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## Bullying among Urban Mexican-heritage Youth: Exploring Risk for Substance Use by Status as a Bully, Victim, and Bully-Victim

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### Abstract

Little is known about adolescent bullying behavior and its relationship to substance use in ethnic minority populations. In a sample of youth of Mexican heritage, the current study aimed to examine the prevalence of bullying behavior subtypes and its co-occurrence with recent alcohol, cigarette, and inhalant use. Data come from a school-based substance use prevention study in the Southwestern U.S. (n=809). We explored the prevalence of bullying behavior by status among youth classified as bullies, victims, bully-victims, and rarely-involved bully-victims in an urban context. We also investigated risk of past 30-day use of alcohol, cigarettes, and inhalants by bullying behavior status. Compared to non-involved youth, rarely-involved bully-victims were more likely to use alcohol, bullies were more likely to engage in alcohol and cigarette use, and bully-victims were more likely to use alcohol, cigarettes, and inhalants. In contrast, victims were not significantly at risk of substance use compared to non-involved youth. Chronic bullies and bully-victims are particularly at risk for substance use, with chronic bully-victims reflecting the greatest risk of using multiple substances. Prevention and early intervention programs aimed to reduce bullying can also work to decrease other risky behaviors, such as substance use, and should attend to the growing ethnic diversity among youth.

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## Keywords

bullying; substance use; Mexican-heritage; youth

Bullying is a widespread form of violence that adversely affects health and well-being of youth and individuals of all ages. In the U.S., nationally representative data indicate approximately 30% of students in grades 6 through 12 report engaging in bullying or being bullied by others (Nansel, Overpeck, Pilla, Simons-Morton, & Scheidt, 2001). Bullying and peer victimization appear to be associated with poorer social and emotional functioning (Juvonen & Graham, 2014) as well as greater involvement in risky behaviors, including substance use (Bradshaw, Waasdrop, Goldweber, & Johnson, 2013; Radliff, Wheaton, Robinson, & Morris, 2012; Tharp-Taylor, Haviland, & D'Amico, 2009).

Although existing research supports a link between bullying and substance use, few studies have explored involvement in bullying as it relates to substance use among ethnic minority youth. Latinos are the largest ethnic minority group in the U.S. and across several states Latinos make up a large proportion of students enrolled in K-12 education, including New Mexico (58%), California, (51%), and Texas (48%) (Pew Research Center, 2011), and in Arizona there are more Latino children (43%) than White children (42%) (U.S. Census Bureau, 2011). In addition, initiation of substance use during early adolescence is a concern for Latinos, with data showing that nationally Latino youth have the highest use rates of alcohol and other illicit drugs by 8<sup>th</sup> grade compared to White and African American youth (Johnston, O'Malley, Bachman, & Schulenberg, 2013).

In the current study, we aim to address knowledge gaps regarding bullying and substance use among youth of Mexican heritage, who constitute the largest and one of the fastest growing Latino groups in the U.S. (Pew Research Center, 2011). Specifically, we build upon extant research investigating patterns of bullying involvement by status as a bully, victim, or both bully and victim (bully-victim) (Bradshaw et al., 2013; Radliff et al., 2012; Wang et al., 2009). Additionally, we explore bullying status in relation to multiple substances, namely, alcohol, cigarette, and inhalant use (Radliff et al., 2012; Tharp-Taylor et al., 2009). The overall hypothesis guiding the study is that there is a positive association between substance use and bullying for both perpetrators and victims, such that the risk of involvement across substances would be greatest for youth who are both bullies and victims (bully-victims). This hypothesis is based on the ecodevelopmental theory's understanding that youth's individual behavior is influenced by the different social and cultural contexts in which they live and the interactions with others in those contexts (Szapocznik & Coatsworth, 1999).

