



Research article

Role of school-climate in school-based violence among homeless and nonhomeless students: Individual- and school-level analysis



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ABSTRACT

Background: Research is scarce regarding homeless students' school-violence experiences, specifically while considering the role of school-climate and the different groups within the homeless student population. Understanding the relation between school-violence and school-climate might help towards the development of support for homeless students.

Objective: Examine the association between school-climate components, homelessness and school discriminatory bullying, behavioral victimization and weapon involvement at the student and school levels.

Participants: 389,569 high school students and 811 schools from a representative California statewide sample (2011–2013).

Methods: Bivariate and multivariate analyses were used to examine differences between the subgroups of homeless students as compared to nonhomeless students. Hierarchical logistic regressions were conducted to examine the relation between school-climate and discriminatory bullying, behavioral victimization and weapon involvement in school at the individual level, and hierarchical linear regressions were conducted at the school level.

Results: At the student level adding school-climate dimensions contributed significantly to each outcome. Positive school-climate was associated with lower rates of all school-violence outcomes. Safety, positive relationship and connectedness were all significantly negatively associated with the outcomes, especially safety. At the school level, the partial linear regression coefficient of school-climate is negative and significantly ($p < .001$) decreases discriminatory bullying, behavioral discrimination and gun involvement.

Conclusion: Positive school-climate serves as a protective factor for homeless students with regards to school violence outcomes. Enhancing whole-school interventions improving school-climate at the school level, would benefit students experiencing homelessness.

1. Introduction

The number of students experiencing homelessness in K-12 education has increased in recent years and is estimated to be about 1.3 million (California Department of Education, 2016). Homeless youth are at high risk of experiencing violence and victimization in

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multiple contexts, including childhood abuse (Tyler, Hoyt, Whitbeck, & Cauce, 2001), street victimization (Chen, Thrane, Whitbeck, Johnson, & Hoyt, 2007), intimate partner violence (Slesnick, Erdem, Collins, Patton, & Buettner, 2010), and gang involvement (Petering, 2016). Existing literature on homelessness in schools has focused on policy implementation evaluation (Miller, 2011), homeless students' academic achievement (O'Malley, Voight, Renshaw, & Eklund, 2015), and school-related outcomes such as absenteeism, attendance, and graduation rates (Fantuzzo, LeBoeuf, Chen, Rouse, & Culhane, 2012). Although research has been limited with regard to homeless students' school experience, recent research has shown that homeless students are at higher risk compared to their nonhomeless peers of experiencing school violence (Moore, Astor & Benbenishty, 2019).

In the past decade, the role of protective factors in the context of risk behaviors for homeless youth has been gaining more attention (Milburn et al., 2009). These studies often use ecological theories that emphasize the importance of supportive social agencies and functions such as family, prosocial peers, and social networks (Milburn et al., 2009; Tyler, Schmitz, & Ray, 2018). However, schools, for the most part, have remained outside of the research scope in relation to homeless youths.

In addition to schools being an important understudied context to examine in the lives of homeless students, the education system presents opportunities to intervene and address the needs of these youths, based on its statutory context. The definition of homelessness based on the McKinney-Vento Education Act (MVA; 1987; amended by the Every Student Succeeds Act [ESSA], 2015) is a broad definition that includes multiple subgroups of homeless students, unlike narrower definitions of other offices such as the Department of Housing and Urban Development. Specifically, the definition includes children and youth who live on the streets, campgrounds, cars, parks, motels, hotels, shelters, or any place not suitable for human habitation, and students who share housing with other persons due to loss of housing and economic hardship (also known as doubled up). This inclusive definition allows the provision of support to multiple subgroups of homeless students.

Moreover, most studies that centered on risk behaviors and protective factors among homeless youth focused on individual-level perspectives and data, potentially due to the fact that homeless youth too often disengage from large social institutions and hence, group-level data are hard to obtain. However, school-related research that focuses on both the student and school levels with regard to risk and protective factors for homeless students may yield important information for intervention and policy advancements.

Increasingly, evidence has suggested that school climate plays a meaningful role in school-related violence among students (Moore, Benbenishty, Astor & Rice, 2018; Cornell & Huang, 2016), and that positive and supportive school climate is associated with lower rates of school violence, particularly for students from minority groups (e.g., De Pedro, Astor, Gilreath, Benbenishty & Berkowitz, 2016), students who are gang members (Estrada, Huerta, Hernandez, Hernandez, & Kim, 2018), and LGBT students (Savage & Schanding, 2013). Despite growing interest in the social context of homeless youth, current understanding of the school context is limited in scope. Only a few studies examined the role of school climate for homeless students, and findings suggested that positive school climate is related to higher academic achievement (O'Malley et al., 2015). One prior study that focused on nonsheltered homeless youth found that positive school climate was associated with lower school victimization (Moore et al., 2018). To date, studies have not examined the association between school climate, homelessness (multiple subgroups of homeless students) and school victimization.

1.1. Role of schools and education policies for school-attending homeless youth

Empirically based studies focused on the role of school for homeless students have been scarce, yet the role of school, school climate and education in the context of poverty and low socioeconomic status has been examined in previous research (Berkowitz, Moore, Astor & Benbenishty, 2017; Hopson & Lee, 2011). The education system has often been viewed and documented as providing a major opportunity to exit poverty. An extensive review of the data, methods, and findings regarding the dynamics of poverty in the United States (Cellini, McKernan, & Ratcliffe, 2008) found that educational acquirement, including high school graduation and higher education, was positively and significantly correlated with the likelihood of exiting poverty. These findings increase the importance of understanding the high school experience of school-attending homeless youth, because positive school climate may benefit their school experience and support their success in school and as a result, provide a better chance of existing the homelessness cycle.

Additionally, research shows that homeless youths' demographics and characteristics may place them at higher risk of victimization. Previous literature demonstrates that LGBT youth and non-white racial and ethnic groups are overrepresented in the homeless youth population (Durso & Gates, 2012; Jones, 2016) and that youth experiencing homelessness are at higher risk of being in a gang (Petering, 2016). Research also shows that supportive school climate is associated with lower rates of school-victimization for LGBT students (Savage & Schanding, 2013), and students who are members in a gang (Astor & Benbenishty, 2018).

At the policy level, awareness of student homelessness was established with the passage of the MVA, the primary significant federal response to the issue to date (Miller, 2011). The act addresses the educational needs of students who meet the act's definition of being homeless, including immediate enrollment, maintenance of attendance, and the provision of equal opportunities for education (National Association for the Education of Homeless Children & Youth, 2008). The main goal of the policy is to eliminate barriers to education for homeless students, which include lack of access to the education system and resources and capacity to succeed in school. Notwithstanding the importance of this policy, many issues concerning homeless students remain unexplored, especially their school experience and school violence.

1.2. School climate and victimization: school as a context for homeless students

Research has shown that positive school climate is correlated with less violence and victimization in schools (Astor &

Benbenishty, 2018; Espelage & Swearer, 2003), reduced delinquency and substance use (Thapa, Cohen, Guffey, & Higgins-D'Alessandro, 2013), and prevention of dropout (Kotok, Ikoma, & Bodovski, 2016). Regarding academic achievement, research also showed that positive school climate can contribute to higher academic outcomes (Berkowitz et al., 2017). An understanding of school climate and the role of schools in relation to homeless students could help address their needs, going beyond the mandatory requirements of the MVA.

In considering the definition of school climate, there is an absence of a clear accordance among researchers with respect to the definition of school climate (Astor & Benbenishty, 2018). Still, school climate can be roughly defined as the “based on patterns of students’, parents’ and school personnel’s experience of school life and reflects norms, goals, values, interpersonal relationships, teaching and learning practices, and organizational structures” (National School Climate Council, 2016, para. 1). A research review of educational literature found that the majority of studies examining climate showed that a supportive and caring approach from teachers is a crucial dimension that should be included in school climate research (Berkowitz et al., 2017). Moreover, a sense of connectedness and meaningful participation in the school, and a sense of safety, were found to be central dimensions of school climate (Berkowitz et al., 2017; Thapa et al., 2013).

Prior research on homeless youth demonstrated that positive relationships and positive points of contact decrease risk for homeless youth, whereas negative interaction with socializing agents increases their risk (Milburn et al., 2009). Milburn et al. (2009) established the risk amplification and abatement model for homeless youth, positing that among several protective factors, school attendance and positive engagement with peers decreased risk behaviors, yet the role of school climate remains fundamentally unexplored.

