

DEPRESSION AMONG LATINO ADOLESCENTS AND THE EFFECT OF SCHOOL  
COMPOSITION

A Thesis

by

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## ABSTRACT

The study examines whether depression among Latino adolescents is related to the percentage of Latinos in their high school. Based on the group density effects theory, the study's hypothesis is that as the relative size of the Latino student body decreases, depression increases for Latino students. The hypothesis is tested using Wave I of the National Longitudinal Data of Adolescent to Adult Health (1994-1995). Results of the analysis revealed that Latinos showing symptoms of depression tend to attend predominantly Latino schools (50 percent or more). Subsequent analyses found a high likelihood that this student population was from a lower socio-economic status and less fluent in English, meaning both factors were positively-associated with depression. Despite school proportion not being the direct cause of depression, group density effects' mechanisms were still able to predict which Latinos are depressed.

## CONTRIBUTORS AND FUNDING SOURCES

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## CHAPTER I

### INTRODUCTION

It is important to study depression in adolescence because it is often the onset of depression persisting into adulthood (Walsemann, Bell, and Goosby 2011). Therefore, for teenagers, early intervention is valuable in preventing the long-term negative effects of depression (Bayer and Beatson 2013). These effects are not only characterized by sadness, but more serious conditions, including suicidal thoughts and physical ailments (National Institute of Mental Health 2015). In their student sample, Weissman et al. found that seven percent of adolescents with major depressive disorder committed suicide within 10-15 years (1999). Analysis of the 2013 Youth Risk Behavior Survey found that nationwide the prevalence of having attempted suicide was highest among Latinos (11.3 percent), followed by blacks (8.8 percent) and whites (6.3 percent) (Kann et al. 2014). Furthermore, 5.4 percent of Latina and 2.8 percent of Latino high school students attempted suicide that resulted in necessary treatment from doctors or nurses (Kann et al. 2014).

Group density effects (Halpern 1993) studies relationships between minority status and mental health, stating that “the mental health of a groups’ members is fostered or protected by higher group concentration.” A group’s minority status can be determined by varying identities such as religion, occupation, and racial-ethnic identity. Group density effect matters most at the local level as opposed to a broader regional level, meaning it can be applied at the school-level.

Group density effects makes two key predictions. The first is that relatively-smaller groups typically have higher psychiatric admission than larger groups. The second is that minority groups that ‘cluster’ together will be able to protect themselves from the consequences of their national (or overarching) minority status. For example, a study found that in Texas City, Texas,

Latinos living in neighborhoods with a high Latino concentration were associated with a lower adult mortality, better self-rated health, fewer respiratory problems, and fewer depressive symptoms (Shell, Peek, and Eschbach 2013).

The concept of group density effects is further detailed through mechanisms that describe how group density can improve mental health. The four mechanisms Halpern conceptualizes are: the experience of prejudice; dislocation and change; cultural isolation or the absence of social support; and the localization of identity (Halpern 1993).

### *The Experience of Prejudice*

A way that prejudice against racial minorities is discussed in the literature is through the lenses of discrimination and perceived discrimination. With regard to Latinos, discrimination has been found to induce depressive symptoms in first-generation adolescents (Potochnick and Perreira 2010).

However, Umaña-Taylor and Updegraff (2007) found that Latino adolescents culturally-oriented towards Latino culture are less likely to perceive discrimination. This is because minorities who highly-identify with mainstream culture can be influenced by negative messages about their respective groups, and likewise culture-oriented activities can promote or expose individuals to a more positive image of themselves. As their research shows, perceived prejudice, or the lack thereof, can be positively- or negatively- related to depression as well as other mechanisms (i.e. cultural orientation).

### *Dislocation and Change*

While the majority of Latinos are native-born a substantial number are immigrants. Around the time of this study (the year 1990), 7.8 million Latinos were foreign-born and 14 million were native-born; presently the number of native-born Latinos remains roughly twice as large as

foreign-born (Flores 2015). Immigrants cope with stressors that are consequences of migration, including coping with new experiences and leaving the familiar context of their home cultures. One of the positive effects of a larger group of co-ethnics is the increased connection between one's home and the new culture.

In their study, Hovey and King (1996) found that 23 percent of adolescents in their sample of first- and second-generation Latinos experienced high levels of depressive symptoms and suicidal ideation, which were positively correlated with acculturative stress. Benner and Crosnoe (2011) found that students that attended schools with a larger number of co-ethnic peers were more likely to have stronger interpersonal skills and less external symptoms (i.e. aggression); this development of strong interpersonal skills could help Latino students adjust to new contexts. This evidence shows how the process of adjusting to different cultural contexts can negatively affect mental health and suggests that a larger group of co-ethnics can help Latinos learn coping skills.