## Background

### Youth involvement in bullying

Bullying is generally defined as behavior intended to harm, intimidate, or alienate another person (Olweus & Limber, 2010). Within schools, bullying behaviors can take on direct forms that are verbal (e.g., teasing, name-calling, or taunting) or physical (e.g. hitting, kicking, or tripping) and indirect forms that are relational and social in nature (e.g. spreading

rumors, social exclusion, or public embarrassment) (Wang, Iannotti, & Nansel, 2009). Bullying is generally viewed as aggressive behavior that occurs repeatedly and over time (Olweus & Limber, 2010). Central to the conceptualization of bullying is an imbalance of power wherein the target of bullying has difficulty defending him-/herself against the aggressor (Juvonen & Graham, 2014).

Youth involved in bullying are typically categorized as bullies, victims, and bully-victims (Haynie et al., 2001; Leiner, Dwivedi, Villanos, Singh, Blunk, & Peinado, 2014; Smokowski & Kopasz, 2005). Bullies are characterized by aggressive behavior and are more likely to exhibit externalizing problems (Juvonen & Graham, 2014), while victims are more likely to be withdrawn, lack confidence in social settings, and manifest internalizing problems (Haynie et al., 2001; Nansel et al., 2001; Romero, Wiggs, Valencia, & Bauman, 2013). Bully-victims – youth who are both perpetrators and victims of bullying – are often at greatest risk of conduct, academic, and peer relationship problems compared to youth considered victims or bullies alone (Juvonen & Graham, 2014; Juvonen, Graham, & Schuster, 2003; Smokowski & Kopasz, 2005). In contrast to bullies, bully-victims suffer from lower self-esteem, greater anxiety, and more psychosomatic symptoms (Kaltiala-Heino, Rimpela, Rantanen, & Rimpela, 2000). Some research suggests bully-victims constitute a small proportion of overall youth (Smokowski & Kopasz, 2005), although other research drawing on diverse samples of youth in urban contexts suggests youth involvement in both bullying perpetration and victimization may be more pervasive (Bradshaw et al., 2013; Leiner et al., 2014).

### **Bullying status and substance use risk**

A number of studies provide evidence for a link between bullying status and substance use, as substance use and problem behaviors have similar risk factors and often overlap (Nieri, Apkarian, Kulis, & Marsiglia, 2014). Some research suggests bullies and bully-victims are more likely than victims and non-involved youth to engage in substance use (Nansel et al., 2001; Radliff et al., 2012). For example, research has found bully-victims comparatively had the highest odds of engaging in cigarette, marijuana, alcohol, and prescription drug use after controlling for access to drugs relative to youth with low involvement in bullying. In contrast, other research indicates bullies are more likely than bully-victims to engage in excessive drinking and other substances (Kaltiala-Heino et al., 2000). Furthermore, bullying victimization can pose risk for substance use directly (Radliff et al., 2013) or indirectly through its direct influence on internalizing problems (Hong, Davis, Sterzing, Yoon, Choi, & Smith, 2014). Prospective studies have found early involvement in bullying is linked to subsequent substance use as an adult (Min, Catalano, Haggerty, & Abbot, 2011; Niemela et al., 2011). Although the available research characterizes the linkages between bullying and substance use, less research has consistently offered a comparative perspective of risk based on status as a bully, victim, and bully-victim (Hong et al., 2014).

### **Bullying, substance use, and youth of Mexican heritage**

Few studies have examined the risk for substance use posed by bullying experiences for Latino youth in general or by Latino subgroups such as Mexican Americans. A study using national data revealed that Latino youth classified as bullies are at heightened risk of

substance use compared to other racial/ethnic groups (Luk, Wang, & Simons-Morton, 2012). However, this study did not distinguish between subtypes of bullying behavior involvement (as a bully, victim, or bully-victim) as it relates to different substances. In addition, extant research on youth of Mexican heritage specifically has found that bullying victimization is associated with greater depressive symptoms (Bauman & Summers, 2009), psychological distress and academic problems (Espinosa, Gonzales, & Fuligni, 2013), and suicide ideation and behavior (Romero et al., 2013). Despite the contributions of this growing work, the available research has not accounted for other risky behaviors, such as substance use, in relation to bullying among youth of Mexican heritage. This gap in current research is of concern considering that, among Latino youth, Mexican-heritage youth have higher rates of heavy drinking and marijuana use compared to Puerto Rican, Cuban American, and other Latin American youth (Delva, Wallace, O'Malley, Bachman, Johnston, & Schulenberg, 2005).