1.3. Beyond the individual level: understanding the school context for homeless students

This study used a socioecological framework based on the theoretical perspective developed by the authors (Astor & Benbenishty, 2018), which places schools, rather than the individual student, at the center of investigation. The authors posited that multiple factors are associated with students’ behaviors and academic outcomes. Students are nested in classrooms, and classrooms are nested in neighborhoods and districts, which are nested in a society. When aiming to understand the role of schools for homeless youths, the dynamic and ecological environment of students should be considered, because various dynamics and factors in the school might affect their behaviors. Although research on homeless youth has stressed the importance of social contexts and positive relationships with social agencies, most studies focused on the individual level. This study built on this theory, starting with the student level and then exploring the school level while controlling for gender, race, ethnicity and gang membership in order to learn about the unique contribution of homelessness. Adding schools as a context *and* unit of analysis is crucial to understanding the role of the school context for homeless students. Exploring individual experiences provides essential information on the subjective and personal experience of homeless students in school and the role of school climate in school violence as perceived at the individual level. However, information based on the school level may reveal another important layer regarding the school context for homeless students, by providing information on the schools in which homeless students are nested (Astor & Benbenishty, 2018). This type of investigation can capture the impact of contextual factors such as school characteristics in terms of the sociodemographic context and the prevalence of student homelessness and school climate as related to school violence behaviors. It also could provide the ability to learn about differences between these two levels, which may expose important contextual evidence and contribute to the literature (BINDED). Specifically, it may allow learning about schools not only in the individual context, but also as a place with a specific role. In aiming to advance interventions that support homeless students, this type of investigation could indicate that different levels (i.e., individual and school levels) may require various intervention mechanisms. It may also provide new avenues for intervention that would benefit the school experience and well-being of homeless students, especially because schools may be the last social institution with which homeless youth engage prior to disengaging from all social institutions.

2. Current study

This study sought to fill the gaps in current studies examining the relation between homelessness, school climate and school victimization. It also aimed to provide new information on the school context of homeless students from a school-level perspective. This study evaluated and compared school discriminatory bullying, school behavioral victimization, and school weapon involvement rates among homeless students and nonhomeless students at the individual and school levels and examined the relation between school climate and school violence outcomes at both levels. Drawing from research on the victimization of homeless students at the individual level (Moore et al., 2019), it was hypothesized that all groups of homeless students would present higher rates of victimization than nonhomeless students. Moreover, based on the breadth of research on school climate and school violence, it was expected that a positive school climate would be associated with reduced victimization rates among all homeless subgroups at the individual level. Additionally, the investigation was expanded to include the school level. The following research questions were posed: (a) What is the relationship between demographic and background variables (i.e., homelessness and gang involvement) and school-based discriminatory bullying, behavioral victimization, and weapon involvement at the school level? Based on previous literature it could be expected that schools with higher rates of homeless students would have higher rates of school violence. (b) What is the relationship between school climate and school-based discriminatory bullying, behavioral victimization, and weapon involvement, while controlling for demographic and background variables (i.e., homelessness and gang involvement) at the school level? Based on previous literature it could be expected that schools with positive school climate would present lower rates of school victimization (Astor & Benbenishty, 2018; Thapa et al., 2013).

Several objectives guided this study. First, this study evaluated associations between multiple components of school climate, homelessness and school violence at the individual level. Second, this study evaluated the effects of school climate on victimization among both homeless and nonhomeless students at the individual level. Third, this study examined associations between school demographics and background variables and school victimization at the school level. Last, this study examined the role of school climate in school violence at the school level.

3. Method

The data used for this study were from the ongoing large-scale California Healthy Kids Survey (CHKS) conducted by WestEd. The CHKS is a comprehensive youth risk behavior and resilience data collection service conducted across all local California education agencies. The CHKS is a modular survey instrument with versions for the elementary, middle, and high school levels. This study included the core module of the survey, which consists of an extensive range of questions, with a primary focus on assessing student perceptions and experiences related to school climate and engagement, learning support, and health-related, nonacademic learning barriers. The California Department of Education requires that participating districts (99 % of all 1000 districts) survey a representative district-wide, and administrate it biennially, to fifth-, seventh-, ninth-, and 11th-grade students in schools statewide. The collected information indicates students' self-reported perceptions (Austin, Bates, & Duerr, 2011). Data for these analyses were from the academic years 2011–2013 and focused on the ninth and 11th grades. Two subsamples, based on the student and school levels, were employed. For this study, only schools with at least 10 participants were included in the analysis, resulting in samples of 801 schools and 389,569 students. This secondary data analysis study received exempt status from the authors' institutional review board.

3.1. Individual level

3.1.1. Demographic variables

Participants were asked about their gender (male or female), grade level (ninth or 11th), and ethnicity and race (White, Black, Latinx, mixed, Asian, Pacific Islander, American Indian, Alaska Native, or Native Hawaiian). Due to low numbers in the sample, American Indian, Alaska Native, Native Hawaiian, and Pacific Islander were coded as one variable.

3.1.2. Background variables

3.1.2.1. Homelessness. The U.S. Department of Education definition of homelessness under the MVA was used. Students were asked, "What best describes where you live? A home includes a house, apartment, trailer, or mobile home." Students who responded "on the street," "no fixed housing," "car or van," or "park, campground, or abandoned building" were categorized as nonsheltered homeless students. Students who responded "other relative's home" or "friend's home" were categorized as living with friends or relatives. Students who responded "living in a home with more than one family" were categorized as living with another family. Students who responded "hotel, motel, or shelter" or "other transitional or temporary housing" were categorized as sheltered homeless students. Students who responded that they lived in a "home with both parents," "home with only one parent," "foster home," or "group care," or were "waiting for placement, migrant housing, or other living arrangements" were classified as nonhomeless.

3.1.2.2. Gang membership. Gang involvement was included in the model as a background variable because gang involvement has been associated with high rates of violence and the goal of the study was to learn about the unique contribution of homelessness to school violence, beyond other background variables. Participants who responded affirmatively to the question "Do you consider yourself a member of a gang?" were categorized as gang involved.

3.1.3. Independent variables

The school climate dimensions were derived from previously established indexes of school climate and included school connectedness, meaningful participation, positive relationships with adults in school, and safety (e.g., Astor & Benbenishty, 2018).

School connectedness was measured using three items. Participants were asked "How strongly do you agree or disagree with the following statements about your school: (a) I feel close to people at this school, (b) I am happy to be at this school, and (c) I feel like I am part of this school." Responses were on a 5-point Likert scale: *strongly disagree*, *disagree*, *neither disagree nor agree*, *agree*, or *strongly agree*. Cronbach's alpha for these items indicated a strong relationship ($\alpha = .82$). **Positive relationships** with adults in school were measured via six items. Participants were asked "At my school there is a teacher or adult who: (a) really cares about me, (b) notices when I am not there, (c) listens to me when I have something to say, (d) tells me when I do a good job, (e) wants me to do my best, and (f) believes I will be a success." Responses were on a 5-point Likert scale: *strongly disagree*, *disagree*, *neither disagree nor agree*, *agree*, or *strongly agree*. Cronbach's alpha for these items indicated a strong relation ($\alpha = .90$). To measure **meaningful participation**, three items were used. Participants were asked to indicate their agreement with the following statements: "At school, (a) I do interesting activities, (b) I help decide things like class activities or rules, and (c) I do things that make a difference." Responses were on a 5-point Likert scale: *strongly disagree*, *disagree*, *neither disagree nor agree*, *agree*, or *strongly agree*. ($\alpha = .77$). **Safety** was measured using one item. Participants were asked "How strongly do you agree or disagree with the following statement about your school? (a) I feel safe in my school." Responses were on a 5-point Likert scale: *strongly disagree*, *disagree*, *neither disagree nor agree*, *agree*, or *strongly agree*.

3.1.4. Outcome measures

Three dimensions of school violence were included in the analysis: school behavioral victimization, school discriminatory bullying, and weapon involvement in school.