#### *Cultural Isolation and the Absence of Social Support*

A lack of cultural and social support could affect mental health. Unlike the experience of prejudice, and dislocation and change, this mechanism does not emphasize stress, but rather the lack of the emotional and physical support of a group. Current research suggests that among groups, there is a preference for forming relationships with others of similar ethnic and linguistic backgrounds (Tummala-Narra and Sathasivam-Rueckert 2016).

Social support, whether it is through one's family or social life, is capable of protecting minority group members from depression (Hovey and King 1996; Plant and Sachs-Ericsson 2004; Potochnick and Perreira 2010). In the realm of family support, an author found that being under high parental supervision, closeness with parents, and high levels of perceived support

protected Latinos from depression (Harker 2001). However, school proportion of Latinos has a larger effect on the involvement of immigrant parents, and does not seem to influence school involvement of native Latino parents (Klugman, Lee, and Nelson 2012).

### *Localization of Identity*

This mechanism is based on the idea that minority group member's mental health may suffer when they reject their minority status, and instead choose to accept only the dominant culture. These can be minority members that believe that racism does not exist, who avoid interacting with others of their same race-ethnicity, and who have a weak ethnic identity (as cited in Halpern 1993). In a recent study, African Americans that strongly identified with their group and viewed it positively were more likely to have higher self-esteem and less depressive systems (Hughes et al. 2015). Although no such research has been done on Latinos, they may be similarly affected.

The focus of the study is whether Latino adolescent depression is related to a school's proportion of Latinos, and whether group density effects can explain which Latinos become depressed. The central hypothesis is that Latino students attending schools with a higher percentage of Latino peers will be, on average, less depressed than Latino students attending schools with a lower percentage of Latino peers. Group density effects argues that a relatively-larger number of Latino peers in the school context has a protective effect on Latino's mental health, particularly for immigrants unfamiliar to the U.S. context. A sub-hypothesis is posited: H1a: Latino students that were born outside the U.S. or speak Spanish at home will benefit the most from a higher percentage of school peers (in terms of a reduction in depressive symptoms). This is because leaving the home context to enter a new context can factor into poor mental health outcomes by introducing new stressors and experiences, and a body of co-ethnics in school are expected to help Latino adolescent immigrants adjust to U.S. culture. A secondary



hypothesis is that the mechanisms described in the theory of group density effects will diminish the effect of school proportion on depression for Latino adolescents. This is because Latino students that attend schools with a higher percentage of Latino peers may experience less prejudice, a reduced effect from dislocation and change, less cultural isolation, greater social support, and localize their identity more positively.

The hypotheses are tested using the Restricted In-Home data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) and a representative sample of U.S. Latino adolescents in grades 7-12. Ordinary least squares (OLS) regression analyses is conducted for the general Latino population, as well as sensitive analysis for Latino subgroups in order to identify differences in acculturative statuses (born in the U.S.; born outside the U.S.; speak Spanish at home; and speak another language at home).

This study is significant because it can help us understand whether a certain threshold of co-ethnic peers in a school affect Latino student's wellbeing. Existing research finds that high schools with a predominantly-white population have an negative effect on the mental health of non-Hispanic black students (Walsemann, Bell, and Maitra 2011), but it is not known if high schools with a predominantly Latino population have a positive effect on the mental health of Latino students. If a higher Latino school proportion is associated with better health outcomes for Latino students and the underlying mechanisms are understood, it may be possible to apply this knowledge to aid health promotion efforts in schools where Latinos are not the majority-student population.

## CHAPTER II

### METHODS

Using the Restricted-Use In-Home data from the National Longitudinal Study of Adolescent to Adult Health (Add Health), the sample are U.S. Latino adolescents in grades 7-12 from Wave I (1994-1995). The Restricted In-Home version of this data has a larger sample of students (N = 2,224) compared to the public data (N = 743). The In-School data has a larger Latino sample size (N = 15,542) compared to In-Home data, but a smaller variety of questions related to the research topic. Benefits of having relevant questions for this study outweighs size differences.

#### *Measurement*

The dependent variable, depression in Latino adolescents, was created by averaging the scores from 19 questions in the In-Home data that create the Center for Epidemiological Studies Depression scale (CES-D). This self-reported scale measures depression based on symptomology. It has been found to have high internal consistency and test-retest repeatability (Radloff L.S. 1977).

The questions begin "How often was each of the following things true during the last week?" followed by 19 statements (see appendix for complete list). The responses measure the frequency of depression (never or rarely = 0, sometimes = 1, a lot of the time = 2, most of the time or all of the time = 3). A single-item score based on the frequency range (0-57) is created by adding up the scores from all 19 questions. The *row mean* command in STATA was used and multiplied by 19 to avoid losing cases with missing values. Respondents that did not answer any of the single-items for depression frequency were not included in the analyses.