### The Current Study

According to ecodevelopmental theory, youth's individual behavior is influenced by the different social and cultural contexts in which they live and the interactions with others in those contexts (Szapocznik & Coatsworth, 1999). Accordingly, individual development and health is embedded within and results from interaction between various systems. These include proximal factors within the individual's immediate context of the microsystem (e.g. family, neighborhood), relationships between microsystems (e.g. parental monitoring of peers), and broader macrosystem contexts (e.g. socioeconomic disadvantage). An ecodevelopmental perspective takes into account the notion that risk and protective influences on youth outcomes do not occur in isolation, such that individual- and family-level risk factors can be linked to or compounded by sociocultural or structural risk factors (Coatsworth, Pantin, & Szapocznik, 2002). For youth of color in urban neighborhoods, this framework is appropriate for understanding bullying and substance use as youth behavioral outcomes that occur within broader environmental contexts characterized by poverty and societal marginalization.

In the current study, we aim to address knowledge gaps regarding bullying and substance use among youth of Mexican heritage, who constitute the largest and one of the fastest growing Latino groups in the U.S. (Pew Hispanic Center, 2011). Our aims in the current study are twofold: (1) to explore patterns of bullying behavior involvement, and (2) to examine the association between bullying and substance use in a sample of urban Mexican-heritage youth. We are interested in exploring the proportion of youth classified as bullies, victims, bully-victims, and rarely involved bully-victims compared to noninvolved youth. We also look at demographic correlates of each classification. As a strength of our approach, we distinguished rarely-involved from frequent bully-victims to account for varying degrees of bullying involvement in an urban context as well as less frequent, episodic forms of bullying and victimization that can still have harmful mental health consequences (Espinosa et al., 2013; Turner, Finkelhor, Shattuck, Hamby, & Mitchell, 2014). Drawing from existing findings (Bradshaw et al., 2013; Radliff et al., 2012; Leiner et al., 2014; Weiss, Cen, Mouttapa, Johnson, Unger, 2011) and guided by the ecodevelopmental theory (Szapocznik & Coatsworth, 1999), we hypothesized that involvement in bullying would be linked to

various forms of substance use, expecting that the risk of involvement across substances would be greatest for bully-victims.

## Methods

### Data and sample

Data for this study come from the last wave of a 5-year randomized controlled trial which tested the efficaciousness of the substance use prevention intervention, *keepin' it REAL* (Hecht, Elek, Wagstaff, Kam Marsiglia, & Dustman, 2008; Hecht et al., 2003). This last wave surveyed 8th grade students from 28 public schools in a Southwestern metropolitan area. All public schools participating in the study were located in low-income neighborhoods, and 26 of the 28 schools had a student body that was majority Mexican-heritage. To reduce any school-level confounders of enrollment size and school ethnic composition, schools were block randomized and within each block, assignments were made to a treatment or control condition. The student questionnaire was delivered during a regular 45-min classroom period to 8<sup>th</sup> grade students with active parental consents (82% of all enrolled students) between January and March, 2008 (survey procedures are detailed elsewhere) (Hecht et al., 2008). A total of 1,422 eighth-grade students completed the questionnaire; however, because this study focuses on Mexican-heritage adolescents, the sample includes only those adolescents self-identifying on the questionnaire as Mexican American or of Mexican heritage (n=1,022). All data collection and analysis phases were approved by the Institutional Review Board of Arizona State University.

Most participants were aged 13 or 14 (96.66%) and about three-quarters of the sample was born in the U.S. With regards to grades in school, 56.24% of participants reported grades ranging from “Mostly As” to “Mostly Bs,” 40.91% had grades ranging from “Mostly Bs and Cs” to “Mostly Cs and Ds,” and 2.84% reported grades ranging from “Mostly Ds” to “Mostly Fs.”

### Measures

**Substance use in past 30 days**—Survey items measured how many times during the last 30 days participants had more than a sip of alcohol, smoked cigarettes, and sniffed glue, spray cans, paint, or other inhalants to get high (Hecht et al., 2003). Responses were dichotomized to assess any recent use (0=*no use*, 1=*use*).

