Title: The Association between the Social Vulnerability Index and Access to California High School Athletic Trainers

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Abstract:

Context: Social determinants of health are known to affect overall access to youth sports, however, it is not fully understood how multiple social determinants of health may impact access to school-based athletic training services.

Objective: To determine the relationship between Social Vulnerability Index (SVI) scores on access to high school-based athletic trainers in California

Design: Retrospective, cross-sectional study

Setting: Online survey

Patients or Other Participants: California Interscholastic Federation (CIF) high school respondents of the 2022-23 Participation Census

Main Outcome Measures: Association between Social Vulnerability Index scores and access to school-based athletic trainer services

Methods: This study uses data from CIF high school respondents of the 2022-23 Participation Census. School addresses were used to extract SVI scores from the U.S. Census Bureau. Separate multivariable logistic regressions and generalized linear mixed effects models assessed the relationships between access to school-based athletic training services and SVI scores at the census and county levels.

Results: There were 1,598 respondent schools (65% public, 24% private, and 11% charter). 49% of schools reported having an athletic trainer, of which 41% were certified. Adjusted analyses revealed that increased vulnerability in household characteristics was associated with lower odds of access to athletic trainers and certified athletic trainers at both county (OR: 0.89 (95% CI: 0.80, 0.99); p = .04) and census tract levels (OR: 0.93 (95% CI: 0.89, 0.97); p = .002). Increased vulnerability in socioeconomic status was associated with lower odds of having an certified athletic trainer at the census tract level (OR: 0.94 (95% CI: 0.89, 0.98); p = .006), but not the county level (p = .16).

Conclusions: Increased vulnerability in household characteristics is associated with decreased odds of access to high school-based athletic training services.

Key words: Youth sports; Health care access; School-based athletic trainer; Social determinants of health; Health inequities

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Key points:

1. The majority of California Interscholastic Federation (CIF) high schools do not have a certified athletic trainer on staff.
2. Increased numbers of elderly and pediatric household members, individuals with disabilities, single-parent households, and poor English language proficiency are associated with decreased odds of access to school-based athletic training services.
3. Lower socioeconomic status and increased vulnerability in housing type and transportation at the census tract level are also associated with reduced odds of access to school-based athletic training services.

Athletic trainers (ATs) serve a crucial role in caring for athletes as they are frequently the first to assess and treat injured athletes. However, availability of ATs in California high school-based settings is inconsistent as no mandates exist to require the presence of ATs in schools. Despite having the second largest number of high school athletes in the U.S. at around 763,000, California is the only state which lacks regulations and licensure for ATs.[1] Prior research revealed that over 54,000 student athletes in California received care from an unqualified health personnel serving in the role of an AT.[1] Efforts to protect youth athletes through athletic training licensure have been attempted in the past through bills proposed to the California state

legislature; however, none have been implemented to-date.[2] The lack of licensure regulation for ATs in California directly impacts the availability and quality of care for high school athletes. In areas with fewer resources or less access to qualified health professionals, student athletes may receive inadequate care from untrained or uncertified individuals who call themselves "athletic trainers." Marginalized communities and under-resourced schools are more likely to experience gaps in access to qualified care, potentially contributing to health disparities and worse health outcomes for student athletes. Although reasons for lack of ATs in the school setting are varied, literature suggests that the presence of a school-based AT may help to mitigate the effects of the social determinants of health (SDoH) on athlete health and wellbeing.[3–7] SDoH are factors that can influence one's health, such as policies and laws, geographic location, the built environment (e.g., sidewalks, open spaces), race, socioeconomic status, as well as access to education, nutritious foods, physical activity opportunities, and healthcare.[8]

A growing body of evidence reveals inequitable SDoH exists for athletes, which can lead to health disparities among different populations. One study found that Black athletes are less knowledgeable about concussion symptoms than their White counterparts, which may delay access to appropriate treatment and subsequent return to sports.[9] Prior work has also identified inequities in access to surgical care for those who have been injured. Pediatric athletes who were Black, Hispanic, or publicly insured are more likely to experience a greater delay to surgery after an anterior cruciate ligament rupture when compared to their counterparts.[10]