### *Independent Variable*

Proportion Latino is a school-level variable created using the In-School Questionnaire. Based on the number of students present the day the questionnaire was distributed, school proportion was calculated for each school and matched to the corresponding students, using school ID. Similarly, school-level variables are created for proportion black, Asian, American Indian, and Other.

### *Control Variables*

Low income is known to cause stress and depression (Plant and Sachs-Ericsson 2004), therefore, socio-economic status at the individual and school-level are controlled by using parent educational outcomes. The variable is derived from the Parental Questionnaire, which was filled out by either parent. If data was missing from the Parental Questionnaire, it was substituted with the child's determination of their parent's education (from either the Restricted In-Home Questionnaire or the Restricted In-School Questionnaire).

Five dummy variables were created using the question that measured the parent's highest educational attainment to control for socio-economic status at the individual level, with high school graduate as the reference category. The other categories are: less than a high school education, some college education, college graduate, and education beyond college. Parents with a GED were counted as high school graduates, and attending a business, trade, or vocational school after high school was counted as some college education.

Similarly, parent's education was used to measure socio-economic status at the school-level using the In-School Questionnaire. Two dichotomous variables were created, one measured if either parent had an educational level equal to or above a college degree, the other measured if

neither did. A ratio was created measuring the proportion of parents with at least a college degree in each school. Then, it was merged onto the main In-Home dataset using the participant ID.

Gender and Latino subgroup were also controlled. The subgroups are Chicano/a, Cuban, Puerto Rican, Central/South American, and Other Hispanic. The reference category for Latino subgroups is Mexican.

### *Intervening Variables*

The project focuses on three sets of intervening variables measuring group density effects mechanisms. The mechanisms are: experience of prejudice, dislocation and change, and social support. Localization of identity will not be considered since it is difficult to study with the current dataset. Future research should find ways to measure this variable.

### *Experience of Prejudice*

Students were asked how strongly they agreed with the statement, “The students at this school are prejudiced.” Possible responses were, “strongly agree,” “agree,” “neither agree nor disagree,” “disagree” and “strongly disagree.” The values of the variable were reverse-coded so that the highest values represent more prejudice.

### *Dislocation and Change*

Some Latinos are immigrants and must adjust to new surroundings after migrating (Halpern 1993). Consequences of migration include new experiences, environments, and other stressors. A body of co-ethnics in school may help Latino adolescent immigrants adjust to U.S. culture. Immigration status is measured using language spoken at home, whether the student was born in the U.S., and number of years in the U.S. If students moved to the U.S. in 1994, they were coded as having been in the United States zero years. Every year before 1994 was coded as an additional year stay in the U.S. Students who were born in the United States were recoded to the

value 17, which represents a stay of “17-19” years in the United States. The reference category for the two dummy variables measuring language (English and Spanish) spoken at home is English.

### *Social Support*

This mechanism captures the social support students feel in the school community. Students were asked how much they agreed with the statements, “You feel close to people at your school,” and “You feel socially accepted.” The possible responses were, “strongly agree,” “agree,” “neither agree nor disagree,” “disagree” and “strongly disagree.” The variables are coded so that higher represent more support. Table 1 provides more description of the variables.

### *Analytic Plan*

The National Longitudinal Study of Adolescent to Adult Health is a probability-based survey. But it is not a simple random sample since each student does not have an equal probability of being selected. Other characteristics of the survey are that it employs multi-stage sampling, certain subgroups are oversampled, and the samples are stratified. Because of these unique characteristics, sample weights need to be used to ensure representative results. Sample weights are used to correct for the different probabilities of selecting the sample’s elements and can account for both different response rates within classes, and underrepresented groups in the sample.

Using the variables described above, depression outcomes are examined through OLS regression. The first hypothesis is tested by looking at Latino school proportion's effect on the depressive outcomes of students, individually and after controlling for the school proportion of other racial-ethnic groups. In this analysis (Table 2) the reference category is “non-Hispanic”

before including the other racial-ethnic groups (model 1) and becomes “non-Hispanic white” after including the other racial-ethnic groups (models 2-4).

The second component of hypothesis one is tested through two ways. The first is by incorporating the dislocation and change variables (i.e. language spoken at home; whether the student was born in the U.S.; and number of years in the U.S.). The second is through sensitivity tests (Tables 3-6). The sensitivity tests use a specific Latino subpopulation as an analytical sample, and each sample differs based on acculturative status (i.e. born in the U.S.; born outside the U.S.; speak Spanish at home; and speak another language at home)

In model 3 of Table 2, the intervening variables are included in order to run multivariate regression analyses. The variables include the educational level of the parents (at the individual and school-level), gender, Latino subgroup identity, whether the student was born inside the U.S., language spoken at home, and years living in the U.S.