**Bullying status**—Ten items assessed participants' self-reported frequency of physical and verbal bullying behavior in the past academic year (Ladd & Kochenderfer-Ladd, 2002). Participants were asked, “Since the beginning of the school year, how much have you...” Five items described bullying behaviors enacted by perpetrators: (1) teasing or picking on other kids; (2) name-calling; (3) hitting, kicking, or punching; (4) breaking others' things; and (5) saying mean things or lies. Responses categories were “never,” “once or twice,” “several times a month,” “once a month,” and “several times a week.” Five parallel items assessed these bullying behaviors targeted at victims.

Based on prior literature (Spriggs, Iannotti, Nansel, & Haynie, 2007; Wang et al., 2009; Weiss et al., 2011), we categorized participants into the following groups: noninvolved, bully

only, victim only, rarely involved bully-victim, and chronic bully-victim. *Non-involved* participants reported no involvement in any bullying behavior as perpetrators or victims. *Bullies* reported bully perpetrator involvement several times a month or more and no bully victimization. *Victims* reported bully victimization several times a month or more and no perpetrator involvement. Participants who reported both bully perpetrator behavior and bully victimization were classified into two groups: *rarely involved* youth reported bully behavior involvement as both a perpetrator and victim no more than once or twice during the school year for either behavior, and *bully-victims* reported bully perpetrator behavior and victimization several times a month for either behavior, reflecting chronic involvement in bullying. These categories recognize the overlap in bully perpetrator and victim behaviors and are consistent with other studies using cutoffs rather than continuous scores in order to capture of ongoing, aggressive behavior and recognize the overlap in bully perpetrator and victim behaviors (Bradshaw et al., 2013; Weiss et al., 2011). Aligned with prior studies (Juvonen et al., 2003), we conducted sensitivity analyses to determine whether changes in cutoff categories altered the results and found results to be consistent.

**Covariates**—All analyses controlled for gender, (0=*male*, 1=*female*), age, nativity status (0=*immigrant status*, 1=*U.S. born*), and self-reported grades (ranging from 1=*mostly As* to 9=*mostly Fs*) due to evidence suggesting males, younger adolescents, U.S.-born youth, and students with low grade-point averages are more likely to be involved in bullying or other problem behaviors (Gonzales, et al., 2008; Juvonen, Wang, & Espinosa, 2011; Nansel et al., 2001).

## Analysis

First, descriptive statistics assessed the prevalence of adolescents classified as noninvolved, bullies, victims, rarely involved, and bully-victims as well as the proportion of adolescents who engaged in alcohol, cigarette, and inhalant use in the last month by bullying status. Second, we investigated group differences in bullying status across sociodemographic characteristics and substance use outcomes by conducting chi-square tests and Fisher's exact tests (appropriate for small cell frequencies).

Third, logistic regression analyses examined the association between bullying status and substance use, with three separate models for alcohol, cigarette, and inhalant use, respectively. Each model controlled for the aforementioned covariates. Participants with missing data on key variables were not included in the analyses, resulting in an analytic sample of n=809. All analyses were conducted in Stata 13 (StataCorp, 2013). Because participants were recruited as part of the *keepin' it REAL* substance use prevention program, all models initially controlled for the intervention group to which participants were assigned. However, the intervention group assignment was later dropped as a covariate in subsequent analyses because there was no significant relationship to any substance use outcome and its inclusion did not significantly change the models or parameter estimates.



## Results

### Descriptive statistics

Table 1 describes sample characteristics for the total sample and by bullying status (noninvolved, rarely involved, bullies, victims, and bully-victims). Of the total sample, 19% were classified as noninvolved, 40% were rarely involved, 3.5% were bullies, 3.7% were victims, and 33.6% were bully-victims. In terms of substance use, 31.6% of participants used alcohol, 5.6% used cigarettes, and 6.3% used inhalants.