Behavioral victimization was assessed with six items: “In the past 12 months, have you: (a) been pushed, shoved, slapped, hit or kicked by someone who wasn’t just kidding around at school?; (b) been in a physical fight at school?; (c) had mean rumors or lies spread about you in school?; (d) had sexual jokes, comments or gestures made to you at school?; (e) been made fun of because of your looks or the way you talk in school?; and (f) had your property stolen or deliberately damaged such as your car, clothing or books at school?” Responses were on a 4-point Likert scale: *0 times, 1 or 2 times, 3 or 4 times, or more than 4 times*. ($\alpha = .77$). **Discriminatory bullying** was measured with five items: “In the past 12 months, have you been harassed or bullied on school property because of (a) your race, ethnicity, or national origin?; (b) your religion?; (c) your gender?; (d) you are gay or lesbian or someone thought you?; and (e) a physical or mental disability?” Responses were on a 4-point Likert scale: *0 times, 1 or 2 times, 3 or 4 times, or more than 4 times*. ($\alpha = .76$). **Weapon involvement** was assessed via three items: “In the past 12 months, did you (a) carry a gun on school property? or (b) carry a weapon such as knife or club on school property?” In addition, participants were asked: “In the past 12 months, have you been threatened or injured with a weapon such as a gun, knife, or club at school?” Responses were on a 4-point Likert scale: *0 times, 1 or 2 times, 3 or 4 times, or more than 4 times*. ($\alpha = .79$).

3.2. School level

At the school level, 801 schools were included in the analysis. Only schools with at least 10 participating students were included. Individual data were aggregated to the school level; that is, the average of the values of each variable from the individual level was computed for each school. Variables dichotomized and coded as 0 or 1 at the individual level yielded the percentage of students in each school that reported a given variable.

3.2.1. Demographic variables

Similar to the individual level, the school-level analysis included sociodemographic variables of racial and ethnic groups, gender, and grade level in each school

3.2.2. Background variables

3.2.2.1. Percentage of homelessness in school. Average percentage of each homeless subgroup in schools was very low (nonsheltered: 0.77 %, sheltered: 0.56 %, living with a relative or friend: 4.1 %, living with another family: 2.7 %). Therefore, all homeless subgroups were collapsed into one group, which had an overall prevalence of 8.1 % in schools.

3.2.2.2. Percentage of gang members. This variable included the prevalence of gang members in school.

3.2.3. Independent variable

At the school level, correlations between dimensions of aggregated data on school climate were high and ranged from .58 to .78. Cronbach’s alpha for these items indicated a strong relation ($\alpha = .82$). We performed linear regression with all the dimensions of school climate. The collinearity analyses yielded tolerance that ranged between 0.22-0.39 for the indicators. Because the correlations were high and led to high collinearity, they were summed into one variable, school climate. Therefore, the aggregated school climate variable indicated the mean school climate for each school.

3.2.4. Outcome variables

Similar to the individual level, the school-level analysis included the outcome variables of discriminatory bullying, behavioral victimization, and weapon involvement. Each variable at the individual level was dichotomized. Because the unit of analysis was the school, aggregated data for each school was computed, producing the percentage of students in each school who reported discriminatory bullying, behavioral victimization, and weapon involvement. Percentage of weapon involvement in school was highly skewed; hence, a log transformation was performed, which did not impact the direction of the relationship (Neter, Wasserman, & Whitmore, 1993).

4. Analysis

The data were analyzed with SPSS version 21 and Stata for both bivariate and multivariate analyses. Descriptive statistics and crosstab functions were used to reveal differences in school violence and school climate at the individual and school levels. At the individual level, a hierarchical logistic regression was conducted for each dependent variable (behavioral victimization, discriminatory bullying, and weapon involvement). To adjust for the complex nested structure of data (students within schools), data were analyzed via a Stata procedure that adjusts the standard error. In the first step, only the demographic and background variables were entered in the model (gender, grade, race, homelessness, and gang involvement). In the second step, the four components of school climate were added to the regression. At the school level, a linear hierarchical multiple regression was conducted. Aggregated data based on the same variables at the individual level were included. In the first step, only the demographic and background variables were entered in the model. In the second step, the measure of school climate was added to the regression. The dependent variables were percentage of students in each school reporting behavioral victimization, discriminatory bullying, and weapon

Table 1
Descriptive Statistics of Students (N = 389,569) and of Average Percentage or Mean of Variables in Schools (N = 801).

Individual Student Level				School Level			
	n	% or M (SD)	Range		Mean	SD	Min-Max
<i>Grade</i>	389,569			<i>Discriminatory bullying</i>	23.721	6.597	0-63.6
9	204,923	52.6		<i>Behavioral victimization</i>	61.630	8.42	20-90.9
11	184,646	47.4		<i>Weapon involvement</i>	14.926	9.997	0-100
<i>Gender</i>	386,160			<i>Grade 11</i>	53.137	20.258	0-100
Male	189,489	49.1		<i>Male gender</i>	50.210	8.63	0-100
Female	196,671	50.9		<i>Race and Ethnicity</i>			
<i>Race and ethnicity</i>	376,755			<i>AI, AN, HI, PI</i>	3.409	4.392	0-57
Hispanic	184,442	49.0		<i>Asian</i>	8.012	11.603	0-77.5
Black	13,635	3.6		<i>Black</i>	3.987	5.885	0-61.3
Asian	39,158	10.4		<i>Hispanic</i>	50.828	24.715	0-77.5
AI, AN, HI, or PI	11,702	3.1		<i>Mixed</i>	10.108	6.223	3.8-61.3
Mixed	40,521	10.8		<i>White</i>	23.656	20.828	0-88.2
White	89,463	23.0		<i>Gang member</i>	9.129	6.2	0-60
<i>Gang membership</i>	360,471			<i>Homeless</i>	8.092	4.507	0-33.3
No	332,944	92.4		<i>School Climate</i>	38.1884	2.426	28.61-45.72
Yes	25,527	7.6					
<i>Homelessness</i>	385,252						
Nonsheltered homeless	2,822	0.7					
Sheltered homeless	2,179	0.6					
Living with friend or relative	11,917	3.1					
Living with another family	10,333	2.7					
Nonhomeless	358,001	92.9					
<i>Discriminatory bullying</i>	355,380						
No	271,431	76.4					
Yes	83,949	23.6					
<i>Behavioral victimization</i>	353,409						
No	135,762	38.4					
Yes	217,647	61.6					
<i>Weapon involvement</i>	361,096						
No	319,626	88.5					
Yes	41,470	11.5					
<i>School climate</i>							
School connectedness	379,072	10.59 (2.87)	3-15				
Meaningful participation	375,163	6.69 (2.55)	3-12				
Positive relationship	363,288	17.57 (4.59)	6-24				
Safety	384,981	3.55 (1.09)	1-5				

AI = American Indian; AN = Alaska Native; HI = Native Hawaiian; PI = Pacific Islander. All variables in the school level reflect percentage other than school climate, which reflects mean.

involvement. Additionally, based on the distribution of the standardized residuals, residuals greater than an absolute value of 3 (outliers) produced in the linear regression analysis were excluded from the analyses to not violate the ordinary least squares assumptions of normality and homoscedasticity. The number of the outliers excluded from the analyses of the correlation and regression was, at most, 2 %.

Hierarchical linear modeling (HLM) was not employed to examine the two units of analysis for two main reasons. First, conceptually, creating a contrast between the school and individual student levels, rather than presenting the units as nested within each other, may reveal contrasts between the two levels and provide some indication of potential characteristics at the school level and the association between homelessness and school victimization and safety (Astor & Benbenishty, 2018). Second, from a statistical point of view, the intraclass correlation (ICC), a popular measure of variance explained by this nesting structure (Huang, 2016), was computed. In this study, the ICC was .009 for discriminatory bullying, .016 for behavioral victimization, and .060 for weapon involvement. The ICC indicated a very small proportion of variance was the product of the nesting structure, which did not warrant a multilevel model (Anderson, 2012). Nevertheless, the model was estimated in Stata, adjusting standard errors to take into account the clustered design of the data. Results were very similar when estimating the model without adjusting for the clustered design.

5. Results

5.1. Individual level

As shown in Table 1, the sample was almost evenly split by grade level and gender. The sample was also ethnically and racially diverse, with Hispanic students being highly represented as expected in California. Homelessness was distributed in descending order: nonhomeless students, students living with friends or relatives, students living in a home with another family, sheltered homeless students; and nonsheltered homeless students. The majority of the sample (61.6 %) reported experiencing behavioral victimization in

Table 2
Hierarchical Logistic Regression for Predicting Discriminatory Bullying by Demographics, Background, and School Climate.