The moderating effect of the intervening variables (individually and combined) are examined on depression for Latinos. Hypothesis two, which is concerned with the impact that socio-economic status has on depression, is tested by including the educational status of the parents.

To investigate whether there were differences within Latino subgroups, the STATA command “*sub-pop*” is used to run four models similar to the one displayed in Table 2, but for different acculturative statuses. The subgroups consisted of respondents who: were born in the U.S.; were born outside the U.S.; speak Spanish at home; and speak another language at home (English or Other). The number of observations for the subgroups are 1,376 for U.S.-born Latinos, 534 for Latino immigrants, 1,014 for Latinos who speak Spanish at home, and 1,210 for Latinos who do not speak Spanish at home. To measure the effect of the subgroups, separate analyses with interaction terms were run that are not shown.

## CHAPTER III

### RESULTS

Table 1 shows the averages of all the variables for the Latino subgroup. There are 2,224 Latinos, out of the total student sample of 14,210. The average percentage of Latinos in schools is 40.2 percent. On a scale of 0-57, Latinos scored 12.2 for depression, on average. Roberts et al. (1991) consider 24 an adequate measure for predicting major depression on the Add Health CES-D scale; using this measure roughly 9.1 percent of Latino adolescents have major depression.

The control variables for Latinos are parent's education, gender of student, Latino subgroup identity, born in U.S., whether Spanish or another language was spoken in the U.S., and years living in the U.S. There is an equal number of male and female adolescents. In the sample, only 42 percent of Latinos had a parent with a bachelor's degree. Mexicans constituted the largest subgroup followed by Puerto Ricans, Central/South Americans, Chicanos, other Hispanics, and Cubans. The majority of the Latinos (77 percent) were born in the United States. Latinos who came to the U.S. from 1978-1994 (at ages 0-16) have lived in the United States for 8.1 years on average.

Table 2 shows how the OLS coefficients predicting depression are related to the independent variables. As show in model 1 of Table 2, proportion Latino was significant and positively correlated with depression symptoms (3.00). The magnitude of the coefficients explains that if the school proportion was entirely Latino, Latino students would be three units more depressed compared to students in schools without Latinos.

In model 2 of the same table, the school proportion effect of Latinos remains significantly associated to higher depression after controlling for the proportion of all other racial-ethnic groups. After including these additional variables, the reference group changed to whites. The

results show that in schools with a school proportion completely Latino, Latinos average 3.01 units higher on the depression scale, compared to students that attend school proportion white. The effect the proportion of Asian and American Indian students have on depression is positive and significant, but these groups do not make-up a large proportion of U.S. schools that Latinos attend.

After taking into account the control variables in model 3, the effect of proportion Latino on depression is no longer significant. This loss of significance is not explained by any single variable. Considering this, it can be assumed that depression is explained by all the variables as a whole. Something that deserves mention is that when socio-economic status and language usage at home were included together, they eliminated the significance of proportion Latino, showing that they play a large role in explaining depression. In addition, the control variables show that female adolescents are likely to have 2.3 more units of depression compared to males. If their parents had some college education, students have slightly less depression (-1.35) compared to parents with a high school education.

Model 4 shows that while the intervening variables do not eliminate the effect of proportion Latino on depression, they do have a significant effect on depression. For every unit increase in belief that their school was prejudiced, Latinos had an additional unit of depression. In contrast, each unit increase in social acceptance resulted in roughly a three unit decrease in depression. Feeling close to people at school was almost significant and decreased depression by 0.6 units per one-unit increase in the Likert-scale. Similar to model 3, parents with a lack of formal education (less than a high school education) were significantly more likely to have depression compared to those with at least high school degree, on a one-tailed test (0.081).



### *Subgroup Analysis*

Tables 3-6 show the regression results for U.S.-born Latinos, Latino immigrants, Latinos who speak Spanish at home, and Latinos who do not speak Spanish at home, respectively. The mechanism of dislocation and change predicts that the coefficient for schools' proportion Latino will be more negative in the models predicting depressive symptoms for immigrants and Spanish speakers' than their counterparts.

For the U.S.-born immigrants Latinos, the experience of prejudice has a positive effect on depression, as seen by the coefficients (1.66 and 1.37, respectively) in model 4 of Table 3 and Table 4. Social acceptance has a negative effect for both groups (-2.67 and -3.21, respectively) as seen in the same models. School support is significantly associated with depression for U.S.-born Latinos only (-0.54) as shown in model 4 of Table 3, but it is not significant for Latino immigrants, as shown in the same model in Table 4.