### Chi-square and Fisher's exact tests

Results from chi-square and Fisher's exact tests are also in Table 1. There were significant differences by gender across participants classified as noninvolved, rarely involved, bullies, victims, and bully-victims ( $\chi^2(4)=14.64$ ,  $p=.006$ ). More girls were classified as noninvolved or rarely involved, while more boys were classified as bullies and victims. Bullyvictims were nearly evenly split by gender. Classification of bullying did not vary significantly by age, nativity, and grade.

There were also significant differences across bullying behavior status and all forms of substance use. Chi-square tests indicated bullying behavior status differed significantly by alcohol use ( $\chi^2(4)=39.26$ ,  $p=.000$ ). Cross-tabulations showed that the highest proportion of alcohol use were bullies. Fisher's exact tests indicated that participants classified as noninvolved, rarely involved, bullies, victims, and bully-victims differed significantly by cigarette use ( $p=.007$ ). Cross-tabulations showed that the highest proportion of cigarette users were bullies. Fisher's exact tests also indicated significant differences across bullying status behavior by inhalant use ( $p=.002$ ). Cross-tabulations indicate the highest proportion of inhalant users were bully-victims.

### Logistic Regression Analyses

Table 2 shows results for the associations between bullying behavior status and 30-day substance use outcomes, controlling for gender, age, nativity, and grades in school. Estimates shown are odds ratios and 95% confidence intervals reflecting relative likelihood of engagement in each substance.

All subtypes of bullying involvement were significantly associated with increased odds of 30-day alcohol use except victims. Bullies were at greatest risk of alcohol use compared to noninvolved youth. In addition, classification as a bully-victim and rarely involved youth was associated with increased use of alcohol use. Bullies had the greatest odds of recent cigarette use compared to noninvolved youth. In addition, classification as a bully-victim was also associated with greater risk for cigarette use. Across all bully behavior roles, bully-victims were the only group that was significantly associated with recent inhalant use.

## Discussion

Our study had two aims: to explore the nature of engagement in bullying behavior and to examine the relationship between bullying and substance use in a sample of urban Mexican-heritage youth. Descriptive results of bullying subtypes indicate 19% of youth were not

involved in any form of bullying, whereas 3.5% were bullies and 3.7% were victims, respectively; the vast majority of the sample engaged in bullying behavior as rarely involved youth (40%) or bully-victims (33.6%).

Although these results approximate proportions of bullies and victims in larger studies, our sample of urban Mexican-heritage youth revealed markedly more bully-victims and rarely-involved youth than other studies in which bully-victims represented less than 5% of youth samples (Haynie et al, 2001; Juvonen et al., 2003; Kaltiala-Heino et al., 2000; Spriggs et al., 2007). These patterns of involvement in bully-victim behavior ranging from infrequent to chronic may reflect higher levels of violence in urban areas wherein forms of victimization and aggressive behavior are normalized and systemic (Bradshaw et al., 2013). Our data also parallel a handful of studies with samples of predominantly Latino youth in the Southwest demonstrating higher levels of engagement in bullying behaviors (Leiner et al., 2014; Romero et al., 2013) and other studies outside the U.S. (Kaltiala-Heino et al., 2000), as well as research suggesting higher rates of overall greater violence and aggressive behavior in urban schools (Bradshaw et al., 2013). The available research on bullying among Mexican-heritage youth has focused primarily on experiences of victimization (Espinosa et al., 2013; Bauman & Summers, 2009). Future research could be enhanced with additional exploration of status as a bully and bully-victim in relation to substance use among Mexican-heritage youth.

A unique contribution of this study is the distinction of rarely involved bully-victims. With some exceptions (Juvonen et al, 2003; Kaltiala-Heino et al., 2000), few studies discern between rarely involved and chronic bully-victims. Our measure of bullying accounted for bullying in the last year as well as recent involvement within the last month and week (Ladd & Kochenderfer-Ladd, 2002). As other scholars have noted (Kaltiala-Heino et al., 2000), collapsing noninvolved and rarely involvement youth into one category obscures levels of differential risk among youth whose engagement in bullying behavior is less frequent. Accounting for various frequencies of bullying and victimization behavior may help prevent rarely-involved youth from engaging in more serious and chronic forms of bullying and problem behaviors in the future.

