A power analysis was performed using a Monte Carlo simulation to determine the effect size necessary to have sufficient (80%) power to detect the effect with the obtained sample size $n = 639$ for $\alpha = 0.05$ using a Monte Carlo simulation. This simulation used 10,000 generated data samples for both the model where regression coefficients were allowed to vary across groups and the model where they were constrained to be the same, and power was calculated as the proportion of simulations where the chi-square difference test indicated a difference between the two models where the model with no structural invariance was a better fit. Various effect sizes were tested iteratively until we found the effect size difference between the two groups needed.

Data generation

Data was generated using the simulateData() function in lavaan. Model syntax with the regression parameters from the original data inserted as coefficients in the structural model was used, and sample observations were drawn to match the number of observations in each group from the original data. For the model with regression slopes constrained to be the same between both groups, estimates from the original data were used for all paths. For the unconstrained model, we chose to focus on the path between peer victimization → internalizing because it was the largest standardized difference in coefficient in the data. There were five other paths in the serial mediation model we could have chosen to allow regression coefficients to vary, ranging standardized magnitude from 0.0036 to 0.08, and none were significantly different based on their confidence intervals. We allowed the two groups to have different slopes on this path because when one coefficient differing across the groups is perhaps the simplest case of structural noninvariance. Additionally, by varying one path we can estimate a corresponding effect size. The difference between slopes was varied until a large

enough difference was found that our sample was adequately powered to detect moderated mediation. The mean of the two slopes was always set to equal the slope on this path from the constrained regression coefficient model.

Serial mediation model with gender as moderator

The original data included observations from 339 females and 300 males, so data was generated with 339 observations in the first group and 300 observations in the second group. The regression coefficient between peer victimization and internalizing was 0.054, so to test how different this coefficient needs to be for the two groups to be significantly different this path was set to be different for the two groups (i.e., to test an effect size of 0.1, one group was set to 0.054 - 0.05 = 0.004 and the other group was set to 0.054 + 0.05 = 0.104, with the difference between 0.004 and 0.104 being 0.1).

Power analysis results of the gender model

For 80% power to identify gender as a moderator of this serial mediation model, we would need to see a standardized effect size difference of −0.22 on the tested path between peer victimization and internalizing. When the regression coefficients were allowed to vary in the actual data, this coefficient was 0.039 (0.14 standardized) for females and 0.078 (0.31 standardized) for males. The standardized observed difference of −0.17, 95% CI [-0.55, 0.21], is smaller than the standardized population effect size of −0.22 which would be needed to detect moderation by only allowing this path to differ between groups in our sample.

References

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms & profiles*. VT: Burlington.

Almeida, D. M., Wethington, E., & Chandler, A. L. (1999). Daily transmission of tensions between marital dyads and parent-child dyads. *Journal of Marriage and the Family, 61*, 49–61. https://doi.org/10.2307/353882

Anderson, E. R., & Mayes, L. C. (2010). Race/ethnicity and internalizing disorders in youth: A review. *Clinical Psychology Review, 30*(3), 338–348. https://doi.org/10.1016/j.cpr.2009.12.008

Andrews, A. R., Haws, J. K., Acosta, L. M., Acosta Canchila, M. N., Carlo, G., Grant, K. M., & Ramos, A. K. (2019). Combinatorial effects of discrimination, legal status fears, adverse childhood experiences, and harsh working conditions among Latino migrant farmworkers: Testing learned helplessness hypotheses. *Journal of Latinx Psychology, 1*, 1–23. https://doi.org/10.1037/lat0000141

Bai, S., Reynolds, B. M., Robles, T. F., & Repetti, R. L. (2017). Daily links between school problems and youth perceptions of interactions with parents: A diary study of school-to-home spillover. *Social Development, 26*(4), 813–830. https://doi.org/10.1111/sode.2017.26.issue-410.1111/sode.12229

Barona, A., & Miller, J. A. (1994). Short acculturation scale for Hispanic youth (SASH-Y): A preliminary report. *Hispanic Journal of Behavioral Sciences, 16*(2), 155–162. https://doi.org/10.1177/07399863940162005

Barnett, M. L., Gonzalez, A., Miranda, J., Chavira, D. A., & Lau, A. S. (2018). Mobilizing community health workers to address mental health disparities for underserved populations: A systematic review. *Administration and Policy in Mental Health and Mental Health Services Research, 45*(2), 195–211. https://doi.org/10.1007/s10488-017-0815-0