Compared to Table 3 and Table 4, Table 5 and Table 6 show similar depression outcomes for Latinos regardless of language spoken at home. As shown in model 4 of Table 5 and Table 6, prejudice is significantly associated with depression for both Latinos that speak Spanish at home (1.64) and Latinos that do not speak Spanish at home (1.03). Similarly, in model 4 of Table 5 and Table 6, social acceptance is negatively associated with depression for Latinos that speak Spanish at home and those that do not speak Spanish at home (-2.98 and -2.86, respectively). School support is not significant in model 4 of Table 5 or Table 6 for either subgroup.

## CHAPTER IV

### DISCUSSION

The focus of the study was whether Latino adolescent depression is related to a school's proportion of Latinos, and whether group density effects can explain which Latinos become depressed. The central hypothesis was that Latino students attending schools with a higher percentage of Latino peers will be, on average, less depressed than Latino students attending schools with a lower percentage of Latino peers.

Since Latino adolescent depression is positively associated with a higher school proportion of Latino students, hypothesis one was not supported. A higher Latino school proportion was hypothesized to be associated with lower depression for Latino students, not higher. However, these results do not indicate that schools with more Latinos cause depression. Instead, the major finding of the analysis is that adolescent Latinos' socio-economic status has a strong influence on their depressive symptoms and that Latinos from a low socio-economic status tend to attend schools with a higher Latino school proportion. This study suggests that the Latinos attending predominantly Latino schools tend to be from a lower socio-economic status, less fluent in English, and thus more susceptible to depression than Latinos in predominantly white schools.

This study emphasizes the importance of economic resources and language usage. Students that had less depression were better off economically and did not speak Spanish. Previous research finds that there is a relationship between family poverty (at the school and individual level) and mental health (Coley et al. 2017; Crosnoe 2009; Demanet and Van Houtte 2014; Flouri and Midouhas 2016; Gieling, Vollebergh, and Van Dorsselaer 2010). Also, students that speak Spanish at home may belong to a family that recently immigrated to the United States and is having trouble adjusting to the new environment, leading to higher depressive symptoms.

These data make the point that intervention at the level of families would increase student wellbeing.

The reasons that Latinos with a low socio-economic status are predisposed to attending proportionally Latino schools is not addressed in this study. However, a possibility is that proportionally Latino schools are in proximity to low socio-economic status Latinos' households. My central hypothesis did not consider the role of socio-economic status, and instead focused on the possible effect a higher school proportion of Latinos had on Latino students. School proportion of Latinos did not have a direct effect on Latino adolescent depression, since depression was affected prior to students attending their respective schools. Depression was largely a result of socio-economic status and language use at home, which are primarily influenced by the family unit. Latino adolescents attending proportionally Latino schools are often from a low socio-economic status, speak Spanish at home, and have depressive symptoms.

Since the first hypothesis was not supported it follows that the second is not supported. While there were differences in depression for Latino adolescents in proportionally Latino schools, this was explained by the control variables and not group density effects. After analyzing the results, it is difficult to know why group density effects did not explain adolescent depression as predicted. Perhaps the proportion of Latinos in other environments overshadows the effect that the school has on Latino's mental health. The study operated on the idea that students interact most in their school environment, but group density effects can also take place in the neighborhood and other public spaces. However, it is still interesting to see how Halpern's mechanisms help explain depression.

The mechanisms Halpern outlined affect mental health in the expected directions, playing a role in depression differences among Latino students. Partial support for the theory of group

density effects is found. It is not fully supported because school proportion of Latinos is not associated with depression for Latinos, as seen by the coefficients for this variable in model 3 of Tables 3-6. Had school proportion been significant in model 3 for these tables, the expectation is that both immigrant Latinos and Latinos that speak Spanish at home would have lower depressive symptoms as the school proportion of Latinos increased. On the other hand, the theory receives some support because in model 4 for Tables 3-6, prejudice and social support predict depressive symptoms for Latino adolescents in the proposed directions; experiences of prejudice increase depression while social support decreases depression.

Independently group density effects' mechanisms had an effect on Latino's mental health. Students who felt that their school was prejudiced were more depressed, as were students who felt that they did not have much social support. Considering these issues are within a school's ability to alleviate as there are efforts that can be directed towards creating a more inclusive school environment for students.

Dislocation and change yielded findings in only one of the two measures (i.e. OLS models and sensitivity tests). Language usage at home (along with socio-economic status) was important in showing that Spanish-speaking Latinos are usually among the most depressed. The measures evaluating whether Latino school proportion affects Latino subgroups differently did not find any differences. A school's proportion of Latinos did not influence the depressive state of the general Latino sample, or of Latinos based on their subgroup's characteristics (nationality and language spoken at home).