	Step 1				Step 2			
	<i>b</i>	<i>SE</i>	<i>OR</i>	95 % <i>CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	95 % <i>CI</i>
Constant	-1.133	0.016			0.875	0.027		
Grade 11	-0.238	0.010	0.788*	0.772, 0.805	-0.247	0.011	0.781*	0.764, 0.797
Male gender	-0.146	0.011	0.864*	0.847, 0.881	-0.154	0.010	0.857*	0.840, 0.875
Race and ethnicity								
Hispanic	-0.100	0.019	0.905*	0.871, 0.940	-0.166	0.019	0.847*	0.816, 0.878
Black	0.334	0.033	1.397*	1.309, 1.490	0.240	0.035	1.270*	1.187, 1.360
Asian	0.222	0.033	1.248*	1.170, 1.330	0.179	0.032	1.195*	1.122, 1.274
AI, AN, HI, or PI	0.243	0.030	1.275*	1.203, 1.353	0.176	0.030	1.192*	1.123, 1.265
Mixed	0.223	0.018	1.250*	1.207, 1.294	0.174	0.018	1.190*	1.148, 1.233
Gang member	0.665	0.018	1.944*	1.878, 2.013	0.549	0.018	1.732*	1.671, 1.795
Homelessness status								
Nonsheltered homeless	0.959	0.049	2.609*	2.367, 2.877	0.616	0.051	1.852*	1.673, 2.049
Sheltered homeless	0.720	0.053	2.054*	1.849, 2.281	0.535	0.055	1.708*	1.534, 1.903
Living with friend or relative	0.241	0.025	1.272*	1.211, 1.336	0.184	0.026	1.201*	1.142, 1.264
Living with other family	0.192	0.027	1.212*	1.148, 1.279	0.160	0.028	1.173*	1.110, 1.239
School climate								
Connectedness					-0.048	0.002	0.953*	0.949, 0.957
Meaningful participation					0.028	0.002	1.028*	1.025, 1.032
Positive relationship					-0.012	0.001	0.987*	0.985, 0.989
Safety					-0.175	0.006	0.839*	0.829, 0.849
Nagelkerke R^2	0.024				0.046			
χ^2 (<i>df</i>)	4815.302 (12)*				9452.972 (16)*			
$\Delta\chi^2$ (<i>df</i>)					4637.668 (4)*			

Note. AI = American Indian; AN = Alaska Native; HI = Native Hawaiian; PI = Pacific Islander. Errors were adjusted for the complex design (students are nested with schools). Reference categories were Grade 9, female gender, White race and ethnicity, not a gang member, and not homeless. * $p < .001$.

school, 23.6 % reported experiencing discriminatory bullying, and 11.5 % reported weapon involvement in school.

5.1.1. Hierarchical logistic regressions

Homeless students were more likely to experience behavioral victimization, discriminatory bullying, and weapon involvement in school compared to their nonhomeless peers. The findings at the student level supported the hypothesis of the study and indicated that as positive school climate rates were higher, school violence outcomes rates decreased, while controlling for demographic and background variables.

5.1.2. Discriminatory bullying

The first step of the regression (Table 2) included demographic and background variables, and resulted in a statistically significant model ($p < .001$). The regression coefficients showed that boys (compared to girls) and 11th graders (compared to ninth graders) were less likely to experience discriminatory bullying. Other than Hispanic students, all other racial and ethnic groups were more likely to experience school discriminatory bullying compared to White students, especially Black students. Gang members were more likely than nongang members to experience discriminatory bullying. All subgroups of homeless students were more likely to be bullied based on discrimination than their nonhomeless peers, with nonsheltered homeless students at the highest risk ($OR = 2.609$, 95 % $CI = 2.367, 2.877$). Adding the school climate dimensions in the second step was statistically significant ($p < .001$), and resulted in a statistically significant model ($p < .001$). Moreover, the likelihood of experiencing discriminatory bullying decreased compared to the first model for all the subgroups of homeless students, for example, for nonsheltered homeless students ($OR = 1.852$, 95 % $CI = 1.673, 2.049$). Although all dimensions of school climate were significant ($p < .001$), their contribution to the model was not high. However, the regression coefficients of safety and connectedness were negative and statistically significant, reducing discriminatory bullying in school.

5.1.3. Behavioral victimization

In the first step of the regression (Table 3), which included demographic and background variables, the model was statistically significant ($p < .001$). The partial regression coefficients showed that boys (compared to girls) and 11th graders (compared to ninth graders) were less likely to experience behavioral victimization and that Hispanic and Asian students were less likely to experience behavioral victimization compared to their White peers ($p < .001$). Gang members were more likely than their nongang peers to experience behavioral victimization ($p < .001$). Compared to their nonhomeless peers, homeless students in all subgroups were more likely to experience behavioral victimization with odds ratios ranging between 1.824 for nonsheltered homeless students, to 1.265 for students living with other family. In the second step of the model, the addition of the school climate components was significant ($p < .001$), resulting in a statistically significant model ($p < .001$). Additionally, the odds ratios indicating the

Table 3
Hierarchical Logistic Regression for Predicting Behavioral Victimization by Demographics, Background, and School Climate.

	Step 1				Step 2			
	<i>b</i>	<i>SE</i>	<i>OR</i>	95 % <i>CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	95 % <i>CI</i>
Constant	0.804	0.017			1.894	0.027		
Grade 11	-0.225	0.012	0.798**	0.779, 0.818	-0.227	0.012	0.797**	0.778, 0.817
Male gender	-0.394	0.010	0.674**	0.661, 0.687	-0.399	0.010	0.671**	0.658, 0.684
Race and ethnicity								
Hispanic	-0.134	0.016	0.875**	0.847, 0.903	-0.200	0.016	0.818**	0.794, 0.844
Black	0.012	0.026	1.011	0.961, 1.065	-0.066	0.026	0.936*	0.888, 0.986
Asian	-0.305	0.022	0.737**	0.706, 0.770	-0.345	0.021	0.708**	0.680, 0.738
AI, AN, HI, or PI	0.039	0.028	1.040	0.985, 1.098	-0.015	0.028	0.984	0.932, 1.039
Mixed	0.096	0.016	1.101**	1.066, 1.136	0.054	0.017	1.055*	1.021, 1.090
Gang member	0.518	0.016	1.679**	1.626, 1.733	0.429	0.017	1.537**	1.488, 1.588
Homelessness status								
Nonsheltered homeless	0.601	0.056	1.824**	1.636, 2.034	0.329	0.056	1.390**	1.243, 1.552
Sheltered homeless	0.349	0.060	1.418**	1.260, 1.595	0.214	0.062	1.238**	1.097, 1.397
Living with friend or relative	0.288	0.025	1.334**	1.269, 1.402	0.239	0.026	1.269**	1.207, 1.335
Living with other family	0.234	0.024	1.265**	1.207, 1.325	0.204	0.024	1.226**	1.170, 1.285
School climate								
Connectedness					-0.030	0.002	0.970**	0.966, 0.974
Meaningful participation					-0.004	0.002	0.996*	0.991, 0.999
Positive relationship					-0.006	0.001	0.994*	0.992, 0.996
Safety					-0.158	0.006	0.853**	0.844, 0.863
<i>Nagelkerke R</i> ²	0.026				0.043			
χ^2 (<i>df</i>)	5825.522 (12)**				9624.597 (16)**			
$\Delta\chi^2$ (<i>df</i>)					3799.075 (4)**			

Note. AI = American Indian; AN = Alaska Native; HI = Native Hawaiian; PI = Pacific Islander. Errors were adjusted for the complex design (students are nested with schools). Reference categories were Grade 9, female gender, White race and ethnicity, not a gang member, and not homeless. * $p < .05$; ** $p < .001$.

likelihood of experiencing behavioral victimization for all subgroups of homeless students decreased. Specifically, the partial regression coefficient of safety was negative and significant ($OR = 0.853$, 95 % $CI = 0.844, 0.863$), reducing behavioral victimization.

5.1.4. Weapon involvement

The first step of the regression included demographic and background variables (Table 4). The model was statistically significant ($p < .001$). Unlike discriminatory bullying and behavioral victimization, boys were more likely than girls to be involved in violence related to weapons in school. Compared to ninth graders, 11th graders were less likely to experience weapon involvement in school. All racial and ethnic groups except Asian students were more likely than White students to be involved in weapon violence in school as well as gang members (compared to nonmembers). Compared to their nonhomeless peers, homeless students in all subgroups were at greater risk of weapon involvement in school, with odds ratios ranging between 5.564 for nonsheltered homeless students to 1.456 for students living with another family. In the second step of the model, the addition of the school climate components was significant ($p < .001$) and resulted in a statistically significant model ($p < .001$). Additionally, the likelihood of being involved with weapons in school decreased for all subgroups of homeless students, for example, for nonsheltered homeless students ($OR = 3.299$, 95 % $CI = 2.946, 3.693$). Apart from meaningful participation, all coefficients of school climate were negative and statistically significant. It is especially important to mention that the logistic coefficients of safety and connectedness, reduced weapon involvement in school.