With regards to demographic group differences, significantly more boys were classified as bullies, victims, and bully-victims compared to girls. The results denote a risk for peer violence among urban Mexican boys and is consistent with existing research that observes boys are more likely than girls to perpetrate bullying (Nansel et al., 2001; Haynie et al., 2001; Juvonen et al., 2003; Yabko, Hokoda, & Ulloa, 2008). Research on violence in urban neighborhoods replicates patterns of greater boys involved in overt forms of aggression. To check our findings we performed post-hoc item group differences of specific bully items (results not shown) which also showed that boys engaged in more direct forms of bullying (e.g. teasing) than girls. There were no significant group differences in bullying behavior by age, nativity, and grades in school.

Our data further demonstrate a clear association between various bullying behavior subtypes and substance use. Overall, findings indicate that, compared to noninvolved adolescents, bullies were more likely to engage in alcohol and cigarette use but not inhalant use, rarely



involved adolescents were significantly at risk of alcohol use, and bully-victims were more likely to use alcohol, cigarettes, and inhalants. In contrast, being a victim was not associated with any type of substance use. These findings highlight the importance of distinguishing bullying behavior by status as a bully or victim alone, and chronic or rarely-involved bully-victim (Juvonen et al., 2003; Kaltiala-Heino et al., 2000).

The results are generally consistent with the large body of research describing the co-occurrence of risk behaviors such as bullying involvement and substance use (Bradshaw et al., 2013; Luk, Wang, & Simons-Morton, 2012). In particular, prior research has shown a greater proportion of substance use among bullies and bully-victims compared to victims and noninvolved youth generally (Nansel et al., 2001; Radliff et al., 2012; Kaltiala-Heino et al., 2000) and for Latino youth that are substance-using bullies specifically (Luk et al., 2012).

In addition, our results are consistent with findings that bully-victims are at greatest risk of use of multiple substances (Bradshaw et al., 2013). As bully-victims are often at heightened risk of poor psychological and emotional functioning (Juvonen et al., 2014; Haynie et al., 2001), this finding may reflect a clustering of adverse health and behavioral concerns (Bradshaw et al., 2013). It is notable that status as a bully-victim was associated with inhalant use. Prior research has highlighted alarming rates of inhalant use among younger Latina adolescents and Mexican-heritage youth (Beauvais, Wayman, & Jumper-Thurman, 2002; Edwards et al., 2007; Kouyoumdjian, Guzman, & Leon, 2015). Inhalants derived from various household products (e.g. aerosols, nail polish remover) are more accessible and affordable than other substances; thus, adolescents who are younger, more socioeconomically disadvantaged, and socially marginalized are more likely to use inhalants (Beauvais, et al., 2002; Marsiglia, Yabiku, Kulis, Nieri, Parsai, & Becerra, 2011). Consistent with this perspective, our findings identify that being a bully-victim may be a specific form of social marginalization that poses risk for inhalant use. Bully-victims who use inhalants are likely to have multiple social and psychological problems, which underscores the critical need for early intervention for this subgroup of youth.

Although we found associations between substance use and bullying involvement for bullies, rarely involved youth, and bully-victims, there was no association between being only a victim and substance use. This finding departs from existing research demonstrating a link between mental and physical victimization and substance use in multiethnic samples (Tharp-Taylor et al., 2009). However, other research with Latino youth has found no association between bullying victimization and alcohol use, suggesting a possible difference in correlates of bullying victimization (Forster, Dyal, Baezconde-Gabanati, Chou, Soto, & Unger, 2013). As previously stated, youth problem behaviors often overlap with bullying perpetration (Bradshaw et al., 2013). In addition, victims of bullying may be at greater risk of internalizing problems such as depression, rather than externalizing behaviors (Romero et al., 2013). Indeed, victims are often socially marginalized and tend to have emotional rather than behavioral problems (Smokowski & Kopasz, 2005; Leiner et al., 2014). Unfortunately, our data did not include internalizing symptoms to allow for comparisons across internalizing and externalizing behaviors. This finding may reflect the omission of key

variables, as recent research has found depression to mediate the association between peer victimization and substance use (Luk, Wang, & Simons-Morton, 2010).