Other research suggest that group density effects may be more useful for studying particular racial-ethnic groups, such as non-Hispanic blacks, but may be less useful for studying adolescent Latinos. Walsemann et al. (2011) focus on the effect that predominantly non-Hispanic white

schools and minority schools have on the depressive and somatic symptoms of racial-ethnic groups. They find that only non-Hispanic blacks are affected negatively when attending predominantly non-Hispanic white school. Latino adolescents were unaffected. They look into the effects of discrimination and school attachment and find that these variables mediate the relationship between black adolescent's mental health and a school's proportion of non-Hispanic white students.

A limitation of the study is that Latino students may have dropped out of school, and as a result the study overlooks this population. Latino students that drop out of school may have the highest depression of all students, and their exclusion may have altered the results. Another limitation is the size of the Latino subgroups used in the analysis, particularly Latino immigrants which total 534 observations. Lack of observations may have concealed significance for variables that otherwise may have proven significant. Future studies intending to focus solely on a subgroup of Latinos, whether they be divided by race (Chicano/a, Cuban, Puerto Rican, etc.) or nationality (U.S.-born, immigrant, language spoken at home, etc.) would benefit from a larger sample size.

Finally, while there are studies similar to this one (Georgiades, Boyle, and Fife 2013; Walsemann, Bell, and Maitra 2011), they differ in their analytic sample and their study approach. Georgiades et al. (2013) use the Gini index to assign all students a "congruence score" based on the proportion of peers in their school with the same race-ethnicity and immigrant status. The study does not evaluate the effect that co-ethnic peers have on emotional wellbeing independent of immigrant status. In other words, congruence scores are assigned based on whether a student's school peers have both the same race and immigrant status. In addition, Georgiades et al. use generational status as their only means to measure Halpern's mechanism of dislocation and

change and overlook the potential effects of perceptions of prejudice.

## CHAPTER V

### CONCLUSION

This study further contributes to the mental health literature on Latinos, particularly with regard to a student's school environment. As a result of societal processes, Latinos of certain characteristics tend to attend predominantly Latino schools. These students tend to be of a lower socio-economic status, are likely to speak Spanish at home, and have depressive symptoms. While changes at the school level are important for protecting Latino student's health, so are individual factors. More should be done to reduce student financial inequalities so that students are able to attend school without concerning themselves with economic problems.

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APPENDIX

Table 1. Description, Source, Level, Mean, and Linearized Std. Error for the Independent Variables

Variables	Description	Source <sup>a</sup>	Level <sup>b</sup>	Mean	Std
Depression	CES-D scale, where greater values indicate more depression (0-57)	In-Home	Stu	12.18	0.36
School Proportion by Race-Ethnicity					
Latino	Reference group is non-Hispanics in model 1 and non-Hispanic whites in model 2-4	In-School	Sch	0.40	0.05
black	Reference group is non-Latino whites	In-School	Sch	0.13	0.02
Asian	Reference group is non-Latino whites	In-School	Sch	0.07	0.07
American Indian	Reference group is non-Latino whites	In-School	Sch	0.01	0.01
Other	Reference group is non-Latino whites	In-School	Sch	0.02	0.02
Parent's Education					
Less than High School	1 = yes (reference category is high school degree)	All	Stu	0.43	0.03
Some College	1 = yes (reference category is high school degree)	All	Stu	0.34	0.02
Graduated College	1 = yes (reference category is high school degree)	All	Stu	0.11	0.01
Postgraduate Degree	1 = yes (reference category is high school degree)	All	Stu	0.04	0.01
College Educated Parents	Proportion of parents with college degrees per school 1 = college degree or greater, otherwise 0	In-School	Sch	0.42	0.02
Gender	1 = Female, 0 = Male			0.49	0.02
Latino Subgroup					
Chicano/a	1 = yes (reference category is Mexican)	In-Home	Stu	0.03	0.01
Cuban	1 = yes (reference category is Mexican)	In-Home	Stu	0.02	0.02
Puerto Rican	1 = yes (reference category is Mexican)	In-Home	Stu	0.05	0.02
Central/South American	1 = yes (reference category is Mexican)	In-Home	Stu	0.03	0.01
Other Hispanic	1 = yes (reference category is Mexican)	In-Home	Stu	0.02	0.01
Prejudice	Students at this school are prejudiced 1 = "Strongly Disagree" to 5 = "Strongly Agree"	In-Home	Stu	2.98	0.07
Home Language is Spanish	1 = yes (reference category is English)	In-Home	Stu	0.41	0.04