Evaluating AT access in the context of SDoH is important because it affects how sports-related injuries are evaluated and managed. For example, among racial minorities, the presence of ATs have been associated with increased athlete knowledge about concussion, as well as increased survival after sudden cardiac arrest.[7,9,11,12] Although SDoH are known to affect overall access to

youth sports, the role of SDoH on access to school-based athletic training services has not been fully elucidated.

Prior studies examining the relationship between SDoH and school-based athletic training access did not take into account the intersectionality of SDoH.[4,5] Intersectionality is a theoretical framework that examines how different parts of a person's identity can work together to create advantages and/or challenges experienced on the individual level, as well as reflect the systems of power and marginalization that exist at the larger macro societal level.[13] Studying intersectionality is crucial when examining SDoH because it acknowledges the complex realities of everyday life and helps to explain how multiple factors interact to shape health outcomes. Some individuals may hold multiple identities – such as low socioeconomic status, racial minority, and female – that compound and can ultimately lead to health inequities and disparities. While no metric is perfect at capturing the nuances of intersectionality, the Centers for Disease Control and Prevention/ Agency for Toxic Substances and Disease Registry's (CDC/ATSDR's) Social Vulnerability Index (SVI) provides an opportunity to assess multiple SDoH all at once. The SVI was originally created to help public health officials and local planners better prepare for and respond to emergency events like hurricanes and disease outbreaks, and has also been applied to social ecological research. It is a measure of social vulnerability that considers 16 U.S. Census variables across 4 domains: 1) racial & ethnic minority status, 2) household characteristics, 3) socioeconomic status, and 4) housing type & transportation (Appendix B).[14] Through the lens of the social ecological model of health, a theoretical framework which explains how factors in various layers of the environment interact together and can influence one's health (Appendix A), we set our primary aim to evaluate the association between county and census tract level SVI scores and California Interscholastic Federation (CIF) high school access to school-based certified ATs and unverified trainers (UTs).[15] Our secondary aim was to describe the variability in SVI scores between and within

counties in California. We hypothesize that a higher overall SVI score and domain specific SVI scores are associated with less access to school-based certified ATs and UTs.

Methods:

Study Sample:

Using the social ecological model as the theoretical framework, we conducted a retrospective cross-sectional study using publicly available data. We utilized the state-based CDC/ATSDR's SVI database to collect county and census tract level SVI scores within California.[16] Given that a single county can have large variations in SDoH and thus may not be representative of individual schools, SVI scores were collected at both the county and census tract levels. Census tracts are small, geographic areas used by the U.S. Census Bureau to analyze local patterns in demographics, housing, health, and other social factors. Multiple census tracts exist within a single county. The census tract level is the most granular level of data available from the SVI database. The database is based on the U.S. Census Bureau's American Community Survey data from 2020 as this was the most up-to-date data available. The CIF Participation Census is an annual survey that collects information on its member schools.[17] The 2022-23 CIF Participation Census (Appendix C) was the most up-to-date data available and was used to collect demographic information (e.g. name, address, school type) of individual high schools. Of 1,609 CIF member high schools in the 2022-23 academic year, 1,598 (99%) schools responded to the annual Participation Census. We did not conduct an a priori power analysis since all schools who responded to the 2022-23 Participation Census were included in this study. The University of California, San Francisco Institutional Review Board approved our study.