Benner, A. D., Wang, Y., Shen, Y., Boyle, A. E., Polk, R., & Cheng, Y.-P. (2018). Racial/ethnic discrimination and well-being during adolescence: A meta-analytic review. *American Psychologist, 73*(7), 855–883. https://doi.org/10.1037/amp0000204

Bolger, N., DeLongis, A., Kessler, R. C., & Wethington, E. (1989). The contagion of stress across multiple roles. *Journal of Marriage and the Family, 51*(1), 175. https://doi.org/10.2307/352378

Campos, B., Ullman, J. B., Aguilera, A., & Dunkel Schetter, C. (2014). Familism and psychological health: The intervening role of closeness and social support. *Cultural Diversity and Ethnic Minority Psychology, 20*(2), 191–201. https://doi.org/10.1037/a0034094

Cardoso, J. B., & Thompson, S. J. (2010). Common themes of resilience among Latino immigrant families: A systematic review of the literature. *Families in Society, 91*(3), 257–265. https://doi.org/10.1606/1044-3894.4003

Carpenter-Song, E., & Snell-Rood, C. (2017). The changing context of rural America: A call to examine the impact of social change on mental health and mental health care. *Psychiatric Services, 68*(5), 503–506. https://doi.org/10.1176/appi.ps.201600024

Chavez, D. V., Moran, V. R., Reid, S. L., & Lopez, M. (1997). Acculturative stress in children: A modification of the SAFE scale. *Hispanic Journal of Behavioral Sciences, 19*(1), 34–44. https://doi.org/10.1177/07399863970191002

Chung, G. H., Flook, L., & Fuligni, A. J. (2011). Reciprocal associations between family and peer conflict in adolescents' daily lives. *Child Development, 82*(5), 1390–1396. https://doi.org/10.1111/j.1467-8624.2011.01625.x

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly, 25*(2), 65–83. https://doi.org/10.1037/a0020149

Corona, K., Campos, B., & Chen, C. (2017). Familism is associated with psychological well being and physical health: Main effects and stress-buffering effects. *Hispanic Journal of Behavioral Sciences, 39*(1), 46–65. https://doi.org/10.1177/0739986316671297

Cortina, J. M., Markell-Goldstein, H. M., Green, J. P., & Chang, Y. (2021). How Are We Testing Interactions in Latent Variable Models? Surging Forward or Fighting Shy? *Organizational Research Methods, 24*(1), 26–54. https://doi.org/10.1177/1094428119872531

Dimitrov, D. M. (2006). Comparing groups on latent variables: A structural equation modeling approach. *Work, 26*(4), 429–436.

Enders, C. K., & Bandalos, D. L. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling, 8*(3), 430–457. https://doi.org/10.1207/S15328007SEM0803_5

Espelage, D. L., & Holt, M. K. (2001). Bullying and victimization during early adolescence: Peer influences and psychosocial correlates. *Journal of Emotional Abuse, 2*(2–3), 123–142. https://doi.org/10.1300/J135v02n02_08

Espelage, D. L., & Holt, M. K. (2013). Suicidal ideation and school bullying experiences after controlling for depression and delinquency. Journal of Adolescent Health, 53(1, Suppl), S27-S31. https://doi.org/10.1016/j.jadohealth.2012.09.017.

Fisher, C. B., Wallace, S. A., & Fenton, R. E. (2000). Discrimination distress during adolescence. *Journal of Youth and Adolescence, 29*(6), 679–695. https://doi.org/10.1023/A:1026455906512

Flook, L., & Fuligni, A. J. (2008). Family and school spillover in adolescents' daily lives. *Child Development, 79*(3), 776–787. https://doi.org/10.1111/j.1467-8624.2008.01157.x

Fox, M., Thayer, Z. M., & Wadhwa, P. D. (2017). Acculturation and health: The moderating role of sociocultural context. *American Anthropologist, 119*(3), 405–421. https://doi.org/10.1111/aman.2017.119.issue-310.1111/aman.12867

Galvan, T., & Gudiño, O. G. (2019). Understanding Latinx youth mental health disparities by problem type: The role of caregiver culture. *Psychological Services, 18*(1), 116–123. https://doi.org/10.1037/ser0000365

García, C. M., Gilchrist, L., Vazquez, G., Leite, A., & Raymond, N. (2011). Urban and rural immigrant Latino youths' and adults' knowledge and beliefs about mental health resources. *Journal of Immigrant and Minority Health, 13*(3), 500–509. https://doi.org/10.1007/s10903-010-9389-6