Home Language is Other	1 = yes (reference category is English)	In-Home	Stu	0.02	0.004
Born in U.S.	1 = yes	In-Home	Stu	0.78	0.03
Years in U.S.	Number of years in the U.S. (0-16)	In-Home	Stu	8.10	
Closeness	“I feel close to people at this school” 1 = “Strongly Disagree” to 5 = “Strongly Agree”	In-Home	Stu	3.78	0.04
Socially accepted	“I feel socially accepted” 1 = “Strongly Disagree” to 5 = “Strongly Agree”	In-Home	Stu	4.08	0.03

<sup>a</sup> Source refers to the source from which the variable was gathered (In-Home, In-School, and Parental Questionnaire). “All” means the three sources were used to create the variable.

<sup>b</sup> Refers to the level at which the variable was measured with Stu = Student and Sch = School

Table 2. OLS coefficients as estimated for depression symptoms

	Model 1	Model 2	Model 3	Model 4
Proportion by race				
white	1.00	1.00	1.00	1.00
Hispanic	3.00*	3.07**	0.63	1.72
black		-2.33	-2.80	-0.94
Asian		10.14**	9.28***	6.20*
American Indian		21.11***	21.12***	13.81***
Other		11.00	-0.25	18.07
Control Variables				
Proportion Bachelor Degree			-0.17	0.12
Less than HS education			1.03	1.29
Some college education			-1.35	-0.97
Graduated college			-0.40	-0.07
Postsecondary education			0.14	0.06
Gender			2.42***	1.72**
Chicano			4.86**	4.83***
Cuban			-0.43	-0.29
Puerto Rican			4.36***	4.12***
Central or South American			0.51	-0.44
Other Hispanic			1.50	0.57
Born in U.S.			-0.78	-1.11
Speaks Spanish at home			0.82	0.46
Speaks other lang. at home			1.13	0.85
Years in the U.S.			0.07	0.13
Intervening Variables				
Prejudice				1.30***
School Support				-0.60**
Social Acceptance				-2.90***
Constant	10.98**	10.12***	9.10***	18.19***
Pseudo R-Square	0.01	0.04	0.11	0.25
N (sub-population Hispanic)	2,224	2,224	2,224	2,224
N (population total)	14,210	14,210	14,210	14,210

Note: \* p<.05, \*\* p <.01, \*\*\* p<.001

Table 3. OLS coefficients as estimated for depression symptoms of US-born Latinos

	Model 1	Model 2	Model 3	Model 4
Proportion by race				
white	1.00	1.00	1.00	1.00
Hispanic	2.77	2.35	-0.02	1.94
black		-0.67	-1.44	1.86
Asian		9.38***	7.71**	2.86
American Indian		21.32***	23.78***	12.64**
Other		19.56	3.90	28.25
Control Variables				
Proportion Bachelor Degree			2.66	2.74
Less than HS education			0.98	1.24
Some college education			-1.36	-1.14
Graduated college			-0.16	0.02
Postsecondary education			0.48	1.05
Female			2.08**	1.62*
Chicano			7.21***	6.61***
Cuban			3.13*	1.59
Puerto Rican			4.68***	4.63***
Central or South American			-0.64	-1.20
Other Hispanic			-0.54	-1.22
Born in U.S.			(omitted)	(omitted)
Speaks Spanish at home			0.91	0.62
Speaks other lang. at home			0.94	0.52
Years in the U.S.			(omitted)	(omitted)
Intervening Variables				
Prejudice				1.66***
School Support				-0.54*
Social Acceptance				-2.67***
Constant	10.95***	9.93***	8.33***	15.49***
Pseudo R-Square	0.01	0.03	0.12	0.27
N (sub-population Hispanic)	1,376	1,376	1,376	1,376
N (population total)	13,965	13,965	13,965	13,965

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001, two-tailed test

Table 4. OLS coefficients as estimated for depression symptoms of Latino immigrants

	Model 1	Model 2	Model 3	Model 4
Proportion by race				
white	1.00	1.00	1.00	1.00
Hispanic	3.36*	5.19**	4.12	3.07
black		-3.55	-2.28	-0.94
Asian		22.36**	22.56***	20.15***
American Indian		25.59***	23.72**	14.38*
Other		-36.32	-54.37	-59.60*
Control Variables				
Proportion Bachelor Degree			-3.44	-5.73
Less than HS education			2.23	2.21
Some college education			0.70	0.48
Graduated college			-1.46	1.00
Postsecondary education			-0.86	-3.43*
Female			3.22***	1.45
Chicano			-1.23	0.88
Cuban			-2.65***	-1.63
Puerto Rican			3.94	3.30
Central or South American			1.61	0.37
Other Hispanic			3.15	1.92
Born in U.S.			(omitted)	(omitted)
Speaks Spanish at home			0.18	-0.07
Speaks other lang. at home			1.08	1.23
Years in the U.S.			0.04	0.13
Intervening Variables				
Prejudice				1.37**
School Support				-0.02
Social Acceptance				-3.20***
Constant	11.04***	9.35***	7.76*	18.62***
Pseudo R-Square	0.02	0.08	0.18	0.30
N (sub-population Hispanic)	534	534	534	534
N (population total)	13,990	13,990	13,990	13,990