5.2. School level

Table 1 shows the descriptive statistics of the school-level findings. To reiterate, the aggregated data were based on student responses; that is, each percentage represents the mean of all schools for each variable. In this sample, 23.7 % of students reported discriminatory bullying, 61.6 % reported behavioral victimization, and 15.0 % reported weapon involvement. Considering that this sample represents California, this demonstrates the high prevalence of each of these outcomes among students in high school and supports previous research (Astor & Benbenishty, 2018). This was the first study to examine the mean percentage of students who reported experiencing homelessness in school. The average across all schools of the mean of school climate dimensions was 38.2 (range between 28.61 and 45.72).

5.2.1. Hierarchical linear regressions

The results from the linear regression at the school level showed that an increased percentage of homeless students in school tended to increase the percentage of weapon involvement, while controlling for demographic, background, and school climate variables. However, an increased percentage of homeless students in school did not affect the percentage of discriminatory bullying

Table 4
Hierarchical Logistic Regression for Predicting Weapon Involvement by Demographics, Background, and School Climate.

	Step 1				Step 2			
	<i>b</i>	<i>SE</i>	<i>OR</i>	95 % <i>CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	95 % <i>CI</i>
Constant	-2.888	0.028			-0.733	0.034		
Grade 11	-.0198	0.015	0.820*	0.796, 0.845	-0.189	0.015	0.827*	0.802, 0.852
Male gender	0.768	0.013	2.156*	2.099, 2.214	0.774	0.014	2.168*	2.110, 2.228
Race and ethnicity								
Hispanic	0.192	0.023	1.211*	1.157, 1.267	0.073	0.021	1.076*	1.033, 1.121
Black	0.218	0.043	1.243*	1.143, 1.352	0.081	0.042	1.084	0.999, 1.176
Asian	-0.433	0.038	.6480*	0.601, 0.698	-0.508	0.035	0.601*	0.561, 0.644
AI, AN, HI, or PI	0.249	0.041	1.283*	1.183, 1.392	0.151	0.041	1.163*	1.074, 1.260
Mixed	0.243	0.025	1.275*	1.213, 1.341	0.171	0.023	1.186*	1.132, 1.243
Gang member	1.725	0.017	5.616*	5.431, 5.808	10.578	0.017	4.845*	4.681, 5.014
Homelessness status								
Nonsheltered homeless	1.730	0.053	5.564*	5.076, 6.270	10.193	0.057	3.299*	2.946, 3.693
Sheltered homeless	1.176	0.065	3.240*	2.854, 3.679	0.863	0.069	2.370*	2.068, 2.715
Living with friend or relative	0.573	0.033	1.773*	1.662, 1.892	0.477	0.033	1.612*	1.510, 1.722
Living with other family	0.376	0.037	1.456*	1.354, 1.565	0.327	0.037	1.387*	1.289, 1.492
School climate								
Connectedness					-0.051	0.003	0.949*	0.944, 0.955
Meaningful participation					0.000	0.003	1.000	0.994, 1.006
Positive relationship					-0.037	0.002	0.964*	0.960, 0.967
Safety					-0.264	0.007	0.767*	0.756, 0.778
<i>Nagelkerke R</i> ²	0.128				0.168			
χ^2 (<i>df</i>)	19,632.175 (12)*				26,006.996 (16)*			
$\Delta\chi^2$ (<i>df</i>)					6374.821 (4)*			

Note. AI = American Indian; AN = Alaska Native; HI = Native Hawaiian; PI = Pacific Islander. Errors were adjusted for the complex design (students are nested with schools). Reference categories were Grade 9, female gender, White race and ethnicity, not a gang member, and not homeless. **p* < .001.

or behavioral victimization. The results of the linear regression at the school level showed that an increased mean of positive school climate at school tended to decrease the percentage of discriminatory bullying, percentage of behavioral victimization, and log percentage of weapon involvement in school.

5.2.2. Discriminatory bullying

Step 1 of the hierarchical linear regression (Table 5), showed that the model was significant (*p* < .001). The partial regression coefficient of percentage of gang membership was positive and significant (*p* < .001), which shows that increasing the percentage of gang members in school was likely to increase discriminatory bullying. Increasing the percentage of Hispanic tend to decrease discriminatory bullying (*p* < .001). The unique contributions of gender and homelessness variables were nonsignificant. In Step 2, adding school climate to the regression caused two changes to the demographic variables: percentage of American Indian, Alaska Native, Native Hawaiian, and Pacific Islander students and percentage of Asian students became significant, indicating that an increased percentage of the former was likely to increase discriminatory bullying (*p* < .01), whereas an increased percentage of is the latter was likely to decrease discriminatory bullying (*p* < .05). Notably, homelessness status remained nonsignificant, meaning that the percentage of homeless students was not related to discriminatory bullying. The partial coefficient of school climate was negative and significant (*b* = -0.453, *p* < .001). These results indicate that while controlling for demographic and background variables, increasing the mean of positive school climate was likely to decrease the percentage of discriminatory bullying in school. The regression model including school climate was significant (*F*[10, 775] = 22.814, *p* < .001), with an *R*² of .227.

5.2.3. Behavioral victimization

Step 1 (Table 5) shows that the regression model was significant (*p* < .001). The partial regression coefficient of grade level was significant and negative (*p* < .001). All partial regression coefficients of race and ethnicity were statistically significant. Partial coefficients of percentage of Asian, Black, and Hispanic students were negative and statistically significant (*p* < .01). The partial coefficients of percentage of American Indian, Alaska Native, Native Hawaiian, and Pacific Islander students and percentage of mixed-race students were positive and significant (*p* < .05). The partial coefficient of percentage of gang membership was positive and significant (*p* < .001), which shows that increasing the percentage of gang membership was likely to increase behavioral victimization in schools. The unique contribution of homelessness was positive and significant (*b* = 0.143, *p* < .05), indicating that increasing the percentage of homeless students in school tended to increase the percentage of behavioral victimization in schools. When adding school climate to the regression in Step 2 (Table 5), the race and ethnicity category of mixed and the percentage of homeless students became nonsignificant. The partial coefficient of mean of school climate was negative and significant (*b* = -0.714, *p* < .001). These results indicate that while controlling for demographic and background variables, increasing the mean of positive school climate was likely to decrease the prevalence of behavioral victimization in school. The regression model including school

Table 5
Hierarchical Linear Regression for Predicting Percentage of Violent Behavior by Demographics, Background, and School Climate Variables.

	Discriminatory Bullying (%)		Behavioral Victimization (%)		Weapon Involvement (log %)	
	(n = 786)		(n = 790)		(n = 784)	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Step 1						
Constant	24.737***	1.363	64.719***	1.919	.643***	.037
Grade 11	-.081***	.010	-.082***	.014	.001***	.000
Male gender	.045	.024	.017	.033	.004***	.001
Race and ethnicity						
AI, AN, HI, PI	.167	.047	.234***	.065	.003**	.001
Asian	-.030	.017	-.146***	.024	-.004***	.000
Black	.018	.032	-.120**	.044	.004***	.001
Hispanic	-.050***	.009	-.079***	.013	-.000	.000
Mixed	.075*	.032	.104*	.045	.001	.001
Gang member	.210***	.034	.346***	.048	.013***	.001
Homeless	.022	.050	.143*	.068	.013***	.001
<i>F</i>	$F_{9,776} = 22.447***$		$F_{9,780} = 23.152***$		$F_{9,774} = 123.091***$	
<i>R</i> ²	.207		0.211		0.589	
Step 2						
Constant	45.533***	4.741	97.482***	6.667	1.772***	.126
Grade 11	-.081***	.009	-.082***	.013	.001***	.000
Male gender	.015	.024	-.033	.034	.002**	.001
Race and ethnicity						
AI, AN, HI, PI	.141**	.047	.192**	.064	.002	.001
Asian	-.036*	.017	-.154***	.023	-.004***	.000
Black	-.015	.032	-.168***	.044	.002**	.001
Hispanic	-.071***	.010	-.110***	.014	-.001***	.000
Mixed	.062	.032	.087	.045	.000	.001
Gang member	.182***	.035	.294***	.048	.011***	.001
Homeless	-.015	.050	.085	.068	.011***	.001
School climate	-.453***	.099	-.714***	.139	-.025***	.003
<i>F</i>	$F_{10,775} = 22.814***$		$F_{10,797} = 24.137***$		$F_{10,773} = 131.853***$	
<i>R</i> ²	.227		.237		.630	

Note. AI = American Indian; AN = Alaska Native; HI = Native Hawaiian; PI = Pacific Islander. All variables reflect percentage other than school climate, which reflects mean. Weapon involvement was log transformed due to skewness.