Garnett, B. R., Masyn, K. E., Austin, S. B., Miller, M., Williams, D. R., & Viswanath, K. (2014). The intersectionality of discrimination attributes and bullying among youth: An applied latent class analysis. *Journal of Youth and Adolescence, 43*(8), 1225–1239. https://doi.org/10.1007/s10964-013-0073-8

Gil, A. G., Wagner, E. F., & Vega, W. A. (2000). Acculturation, familism, and alcohol use among Latino adolescent males: Longitudinal relations. *Journal of Community Psychology, 28*(4), 443–458. https://doi.org/10.1002/1520-6629(200007)28:4<443::AID-JCOP6>3.0.CO;2-A

Gonzales, N. A., Dumka, L. E., Millsap, R. E., Gottschall, A., McClain, D. B., Wong, J. J., Germán, M., Mauricio, A. M., Wheeler, L., Carpentier, F. D., & Kim, S. Y. (2012). Randomized trial of a broad preventive intervention for Mexican American adolescents. *Journal of Consulting and Clinical Psychology, 80*(1), 1–16. https://doi.org/10.1037/a0026063

Greene, M. L., Way, N., & Pahl, K. (2006). Trajectories of perceived adult and peer discrimination among Black, Latino, and Asian American adolescents: Patterns and psychological correlates. *Developmental Psychology, 42*(2), 218–236. https://doi.org/10.1037/0012-1649.42.2.218

Greenfield, P. M. (2009). Linking social change and developmental change: Shifting pathways of human development. *Developmental Psychology, 45*(2), 401–418. https://doi.org/10.1037/a0014726

Gudiño, O. G., Lau, A. S., Yeh, M., McCabe, K. M., & Hough, R. L. (2009). Understanding racial/ethnic disparities in youth mental health services: Do disparities vary by problem type? *Journal of Emotional and Behavioral Disorders, 17*(1), 3–16. https://doi.org/10.1177/1063426608317710

Hayes, A. F. (2015). An Index and Test of Linear Moderated Mediation. *Multivariate Behavioral Research, 50*(1), 1–22. https://doi.org/10.1080/00273171.2014.962683

Heflinger, C. A., Shaw, V., Higa-McMillan, C., Lunn, L., & Brannan, A. M. (2015). Patterns of child mental health service delivery in a public system: Rural children