Note: \* p<.05, \*\* p<.01, \*\*\* p<.001, two-tailed test



Table 5. OLS coefficients as estimated for depression symptoms of Latinos who speak Spanish at home

	Model 1	Model 2	Model 3	Model 4
Proportion by race				
white	1.00	1.00	1.00	1.00
Hispanic	0.40	3.47	3.39	4.82
black		-1.31	-2.13	-2.81
Asian		18.72***	18.18***	13.44**
American Indian		28.66***	25.87**	15.56
Other		39.23	21.05	43.58
Control Variables				
Proportion Bachelor Degree			-0.34	0.21
Less than HS education			2.23	2.03
Some college education			-1.73	-1.63
Graduated college			0.94	2.63**
Postsecondary education			0.32	-1.29
Female			2.51*	1.15
Chicano			8.36***	7.46***
Cuban			-0.83	-1.17
Puerto Rican			5.40**	2.93
Central or South American			0.70	-0.38
Other Hispanic			3.12	0.84
Born in U.S.			-0.10	-1.29
Speaks Spanish at home			(omitted)	(omitted)
Speaks other lang. at home			(omitted)	(omitted)
Years in the U.S.			-0.02	0.15
Intervening Variables				
Prejudice				1.64***
School Support				-0.54
Social Acceptance				-2.97***
Constant	13.13***	9.49***	7.15	15.04*
Pseudo R-Square	0.00	0.05	0.15	0.28
N (sub-population Hispanic)	1,014	1,014	1,014	1,014
N (population total)	14,312	14,312	14,312	14,312

Note: \* p<.05, \*\* p <.01, \*\*\* p<.001, two-tailed test

Table 6. OLS coefficients as estimated for depression symptoms of Latinos who do not speak Spanish at home

	Model 1	Model 2	Model 3	Model 4
Proportion by race				
white	1.00	1.00	1.00	1.00
Hispanic	3.07*	2.24	0.58	0.88
black		-2.49	-3.24	-0.88
Asian		2.79	3.82	2.48
American Indian		19.09***	19.91***	14.04***
Other		6.03	-10.50	8.01
Control Variables				
Proportion Bachelor Degree			0.58	0.37
Less than HS education			0.19	0.77
Some college education			-1.40	-0.79
Graduated college			-0.48	-0.73
Postsecondary education			-0.08	0.40
Female			2.37***	1.98***
Chicano			-0.84	0.07
Cuban			2.21	1.98
Puerto Rican			3.96***	4.65***
Central or South American			0.29	-1.34
Other Hispanic			0.04	-0.15
Born in U.S.			-2.95	-1.99
Speaks Spanish at home			(omitted)	(omitted)
Speaks other lang. at home			1.05	0.71
Years in the U.S.			0.32	0.23
Intervening Variables				
Prejudice				1.03***
School Support				-0.63
Social Acceptance				-2.86***
Constant	10.42***	10.43***	7.78**	18.78***
Pseudo R-Square	0.01	0.03	0.09	0.23
N (sub-population Hispanic)	1,210	1,210	1,210	1,210
N (population total)	14,293	14,293	14,293	14,293

Note: \* p<.05, \*\* p <.01, \*\*\* p<.001, two-tailed test

*Feelings Scale (19 items)*

How often was each of the following things true during the last week?

Answers range from 0 (never or rarely) to 3 (most or all of the time).

1. You were bothered by things that usually don't bother you.
2. You didn't feel like eating, your appetite was poor.
3. You felt that you could not shake off the blues, even with help from your family and your friends.
4. You felt that you were just as good as other people. (reverse-coded)
5. You had trouble keeping your mind on what you were doing.
6. You felt depressed.
7. You felt that you were too tired to do things.
8. You felt hopeful about the future. (reverse-coded)
9. You thought your life had been a failure.
10. You felt fearful.
11. You were happy. (reverse-coded)
12. You talked less than usual.
13. You felt lonely.
14. People were unfriendly to you.
15. You enjoyed life. (reverse-coded)
16. You felt sad.
17. You felt that people disliked you.
18. It was hard to get started doing things.
19. You felt life was not worth living.