Data collection

We extracted participating school names, the city of address for each school, school type (public, public/charter, or private), total student enrollment, total student athlete enrollment,

access to school-based UTs, and access to school-based certified ATs from the CIF census database.[17] We then manually cross referenced the school names and city of addresses with the California Department of Education's online California School Directory and/or the school's website to determine the school's address. Subsequently, we used each school's address (or geographic coordinates found on Google Maps when the address was inadequate) to match each school to its corresponding county and census tract utilizing an online geocoder developed by the U.S. Census Bureau.[18,19] Then we matched each school to its corresponding county and census tract level SVI scores using the state-based CDC/ATSDR's SVI database.[14] The primary outcomes of interest were: 1) access to school-based UTs, and 2) access to school-based certified ATs. Secondary outcomes of interest included intercounty and intracounty variability in SVI scores.

Statistical Approach:

We summarized demographic data using descriptive statistics with medians [interquartile ranges] summarizing continuous variables and frequencies (%) summarizing categorical variables. We built separate multivariable logistic regressions to assess the relationships between census level SVI scores (overall and all SVI domains) and access to school-based UTs and certified ATs. Then, we used generalized linear mixed effects models, with a binary outcome and logit link, to assess the relationships between county level SVI scores (overall and SVI domains) and access to school-based UTs and certified ATs. We included a random effect for counties in these models to account for correlation among schools within the same county. We adjusted all models for school enrollment size, total sport participation and school type. If a school did not know whether an AT was on staff, we removed that school from analyses involving AT as an outcome. We used coefficients of variation to assess intercounty and intracounty variability in SVI scores. SAS version 9.4 (SAS Institutes, Cary, NC) was used for all analyses and statistical significance was set a priori at $\alpha=0.05$.

Results:

Demographics:

Based upon the CIF census data, of the 1,598 respondent schools, 65% were public, 24% private, and 11% charter (Table 1). The median student enrollment per school was 928 students [IQR: 327, 1817]. The median number of athletes per school was 460 [IQR: 174, 750]; however, this number does not account for multisport athletes, thus the number of unique athletes may be overcounted. 49% of high schools reported having an “athletic trainer” on staff, of which 41% were certified ATs. The majority of high school-based ATs worked part-time (61%).

Association between SVI and UT on Staff:

When adjusted for school type, school enrollment size, and total sport participation, an increased SVI score (indicating increased vulnerability) in household characteristics was associated with lower odds of having a high school UT on staff at both county (OR: 0.89 (95% CI: 0.80, 0.99); p = .04) and census tract levels (OR: 0.93 (95% CI: 0.89, 0.97); p = .002) (Table 2). Higher scores in socioeconomic status, racial and ethnic minority status, and housing type and transportation were not significantly associated with access to high school UTs at both the county and census tract levels. Increased overall SVI scores were associated with lower odds of having a high school UT at the census tract level (OR: 0.95 (95% CI: 0.90, 0.99); p = .02), but not the county level (p = .75).

Association between SVI and certified AT on Staff:

Using the same adjustments for analyses, increased socioeconomic status SVI scores were associated with lower odds of having a high school certified AT at the census tract level (OR: 0.94 (95% CI: 0.89, 0.98); p = .006), but not the county level (p = .16) (Table 2). A higher SVI score in household characteristics was associated with lower odds of having a high school

certified AT on staff at both county (OR: 0.86 (95% CI: 0.77, 0.96); p = .009) and census tract levels (OR: 0.91 (95% CI: 0.87, 0.96); p < .001). Higher SVI scores in racial & ethnic minority status were not significantly associated with access to high school certified ATs at both the county and census tract levels. Increased vulnerability in housing type and transportation at the census tract level was associated with lower odds of having a high school certified AT (OR: 0.95 (95%CI: 0.91, 0.99); p = .02), but not at the county level (p = .73). Increased overall SVI scores were associated with lower odds of having a high school certified AT at the census tract level (OR: 0.92 (95% CI: 0.88, 0.97); p < .001), but not at the county level (p = .22).

Intercounty and Intracounty Variability in SVI:

Intercounty (between-county) variability was highest in household characteristics SVI scores, and lowest in racial & ethnic minority status SVI scores (Table 3). Marin County has the greatest intracounty (within-county) variability in overall SVI score (Table 4, Figure 1).