and the role of rural residence. *The Journal of Behavioral Health Services & Research, 42*(3), 292–309. https://doi.org/10.1007/s11414-014-9453-4
Hernández, M. M., & Bámaca-Colbert, M. Y. (2016). A behavioral process model of familism. *Journal of Family Theory & Review, 8*(4), 463–483. https://doi.org/10.1111/jftr.2016.8.issue-410.1111/jftr.12166
Huq, N., Stein, G. L., & Gonzalez, L. M. (2016). Acculturation conflict among Latino youth: Discrimination, ethnic identity, and depressive symptoms. *Cultural Diversity and Ethnic Minority Psychology, 22*(3), 377–385. https://doi.org/10.1037/cdp0000070
Jaccard, J., & Wan, C. K. (1995). Measurement error in the analysis of interaction effects between continuous predictors using multiple regression: Multiple indicator and structural equation approaches. *Psychological Bulletin, 117*(2), 348–357. https://doi.org/10.1037/0033-2909.117.2.348
Kenny, D. A., & Judd, C. M. (1984). Estimating the nonlinear and interactive effects of latent variables. *Psychological Bulletin, 96*(1), 201–210. https://doi.org/10.1037/0033-2909.96.1.201
Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. U. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research, 21*(3), 169–184. https://doi.org/10.1002/mpr.1359
Lam, C. B., McHale, S. M., & Crouter, A. C. (2014). Time with peers from middle childhood to late adolescence: Developmental course and adjustment correlates. *Child Development, 85*(4), 1677–1693. https://doi.org/10.1111/cdev.2014.85.issue-410.1111/cdev.12235
Lawton, K. E., & Gerdes, A. C. (2014). Acculturation and Latino adolescent mental health: Integration of individual, environmental, and family influences. *Clinical Child and Family Psychology Review, 17*(4), 385–398. https://doi.org/10.1007/s10567-014-0168-0
Lehman, B. J., & Repetti, R. L. (2007). Bad days don't end when the school bell rings: The lingering effects of negative school events on children's mood, self-esteem, and perceptions of parent-child interaction. *Social Development, 16*(3), 596–618. https://doi.org/10.1111/sode.2007.16.issue-310.1111/j.1467-9507.2007.00398.x
Lorenzo-Blanco, E. I., Unger, J. B., Oshri, A., Baezconde-Garbanati, L., & Soto, D. (2016). Profiles of bullying victimization, discrimination, social support, and school safety: Links with Latino/a youth acculturation, gender, depressive symptoms, and cigarette use. *American Journal of Orthopsychiatry, 86*(1), 37–48. https://doi.org/10.1037/ort0000113
Lorenzo-Blanco, E. I., Unger, J. B., Baezconde-Garbanati, L., Ritt-Olson, A., & Soto, D. (2012). Acculturation, enculturation, and symptoms of depression in Hispanic youth: The roles of gender, Hispanic cultural values, and family functioning. *Journal of Youth and Adolescence, 41*(10), 1350–1365. https://doi.org/10.1007/s10964-012-9774-7
Marsiglia, F. F., Parsai, M., & Kulis, S. (2009). Effects of familism and family cohesion on problem behaviors among adolescents in Mexican immigrant families in the southwest United States. *Journal of Ethnic & Cultural Diversity in Social Work, 18*(3), 203–220. https://doi.org/10.1080/15313200903070965
Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods, 12*(1), 23–44. https://doi.org/10.1037/1082-989X.12.1.23
McLaughlin, K. A., Hilt, L. M., & Nolen-Hoeksema, S. (2007). Racial/ethnic differences in internalizing and externalizing symptoms in adolescents. *Journal of Abnormal Child Psychology, 35*(5), 801–816. https://doi.org/10.1007/s10802-007-9128-1
Melander, L. A., Sittner Hartshorn, K. J., & Whitbeck, L. B. (2013). Correlates of bullying behaviors among a sample of North American Indigenous adolescents. *Journal of Adolescence, 36*(4), 675–684. https://doi.org/10.1016/j.adolescence:2013.05.003
Merianos, A. L., Vidourek, R. A., & King, K. A. (2017). Effective prevention strategies for increasing health services utilization among Hispanic youth. *Community Mental Health Journal, 53*(1), 79–91. https://doi.org/10.1007/s10597-016-0022-6
Merikangas, K. R., He, J.-P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., … Swendsen, J. (2010). Lifetime prevalence of mental disorders in U.S. adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry, 49*(10), 980–989. https://doi.org/10.1016/j.jaac.2010.05.017
Niwa, E. Y., Way, N., & Hughes, D. L. (2014). Trajectories of ethnic-racial discrimination among ethnically diverse early adolescents: Associations with psychological and social adjustment. *Child Development, 85*(6), 2339–2354. https://doi.org/10.1111/cdev.12310
Padilla, J., McHale, S. M., Rovine, M. J., Updegraff, K. A., & Umaña-Taylor, A. J. (2016). Parent–youth differences in familism values from adolescence into young adulthood: Developmental course and links with parent–youth conflict. *Journal of youth and adolescence, 45*(12), 2417–2430. https://doi.org/10.1007/s10964-016-0518-y
Pascoe, E. A., & Smart Richman, L. (2009). Perceived discrimination and health: A meta analytic review. *Psychological Bulletin, 135*(4), 531–554. https://doi.org/10.1037/a0016059
Perrino, T., Pantin, H., Huang, S., Brincks, A., Brown, C. H., & Prado, G. (2016). Reducing the risk of internalizing symptoms among high-risk Hispanic youth through a family intervention: A randomized controlled trial. *Family Process, 55*(1), 91–106. https://doi.org/10.1111/famp.2016.55.issue-110.1111/famp.12132