This study makes a contribution in terms of theory development as the larger (macro) environment in which these youths live can help explain the experiences of the victims. (Szapocznik & Coatsworth, 1999). Their lack of involvement with substance use and possibly other risk behaviors may indicate larger environmental forces -such as intense anti-immigrant sentiment- that inspire bullying and make them targets (Ayon, 2013). This level of influence may work beyond other more immediate contexts such the micro (home and school) level influences (Szapocznik & Coatsworth, 1999). Future research should include measures of perceived discrimination and perhaps a qualitative component that could further explore the reasons and motivations for bullying and the meaning perpetrators and victims assign to bullying. Internalized oppression is one of the possible processes that need to be explored in environments where anti-immigrant sentiments and policies are normalized and sanctioned (Ayon, 2013). Internalized hate may also emerge as pre-teen and teens are trying to assert themselves in the world. It is in this context that substance use can emerge as a form of self-medication or as a way to escape a harsh reality.

Our study has a number of limitations. While we were able to illuminate differential risk of substance use across classifications of bully, victim, and bully-victim subtypes, our data do not distinguish between forms of bullying that are physical, verbal, relational, and cyber in nature (Wang et al., 2009). Future research should account for the contexts in which bullying occurs to enhance strategies for combatting bullying within schools and communities.

Because our data are drawn from a sample of urban Mexican-heritage adolescents in the Southwest, we are cautious in generalizing our findings across other Latino groups or similar populations in other regions. Furthermore, we were unable to account for other forms of violence outside of school (e.g. family, community violence) that may influence involvement in bullying and substance use for Mexican-heritage adolescents in an urban setting. Finally, cross-sectional data cannot confirm causality among the variables of interest. Longitudinal data are needed to establish directionality among constructs over time.

In sum, we found a large proportion of youth in our sample of urban Mexican-heritage adolescents involved in chronic bullying behavior as bullies, victims, bully-victims as well as adolescents rarely involved in bullying. Bullies and bully-victims are particularly at risk for substance use, with bully-victims reflecting the greatest risk of using multiple substances. Prevention and early intervention programs aimed to reduce bullying can also work to reduce other risky behaviors, such as substance use, and should attend to the growing ethnic diversity among youth.

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### Highlights

- We examined prevalence of bullying behavior and its association with multiple forms of substance use.
- Participants were 809 youth of Mexican heritage in the Southwestern U.S.
- A large proportion of participants were involved in bullying as a bully, victim, and bully-victim.
- Involvement in bullying increased risk of substance use, particularly for chronic bully-victims.



**Table 1**

Sample characteristics by bullying status involvement subtypes

	Total (n=809)	Nominvolved (n=154)	Bully (n=29)	Victim (n=30)	Rarely involved (n=324)	Bully-Victim (n=272)	P- value
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	
Gender							
Male	44.25 (358)	18.99 (68)	5.03 (18)	4.75 (17)	33.80 (121)	37.43 (134)	0.006
Female	55.75 (451)	19.04 (86)	2.44 (11)	2.88 (13)	45.01 (203)	30.60 (138)	
Age							
12	0.12 (1)	0 (0)	0 (0)	0 (0)	.31 (1)	0 (0)	0.118
13	47.96 (388)	48.05 (74)	37.93 (11)	36.67 (11)	48.15 (156)	50 (136)	
14	48.7 (394)	50.65 (78)	48.28 (14)	53.33 (16)	48.77 (158)	47.06 (128)	
15	3.09 (25)	1.3 (2)	13.79 (4)	10 (3)	2.78 (9)	2.57 (7)	
16	0.12 (1)	0 (0)	0 (0)	0 (0)	0 (0)	.37 (1)	
Nativity							
Immigrant	25.46 (206)	23.38 (36)	34.48 (10)	33.33 (10)	25.31 (82)	25 (68)	0.625
U.S. born	74.54 (603)	76.62 (118)	65.52 (19)	66.67 (20)	74.69 (242)	75 (204)	
Grades							
Mostly As	7.17 (58)	7.14 (11)	3.45 (1)	3.33 (1)	8.64 (28)	6.25 (17)	0.176
Mostly As & Bs	38.07 (308)	35.71 (55)	27.59 (8)	36.67 (11)	37.35 (121)	41.54 (113)	
Mostly Bs	11 (89)	12.99 (20)	3.45 (1)	10 (3)	13.58 (44)	7.72 (21)	
Mostly Bs & Cs	28.68 (232)	27.27 (42)	44.83 (13)	33.33 (10)	27.47 (89)	28.68 (78)	
Mostly Cs	6.30 (51)	9.09 (14)	6.90 (2)	3.33 (1)	5.56 (18)	5.88 (16)	
Mostly Cs & Ds	5.93 (48)	7.14 (11)	3.45 (1)	10 (3)	5.25 (17)	5.88 (16)	
Mostly Ds	.99 (8)	0 (0)	6.90 (2)	0 (0)	.31 (1)	1.84 (5)	
Mostly Ds & Fs	1.36 (11)	0 (0)	3.45 (1)	3.33 (1)	1.23 (4)	1.84 (5)	