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

climate was significant ($F[10, 797] = 24.137, p < .001$) and the *R*² was .237.

5.2.4. Weapon involvement

The first step of the regression model (Table 5) was significant (*p* < .001). The partial regression coefficients of grade and gender was significant and positive (*p* < .001). The partial coefficients of percentage of Black students and percentage of American Indian, Alaska Native, Native Hawaiian, and Pacific Islander students were positive and significant (*p* < .01). The partial coefficient of percentage of Asian students was negative and significant (*p* < .001). The partial coefficient of percentage of gang membership was positive and significant (*b* = 0.013, *p* < .001), which shows that increasing the percentage of gang members was likely to increase the log percentage of weapon involvement. The partial coefficient of percentage of homeless students was positive and significant (*p* < .001). This indicates that higher percentages of homeless students were likely to increase the log percentage of weapon involvement for the school as a whole. After entering school climate in step 2, the percentage of American Indian, Alaska Native, Native Hawaiian, and Pacific Islander students became nonsignificant, whereas the results of other demographic and background variables were similar to the results from Step 1. The partial coefficient of mean of school climate was negative and significant (*b* = -0.025, *p* < .001). These results indicate that while controlling for demographic and background variables, increasing the mean of positive school climate was likely to decrease the log percentage of weapon involvement in school. The regression model including school climate was significant ($F[10, 775] = 24.137, p < .001$) and the *R*² was .630.

6. Discussion

The goal of this study was to empirically document the association between school climate and violence behaviors in school and its role for homeless students at the individual and school levels. The results yielded different yet complementary information at the student and school levels, which points to several avenues for intervention and policy change. Notably, the results indicated that at the student level, multiple components of supportive school climate reduced the likelihood of experiencing discriminatory bullying, behavioral victimization, and weapon involvement in school among homeless students across all subgroups and nonhomeless students. In addition, linear hierarchical regression at the school level indicated that the presence of homeless students in school was not

associated with the rate of discriminatory bullying or behavioral victimization, however, it was associated with a higher rate of weapon involvement. Also, positive school climate at school-level reduced the likelihood of all violence behaviors.

The results of this study offer insights into several bodies of literature, including school climate literature and homeless youth literature. The findings indicate that schools, and principally school climate, play a role for all groups of homeless students. In particular, it strengthened the assumptions that schools as a socialization agent have an important role in the lives of homeless youths (Aviles de Bradley, 2011; Milburn et al., 2009; Murphy & Tobin, 2011). The findings show that the school context could either increase or abate adverse behaviors among homeless youths which strengthens the risk amplification and abatement model (Milburn et al., 2009) that posits that homeless youths' behaviors are affected by engagement in negative or positive socialization experiences across various domains of social organizations, including schools. Additionally, results from the school level indicate that school-level interventions may be beneficial for these youths, presenting a new avenue to understand and better their lives. Moreover, this study illustrates the need to further examine school climate in the context of homeless students and specifically to understand the different components of climate, given their differences compared to other populations.

6.1. School climate, discriminatory bullying, and behavioral victimization

The findings suggest that a positive school climate can reduce the likelihood of school discriminatory bullying and behavioral victimization at the student level. Multiple components of school climate, including sense of connectedness, positive relationships with adults in school, and perceptions of safety, were significantly related to discriminatory bullying and behavioral victimization. This finding supports previous research that linked multiple components of school climate and school victimization (Astor & Benbenishty, 2018; Bradshaw, Waasdorp, Debnam, & Johnson, 2014; Eliot, Cornell, Gregory, & Fan, 2010). Principally, this study indicated that sense of connectedness and safety had negative and significant associations with discriminatory bullying and behavioral victimization. Findings demonstrate that across all groups of homeless students, the likelihood of experiencing discriminatory bullying and behavioral victimization decreased, yet remained significant when school climate components were controlled. These results may indicate that when homeless students are nested in supportive school context/opt_DEL > Astor & Benbenishty, 2018; Bradshaw, Waasdorp, Debnam, & Johnson, 2014; Eliot, Cornell, Gregory, & Fan, 2010). Principally, this study indicated that sense of connectedness and safety had negative and significant associations with discriminatory bullying and behavioral victimization. Findings demonstrate that across all groups of homeless students, the likelihood of experiencing discriminatory bullying and behavioral victimization decreased, yet remained significant when school climate components were controlled. These results may indicate that when homeless students are nested in supportive school contexts, they are less likely to experience discriminatory bullying and behavioral victimization in school. Findings also show that as the homelessness condition worsened, students were more likely to experience discriminatory bullying and behavioral victimization in school. Future research is required to understand the qualitative difference between the different subgroups of homeless students and a more nuanced understanding of the challenges and strengths of each group. The findings indicate that positive school climate, and especially feeling safe and connected to school, has a strong association with reduced discriminatory bullying and behavioral victimization among all groups of homeless and nonhomeless students. Unpredictably, despite having a significant relation with discriminatory bullying and behavioral victimization, positive relationships with adults in school and meaningful participation had very weak associations with the outcomes. Although previous studies have found similar results regarding meaningful participation (De Pedro et al., 2016), this is one of the first studies to find a low association between positive relationships with adults in school and school violence outcomes. Because the tested model included background variables (homelessness and gang involvement), the findings suggest that while controlling for these variables, the role of positive relationships with adults in schools was less significant. This finding challenges previous theoretical and empirical work on the role of supportive adult relationships and school violence (Thapa et al., 2013; Wang, Berry, & Swearer, 2013), and highlights the fact that for homeless and gang-involved students, school connectedness and safety are more strongly associated with discriminatory bullying and behavioral victimization than other school climate components. Additionally, findings at the individual level provide an important contribution to both the homeless youth violence literature and research related to homeless students. By creating avenues to encourage student connectedness to school and increasing perceptions of safety in school, students will likely experience less discriminatory bullying and behavioral victimization.

The school-level findings provide an additional layer of information that complements the findings at the individual level. Positive school climate was associated with reduced school discriminatory bullying and behavioral victimization. Interestingly, findings indicate that the presence of homeless students in school was not associated with the rate of discriminatory bullying and behavioral victimization, despite the fact that individual homeless students may have experienced discriminatory bullying and behavioral victimization in schools. These results provide insight into the role of school for homeless students with respect to discriminatory bullying and behavioral victimization, in addition to the role of homeless students with respect to these outcomes. Overall, school climate was found to be important for both homeless and nonhomeless students. It is worth noting that homeless subcategories were collapsed into one category, potentially contributing to the lack of association with school-level discriminatory bullying and behavioral victimization because it included doubled-up students who, at the individual level, had lower risk of being victimized in school.

6.2. School climate and weapon involvement

The findings demonstrate that a positive school climate can reduce the probability of weapon involvement in school at the student and school levels. Similar to discriminatory bullying and behavioral victimization findings at the student level, homeless students across all groups were at higher risk of being involved with weapons in school, especially nonsheltered and sheltered homeless

students. However, the risk of homeless students being involved with weapons in school was higher than their risk of experiencing discriminatory bullying and behavioral victimization. Overall, weapon involvement in schools remains an unexplored territory in school literature (Astor & Benbenishty, 2018), especially regarding the relation between supportive school climate and student homelessness. Moreover, despite the myriad studies examining violence and victimization among homeless youths, not much is known about the prevalence of weapon involvement and violence in this population (Bender, Thompson, Ferguson, Yoder, & DePrince, 2015). These findings indicate that weapon involvement among homeless youth requires further investigation and that school-based interventions should be considered.

Corresponding with findings for discriminatory bullying and behavioral victimization at the individual level, school climate components most significantly associated with weapon involvement were connectedness and safety. Safety had a stronger association with weapon involvement than discriminatory bullying and behavioral victimization. One of the most striking findings of this study resulted from the examination of school climate and weapon involvement at the school level. The fitted model had 63 % predictive ability (R^2) when all variables were included. This was the best-fitting model at the school level tested in this study.