Ramos, G., Blizzard, A. M., Barroso, N. E., & Bagner, D. M. (2018). Parent training and skill acquisition and utilization among Spanish-and English-speaking Latino families. *Journal of Child and Family Studies, 27*(1), 268–279. https://doi.org/10.1007/s10826-017-0881-7
Ramos, G., & Chavira, D. A. (2019). Use of Technology to Provide Mental Health Care for Racial and Ethnic Minorities: Evidence, Promise, and Challenges. *Cognitive and Behavioral Practice*. https://doi.org/10.1016/j.cbpra.2019.10.004
Ramos, G., Ponting, C., Bocanegra, E., Chodzen, G., Delgadillo, D., Rapp, A., … Chavira, D. (2021). Discrimination and internalizing symptoms in rural Latinx adolescents: The protective role of family resilience. *Journal of Clinical Child & Adolescent Psychology, 1–14*. https://doi.org/10.1080/15374416.2021.1923018
Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect, 34*(4), 244–252. https://doi.org/10.1016/j.chiabu.2009.07.009
Roche, C., & Kuperminc, G. P. (2012). Acculturative stress and school belonging among Latino youth. *Hispanic Journal of Behavioral Sciences, 34*(1), 61–76. https://doi.org/10.1177/0739986311430084
Rodríguez-Hidalgo, A. J., Calmaestra, J., Casas, J. A., & Ortega-Ruiz, R. (2019). Ethnic-cultural bullying versus personal bullying: Specificity and measurement of discriminatory aggression and victimization among adolescents. *Frontiers in Psychology, 10*, 46. https://doi.org/10.3389/fpsyg.2019.00046
Rosenthal, L. (2016). Incorporating intersectionality into psychology: An opportunity to promote social justice and equity. *American Psychologist, 71*(6), 474–485. https://doi.org/10.1037/a0040323
Rosseel, Y., Oberski, D., Byrnes […]& Chow, M. (2017). Package 'lavaan'. Retrieved June 17, 2017, from https://cran.r-project.org/web/packages/lavaan/lavaan.pdf.
Saint-Georges, Z., & Vaillancourt, T. (2020). The temporal sequence of depressive symptoms, peer victimization, and self-esteem across adolescence: Evidence for an integrated self-perception driven model. *Development and Psychopathology, 32*(3), 975–984. https://doi.org/10.1017/S0954579419000865
Seaton, E. K., Neblett, E. W., Cole, D. J., & Prinstein, M. J. (2013). Perceived discrimination and peer victimization among African American and Latino youth. *Journal of Youth and Adolescence, 42*(3), 342–350. https://doi.org/10.1007/s10964-012-9848-6
Sellbom, M., & Tellegen, A. (2019). Factor analysis in psychological assessment research: Common pitfalls and recommendations. *Psychological Assessment, 31*(12), 1428–1441. https://doi.org/10.1037/pas0000623
Serrano, E., & Anderson, J. (2003). Assessment of a refined short acculturation scale for Latino preteens in rural Colorado. *Hispanic Journal of Behavioral Sciences, 25*(2), 240–253. https://doi.org/10.1177/0739986303025002006
Smokowski, P., & Bacallao, M. L. (2007). Acculturation, internalizing mental health symptoms, and self-esteem: Cultural experiences of Latino adolescents in North Carolina. *Child Psychiatry and Human Development, 37*(3), 273–292. https://doi.org/10.1007/s10578 006-0035-4
Smokowski, P. R., Bacallao, M., & Buchanan, R. L. (2009). Interpersonal mediators linking acculturation stressors to subsequent internalizing symptoms and self-esteem in Latino adolescents. *Journal of Community Psychology, 37*(8), 1024–1045. https://doi.org/10.1002/jcop.v37:810.1002/jcop.20346
Smokowski, P. R., Guo, S., Rose, R., Evans, C. B. R., Cotter, K. L., & Bacallao, M. (2014). Multilevel risk factors and developmental assets for internalizing symptoms and self-esteem in disadvantaged adolescents: Modeling longitudinal trajectories from the Rural Adaptation Project. Development and Psychopathology, 26(4, Pt 2), 1495-1513. https://doi.org/10.1017/S0954579414001163.
Tabachnick, B. G., & Fidell, L. S. (2012). *Using multivariate statistics*. Boston, MA: Pearson.
Taylor, Z. E., & Ruiz, Y. (2017). Contextual stressors and the mental health outcomes of Latino children in rural migrant-farmworker families in the midwest. *Journal of Rural Mental Health, 41*(4), 284–298. https://doi.org/10.1037/rmh0000082
Tobler, A. L., Maldonado-Molina, M. M., Staras, S. A. S., O'Mara, R. J., Livingston, M. D., & Komro, K. A. (2013). Perceived racial/ethnic discrimination, problem behaviors, and mental health among minority urban youth. *Ethnicity & Health, 18*(4), 337–349. https://doi.org/10.1080/13557858.2012.730609
Census Bureau, U. S. (2017). *Quick Facts: Imperial Valley*. Retrived from: California. https://www.census.gov/quickfacts/fact/table/imperialcountycalifornia/PST045217.
Valdivieso-Mora, E., Peet, C. L., Garnier-Villarreal, M., Salazar-Villanea, M., & Johnson, D. K. (2016). A systematic review of the relationship between familism and mental health outcomes in Latino population. *Frontiers in Psychology, 7*(1632). https://doi.org/10.3389/fpsyg.2016.01632
Vargas, S. M., Huey, S. J., Jr, & Miranda, J. (2020). A critical review of current evidence on multiple types of discrimination and mental health. *American Journal of Orthopsychiatry, 90*(3), 374–390. https://doi.org/10.1037/ort0000441