	Total (n=809)	Noninvolved (n=154)	Bully (n=29)	Victim (n=30)	Rarely involved (n=324)	Bully-Victim (n=272)	p- value
	% (n)	% (n)	% (n)	% (n)	% (n)	% (n)	
Mostly Fs	.49 (4)	.65 (1)	0 (0)	0 (0)	.62 (2)	.37 (1)	
Substance use							
Alcohol							
<i>Nonusers</i>	68.36 (553)	84.42 (130)	44.83 (13)	73.33 (22)	70.68 (229)	58.46 (159)	0.000
<i>Users</i>	31.64 (256)	15.58 (24)	55.17 (16)	26.67 (8)	29.32 (95)	41.54 (113)	
Cigarettes							
<i>Nonusers</i>	94.44 (764)	97.40 (150)	86.21 (25)	96.67 (29)	96.30 (312)	91.18 (248)	0.007
<i>Users</i>	5.56 (45)	2.60 (4)	13.79 (4)	3.33 (1)	3.70 (12)	8.82 (24)	
Inhalants							
<i>Nonusers</i>	93.70 (758)	98.70 (152)	93.10 (27)	96.67 (29)	94.75 (307)	89.34 (243)	0.003
<i>Users</i>	6.30 (51)	1.3 (2)	6.9 (2)	3.33 (1)	5.25 (17)	10.66 (29)	

**Table 2**

Logistic regressions examining associations between bullying and substance use among Mexican-heritage adolescents (n=809)

	<b>Alcohol OR (95% CI) n=809</b>	<b>Cigarettes OR (95% CI) n=809</b>	<b>Inhalants OR (95% CI) n=743</b>
Bullying (Ref: Noninvolved)			
Bully	6.82 (2.86, 16.26) ***	6.01 (1.38, 26.12) *	5.51 (.74, 41.25)
Victim	2.05 (.81, 5.19)	1.34 (.14, 12.55)	2.64 (.23, 30.19)
Rarely involved	2.29 (1.37, 3.78) ***	1.49 (.47, 4.70)	4.19 (.95, 18.37)
Bully-Victim	4.00 (2.42, 6.62) ***	3.58 (1.21, 10.54) *	9.19 (2.16, 39.10) **
Gender (Ref: Male)			
Female	1.30 (.95, 1.79)	.77 (.41, 1.44)	1.29 (.71, 2.34)
Age	1.0 (.76, 1.31)	.60 (.34, 1.06)	1.0 (.60, 1.66)
Nativity (Ref: Immigrant)			
U.S.-born	1.43 (.99, 2.06)	1.01 (.50, 2.01) *	.91 (.48, 1.73)
Grades	1.19 (1.07, 1.31) ***	1.11 (.93, 1.34)	1.11 (.93, 1.32)

Note: OR=Odds ratio, CI=Confidence interval.

\*  
p<.05;

\*\*  
p<.01;

\*\*\*  
p<.001