Percentage of homeless students and weapon involvement were positively associated at both the student and school levels. Schools with a higher proportion of homeless students had higher rates of weapon involvement in school. Additionally, a higher proportion of gang members in schools was associated with a higher rate of weapon involvement. The literature has shown an association between youth homelessness and gang membership (Petering, 2016; Yoder, Whitbeck, & Hoyt, 2003). This means that homeless students who are gang involved should receive unique consideration regarding interventions for school violence and especially weapon involvement. This also raises questions as to the relation between gang membership, weapon involvement and homelessness. It could be that gang involved homeless students are involved with weapons based on their gang association. Alternatively, it could be that they are involved with weapon regardless of gang association or membership. Future studies which focus on this intersection in school, specifically around the motive of weapon involvement.

Contrasting findings from school-level discriminatory bullying and behavioral victimization, which had no association with homelessness, findings regarding weapon involvement indicate a positive relation with the prevalence of homeless students. This could be related to multiple factors, including the larger contexts in which schools are nested, such as neighborhood safety and district characteristics. Future work should examine this association with regard to larger ecological contexts.

To date, no studies have compared associations between school climate and weapon involvement among homeless and non-homeless students. Given the fact that weapon involvement is one of the most extreme forms of school-related violence, the findings provide several insights. First, the findings indicate that weapon involvement is prevalent in 15 % of schools across California, which means that many students are exposed to weapons in school and greater consideration should be given to weapons in schools and homeless students in particular. Second, previous research suggested that homeless youth may be carrying weapons as a form of protection (Bender et al., 2015), and a recent study found that victims of bullying appear to be much more likely to bring a weapon to school (Pham, Schapiro, Majnu, & Adesman, 2017). Because this study found that homeless students are at high risk of experiencing discriminatory bullying and behavioral victimization, one explanation for their increased likelihood of weapon involvement is their need to protect themselves against bullying and victimization. Third, supportive school climate had an association with reduced levels of weapon involvement in school at the school level, which means that enhancing positive climate may benefit all students and especially homeless students. The findings suggest that future policies and interventions should focus on paths to reduce weapon carrying and involvement in school. Based on recent scientific literature these practices include local, statewide and national policies that promote supportive climates in schools; the need to address all types of weapons; adopting a public health approach to prevent weapons in school; nationwide and statewide data collection for monitoring and learning about weapon use rates in schools and local interventions; and the collaboration with the local community to address local weapon issues (BLINDED; American Psychological Association, 2015; The American Educational Research Association, the American Academy of Social and Work and Social Welfare, & the National Academy of Education congressional briefing, 2019).

6.3. Differences between individual and school levels

The differences between individual and school levels provide insights and important contributions to theory, research, practice, and policy. First, when considering school climate components at the school level, the correlations between school climate components were very high and led to the aggregation of the components into one variable. This means that unlike the student level, wherein each component had a unique contribution to the concept of school climate, at the school level, the components were dependent on one another. From a theoretical standpoint, the implication of this finding may be that the construct of school climate at the school level affected the different components of school climate, producing high correlations. This should be considered in the conceptualization of future studies and the development of the understanding of school climate components at different levels. Second, the contrast between different levels indicates that focusing on the school level provides unique information about multiple violence behaviors in schools. In particular, it indicates that differences exist between individual experiences and perceptions and school-level findings. This means that interventions should target both the school and student levels; however, schoolwide interventions may have a stronger and broader impact on homeless students (BLINDED Astor & Benbenishty, 2018). Practices that focus on creating and developing welcoming schools and classrooms for students, families and the community have been found to be associated with a more supportive school climate (BLINDED Astor & Benbenishty, 2018; Bryant, Shdaimah, Sander, & Cornelius, 2013). Developing local grassroots strategies to create welcoming districts, schools and classrooms can benefit homeless and nonhomeless students. Simultaneously, targeted interventions that address groups at greatest risk should be developed and provided at school sites, because these groups experience extremely high rates of all forms of violence. Previous research shows that allocating resources to

identify, serve and support homeless students plays an important role in aiming to better their school experience (Canfield, 2015; Hallett, Skrla, & Low, 2015).

6.4. Strength and limitations

The current study has several methodological and conceptual strengths. First, this study used a large-scale, representative California statewide sample. Additionally, it included student-level and school-level analyses, allowing for a nuanced and complementary conceptualization of the role of school climate on various outcomes of school violence. Moreover, it featured an array of school violence outcomes, representing the first examination to date of the role of school climate in these outcomes among both homeless and nonhomeless students. Above all, this study was one of the first to address the gap in the literature regarding weapon involvement in school for homeless youths, providing important insights for possible intervention in this area and focusing on schools as a social agent to support homeless youth. Despite this study's strengths, several limitations should be noted. First, the study's cross-sectional nature prevented determination of causality. Second, the use of secondary data restricted the variables, particularly homelessness categories. Because the categorization was created specifically for this study, homelessness might have been over-reported or underreported. Future national and state-based surveys should include a detailed homelessness category based on the MVA definition to gain more accurate data regarding homeless students. Third, the fact that the dependent variables were dichotomized may have reduced the differentiation between nonviolence and strong violence. Additionally, *homelessness* subcategories were collapsed into one category, which may have contributed to the lack of association with school-level discriminatory bullying and behavioral victimization. Future work is needed to understand the range, severity, and frequency of violent behaviors in school among homeless students, given that this study focused on dichotomized outcomes.

6.5. Implications and conclusions

This study made important contributions to several bodies of literature, including the school climate literature, youth homelessness literature, and violence literature, while demonstrating the need to explore intersections and overlapping areas in theory, research, and practice. Additionally, this study has several important implications for policy makers, especially in the context of recent amendments to the MVA and accountability requirements under the ESSA. Based on the findings, a holistic approach that focuses on the school experience of school-attending homeless youths could benefit these students and the schools that serve them in terms of practice, research, policy advocacy, and theory development. In particular, gaining information about school-attending homeless youth and their school violence experience at the local and state levels can support resources not directly addressing the issue of homelessness that could promote well-being in the entire school community. Improving school climate, with an emphasis on safety and sense of connectedness, would be beneficial to schools and has the potential to enhance students' school experience and as a result, their success. Moreover, the capacity and ability of schools and districts, especially those with higher rates of poverty, homeless students and gang-involved students, should be considered and examined. For example, because schools with high rates of homeless students often struggle with funding and resources, expanding the framework and including data collection at the local and state levels could provide tools for establishing and documenting the urgent need of schools for support in their important work with homeless students. However, capacity does not solely rely on supplementary funding and additional ways to improve schools' and districts' capacity to serve the most vulnerable students with a whole-school approach should be investigated.

Future studies are needed to examine the association between bullying and weapon involvement, as previous studies indicated that the two are correlated (Pham et al., 2017). Additionally, examination of the contexts in which schools are nested may provide important information, especially regarding weapon involvement related to gangs and homelessness.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.chiabu.2020.104378>.

References

- American Psychological Association (2015). *Gun violence: Prediction, prevention, and policy: APA panel of experts report*. American Psychological Association.
- Anderson, D. (2012). Hierarchical linear modeling (HLM): An introduction to key concepts within cross-sectional and growth modeling frameworks. Technical report# 1308. *Behavioral Research and Teaching*. Retrieved from: <https://pdfs.semanticscholar.org/22d8/2fac0ace03ea307c0f54ab3d7598337599c9.pdf>.
- Astor, R. A., & Benbenishty, R. (2018). *Bullying, School Violence, and Climate in Evolving Contexts: Culture, organization, and Time*. Oxford University Press, USA.
- Austin, G., Bates, S., & Duerr, M. (2011). *Guidebook for the California healthy kids survey*. California Safe and Healthy Kids Program Office.
- Aviles de Bradley, A. M. (2011). Unaccompanied homeless youth: Intersections of homelessness, school experiences and educational policy. *Child & Youth Services, 32*(2), 155–172.
- Bender, K., Thompson, S., Ferguson, K., Yoder, J., & DePrince, A. (2015). Risk detection and self-protection among homeless youth. *Journal of Research on Adolescence, 25*, 352–365. <https://doi.org/10.1111/jora.12123>.
- Berkowitz, R., Moore, H., Astor, R. A., & Benbenishty, R. (2017). A research synthesis of the associations between socioeconomic background, inequality, school climate, and academic achievement. *Review of Educational Research, 87*(2), 425–469 doi:10.3102/0034654316669821.
- Bradshaw, C. P., Waasdorp, T. E., Debnam, K. J., & Johnson, S. L. (2014). Measuring school climate in high schools: A focus on safety, engagement, and the environment. *The Journal of School Health, 84*(9), 593–604.
- Bryant, V. C., Shdaimah, C., Sander, R. L., & Cornelius, L. J. (2013). School as haven: Transforming school environments into welcoming learning communities. *Children and Youth Services Review, 35*(5), 848–855.