Discussion:

Access to high-quality youth sports includes the adequate staffing of athletic trainers, who are first-line triagers for injuries, recognize life-threatening medical conditions, and manage medical emergencies.[20] SDoH are known to affect overall access to youth sports, however, it is not fully understood how multiple SDoH, outside of socioeconomic status, may impact the access to school-based ATs.[4] Additionally, there is a need for increased quality of health equity research methodologies which considers the assessment of multiple contributors and their impact on health disparities in sports and exercise medicine.[21] Using the social ecological model of health as a theoretical framework and the SVI as a measure of multiple SDoH, we examined sixteen distinct SDoH and found differential access to athletic training services based on the geographical location of a school and certain SDoH affecting that region.

In our study, increased vulnerability in household characteristics (e.g. elderly and pediatric household members, individuals with disabilities, single-parent households, and poor English language proficiency) at both the county and census tract levels stood out as the primary SVI domain associated with decreased access to school-based UTs and certified ATs. To our knowledge, this is a novel finding that has not been demonstrated in prior research. One possible explanation is that immigrants in addition to racial and ethnic minority families frequently live in multigenerational households to pool resources both in finances as well as supervised care for dependents such as the elderly, children, and individuals with disabilities.[22] Due to the stretching of limited resources, parents in these settings may not advocate for ATs at their school districts given that their efforts are spent elsewhere providing for the entire family. Moreover, these parents may simply not be aware of the existence or value of ATs due to language barriers. However, as household characteristics have not been previously studied in research examining SDoH and their relationship to school-based AT access, drawing definitive conclusions proves challenging. Our results also reveal that an increased overall vulnerability at the census tract level is associated with decreased odds of access to both school-based UTs and certified ATs. Given that the other SVI domains had variable association with access to athletic training services, household characteristics may be the most influential driving force behind overall social vulnerability. This underscores the importance of further research into household characteristics as a crucial factor influencing access to school-based ATs.

At the more granular census tract level, our analysis revealed that lower odds of certified AT access was also associated with increased vulnerability in the socioeconomic status (SES) as well as housing type and transportation domains. Our findings are congruent with prior studies which demonstrated that decreased SES is associated with decreased AT access.[1,23] For example, one cross-sectional study found that although access to ATs positively influenced student-athletes' health care, schools with lower SES had reduced access to AT services.[4] The

researchers of this study used county median household income and percentage of students eligible for free or reduced-price lunch as a proxy for SES. The disparities in funding for ATs in California high schools, which are often not reimbursed by third-party payers like Medicaid or commercial insurers, can be linked to the broader context of California's school funding evolution.[24,25] While legislative changes like Serrano v. Priest and Proposition 13 have addressed some financial disparities among school districts, ongoing inequalities driven by local income variations and economic fluctuations persist.[25] Consequently, school districts frequently prioritize resources for teacher and staff salaries over funding for athletics departments, possibly relegating financial support for ATs to a lower priority.[26,27] In addition to variations in school funding, if parents or the community in which they live have low levels of educational attainment and SES, then children are less likely to have access to youth sports, and more likely to drop out of organized sport.[23,28–30] This may be related to the increasing cost of youth sports, which can become burdensome for those who have financial struggles.[30,31] Reduced sport participation may then also lead to reduced employment of ATs in school settings given the decreased need for athletic training services. Mixed-method studies have also shown that lack of awareness regarding the importance and impact of ATs may also contribute to AT understaffing.[5,6] These factors ultimately lead school administrators to rely on coaches or other medical providers, such as school nurses, to fulfill the duties of athletic trainers.[5,6] Disparities in funding for ATs in California's high schools, coupled with socioeconomic and educational disparities within communities, highlight the ongoing challenges in ensuring equitable access to sports healthcare professionals.