- California Department of Education (2016). *State Board of Education approves new groundbreaking school accountability system*. September 8, [News release]. Retrieved from <http://www.cde.ca.gov/nr/ne/yr16/yr16rel59.asp>.
- Canfield, J. (2015). *School-based practice with children and youth experiencing homelessness*. Oxford University Press.
- Cellini, S. R., McKernan, S.-M., & Ratcliffe, C. (2008). The dynamics of poverty in the United States: A review of data, methods, and findings. *Journal of Policy Analysis and Management*, 27, 577–605. <https://doi.org/10.1002/pam.20337>.
- Chen, X., Thrane, L., Whitbeck, L. B., Johnson, K. D., & Hoyt, D. R. (2007). Onset of conduct disorder, use of delinquent subsistence strategies, and street victimization among homeless and runaway adolescents in the Midwest. *Journal of Interpersonal Violence*, 22, 1156–1183. <https://doi.org/10.1177/0886260507303731>.
- Cornell, D., & Huang, F. (2016). Authoritative school climate and high school student risk behavior: A cross-sectional multi-level analysis of student self-reports. *Journal of Youth and Adolescence*, 45, 2246–2259. <https://doi.org/10.1007/s10964-016-0424-3>.
- De Pedro, K. T., Asor, R. A., Gilreath, T., Benbenishty, R., & Berkowitz, R. (2016). Examining the relationship between school climate and peer victimization among students in military-connected public schools. *Violence and Victims*, 31, 751–767. doi:10.1891/0886-6708 VV-D-15-00009.
- Durso, L. E., & Gates, G. J. (2012). *Serving our youth: Findings from a national survey of services providers working with lesbian, gay, bisexual and transgender youth who are homeless or at risk of becoming homeless*.
- Eliot, M., Cornell, D., Gregory, A., & Fan, X. (2010). Supportive school climate and student willingness to seek help for bullying and threats of violence. *Journal of School Psychology*, 48(6), 533–553.
- Espelage, D. L., & Swearer, S. M. (2003). Research on school bullying and victimization: What have we learned and where do we go from here? *School Psychology Review*, 32, 365–383.
- Estrada, J. N., Huerta, A. H., Hernandez, E., Hernandez, R., & Kim, S. (2018). *Socio-ecological risk and protective factors for youth gang involvement*. *The handbook of violence in education: Forms, factors, and preventions* 185–202.
- Fantuzzo, J. W., LeBoeuf, W. A., Chen, C.-C., Rouse, H. L., & Culhane, D. P. (2012). The unique and combined effects of homelessness and school mobility on the educational outcomes of young children. *Educational Researcher*, 41, 393–402. <https://doi.org/10.3102/0013189X12468210> Retrieved from.
- Hallett, R. E., Skrla, L., & Low, J. (2015). That is not what homeless is: A school district's journey toward serving homeless, doubled-up, and economically displaced children and youth. *International Journal of Qualitative Studies in Education*, 28(6), 671–692. <https://doi.org/10.1080/09518398.2015.1017859>.
- Hopson, L. M., & Lee, E. (2011). Mitigating the effect of family poverty on academic and behavioral outcomes: The role of school climate in middle and high school. *Children and Youth Services Review*, 33, 2221–2229. <https://doi.org/10.1016/j.childyouth.2011.07.006>.
- Huang, F. L. (2016). Alternatives to multilevel modeling for the analysis of clustered data. *Journal of Experimental Education*, 84, 175–196. <https://doi.org/10.1080/00220973.2014.952397>.
- Jones, M. M. (2016). Does race matter in addressing homelessness? A review of the literature. *World Medical & Health Policy*, 8(2), 139–156.
- Kotok, S., Ikoma, S., & Bodovski, K. (2016). School climate and dropping out of school in the era of accountability. *American Journal of Education*, 122, 569–599. <https://doi.org/10.1086/687275>.
- Milburn, N. G., Rice, E., Rotheram-Borus, M. J., Mallett, S., Rosenthal, D., Batterham, P., ... Duan, N. (2009). Adolescents exiting homelessness over two years: The risk amplification and abatement model. *Journal of Research on Adolescence*, 19, 762–785. <https://doi.org/10.1111/j.1532-7795.2009.00610.x>.
- Miller, P. M. (2011). An examination of the McKinney-Vento Act and its influence on the homeless education situation. *Educational Policy*, 25, 424–450. <https://doi.org/10.1177/0895904809351692>.
- Murphy, J. F., & Tobin, K. J. (2011). *Homelessness comes to school*.
- Moore, H., Benbenishty, R., Astor, R. A., & Rice, E. (2018). The positive role of school climate on school victimization, depression, and suicidal ideation among school-attending homeless youth. *Journal of School Violence*, 17(3), 298–310. <https://doi.org/10.1080/15388220.2017.1322518>.
- A Statewide Study of School-Based Victimization, Discriminatory Bullying, and Weapon Victimization by Student Homelessness Status. *Social Work Research* 43(3), 181–194. <https://doi.org/10.1093/swr/svz010>.
- National Association for the Education of Homeless Children and Youth (2008). *Questions and answers on special education and homelessness*. Retrieved from <http://www.naehcy.org/sites/default/files/dl/conf-2014/h/c6/popp-naehcy-response.doc>.
- National School Climate Council (2016). *What is school climate?* Retrieved from <http://www.schoolclimate.org/climate/>.
- Neter, J., Wasserman, W., & Whitmore, G. A. (1993). *Applied statistics*. Boston: Allyn and Bacon 531–649.
- O'Malley, M., Voight, A., Renshaw, T. L., & Eklund, K. (2015). School climate, family structure, and academic achievement: A study of moderation effects. *School Psychology Quarterly*, 30, 142–157. <https://doi.org/10.1037/spq0000076>.
- Petering, R. (2016). Sexual risk, substance use, mental health, and trauma experiences of gang-involved homeless youth. *Journal of Adolescence*, 48, 73–81. <https://doi.org/10.1016/j.adolescence.2016.01.009>.
- Pham, T. B., Schapiro, L. E., Majnu, J., & Adesman, A. (2017). Weapon carrying among victims of bullying. *Pediatrics*, 140(6), <https://doi.org/10.1542/peds.2017-0353>.
- Savage, T. A., & Schanding, G. T., Jr (2013). Creating and maintaining safe and responsive schools for lesbian, gay, bisexual, transgender, and queer youths: Introduction to the special issue. *Journal of School Violence*, 12(1), 1–6.
- Slesnick, N., Erdem, G., Collins, J., Patton, R., & Buettner, C. (2010). Prevalence of intimate partner violence reported by homeless youth in Columbus, Ohio. *Journal of Interpersonal Violence*, 25, 1579–1593. <https://doi.org/10.1177/0886260509354590>.
- Thapa, A., Cohen, J., Guffey, S., & Higgins-D'Alessandro, A. (2013). A review of school climate research. *Review of Educational Research*, 83, 357–385. <https://doi.org/10.3102/0034654313483907>.
- The American Educational Research Association, the American Academy of Social and Work and Social Welfare, & the National Academy of Education congressional briefing (2019). *The impact of weapons and violence on schools and surrounding communities*. June 13.
- Tyler, K. A., Hoyt, D. R., Whitbeck, L. B., & Cauce, A. M. (2001). The impact of childhood sexual abuse on later sexual victimization among runaway youth. *Journal of Research on Adolescence*, 11, 151–176. <https://doi.org/10.1111/1532-7795.00008>.
- Tyler, K. A., Schmitz, R. M., & Ray, C. M. (2018). Role of social environmental protective factors on anxiety and depressive symptoms among midwestern homeless youth. *Journal of Research on Adolescence*, 28(1), 199–210.
- Wang, C., Berry, B., & Swearer, S. M. (2013). The critical role of school climate in effective bullying prevention. *Theory Into Practice*, 52(4), 296–302.
- Yoder, K. A., Whitbeck, L. B., & Hoyt, D. R. (2003). Gang involvement and membership among homeless and runaway youth. *Youth & Society*, 34(4), 441–467.