Housing type and transportation also has not yet been studied in relation to school-based AT access. However, our results could demonstrate the intersectionality of SDoH impacting access to school-based medical care for student athletes in resource-limited environments. A plausible explanation is that those who rely on public transit and live in multi-unit or mobile homes in

crowded spaces are more likely to have lower SES, which negatively impacts local school funding and may result in even less distributed funds to athletic departments. Another possibility is that the lack of private vehicles as a mode of transportation may serve as a barrier for youth to attend practices and games, resulting in overall reduction in school sport participation and therefore insufficient justification for school administrators to allocate funds to employ school-based athletic training services. Of note, limited transportation and housing insecurity have previously been suggested as barriers to health as perceived by secondary school ATs.[32] It is unclear whether increased vulnerability in housing type and transportation is an independent risk factor for decreased access to ATs in the school setting.

Race and ethnicity is one of the most-researched SDoH in sports medicine, and minority ethnicities are often associated with poor health outcomes.[21] It is often used as a proxy for other SDoH and is thus at risk for being labeled inappropriately as a mediator for social vulnerability.[21] We did not find an association between racial and ethnic minority status and access to school-based UTs or certified ATs in our study. This is not to say that a relationship between the two does not exist. A recently published study showed that California secondary schools without access to ATs had a larger proportion of Hispanic or Latino as well as African American students.[33] Contrary to previously documented inequitable access to health care affecting racial and ethnic minorities, Barter et al. found that White-identifying populations experienced limited access to AT services in public secondary schools.[4] Of note, Barter et al.acknowledge they did not include state level race or ethnicity demographics as part of their inclusion criteria, which could have biased their results. In the context of our study, it may be that California is a more racially and ethnically diverse state as compared to some of the states included in the Barter et al. study, and therefore race and ethnicity as measured by the SVI played a lesser role with regards to AT access. In addition, there could be other SDoH that may have influenced the Barter et al. study findings on race, such as SES and geographic locations of secondary

schools. As previously mentioned, our results are similar to those of the Barter et al. study in that lower access to AT services is associated with lower SES. Geographic location of secondary schools has previously been linked to differential access to AT services, with those in rural settings having decreased access to ATs.[34] It may be that the effects of race and ethnic minority status on access to AT services are amplified when combined with a lower SES and attending secondary school in a rural setting. This possibility emphasizes the importance to evaluate multiple SDoH and to consider intersectionality when investigating access to ATs.

The SDoH-mediated differential access to athletic training services ultimately contributes to health disparities among youth athletes. The contributing SDoH themes identified in this study - SES, housing type and transportation, and most importantly household characteristics - summarize the complex interplay of several SDoH which may affect access to school-based ATs. Our study found that increased vulnerability in these factors is associated with reduced access to athletic training services. However, it is in the communities that have the greatest social vulnerability where the impact of athletic training services may be felt most profoundly. Insufficient or nonexistent athletic training services can result in reduced prevention, as well as delayed or inadequate treatment, of injuries affecting high school student athletes. In contrast, the presence of ATs may be a golden opportunity for increased access to overall healthcare. ATs frequently function as the first, and often the only, point of contact that a student athlete has with the healthcare system.[35,36] Moreover, ATs in the secondary school setting often serve roles beyond what is typically expected. ATs are uniquely positioned to serve as health educators, coordinators, advocates, and navigators for student athletes and their families.[35–38] In these roles, ATs have the potential to reduce the negative effects of SDoH. Focusing on the SDoH identified in this study could aid in developing targeted interventions to increase access to athletic training services in California high schools and to help vulnerable communities take a step towards achieving health equity.[36]

Limitations:

We cannot determine causality or temporality between independent and dependent variables due to the nature of a cross-sectional study design. There may also be other SDoH not captured in this study, such as access to primary care and food insecurity, that may impact access to an AT. Additionally, our study does not capture the nuances and unique experiences of each individual student athlete. As such, we forgo individual athlete demographics such as sexual orientation and presence of disability that may impact youth participation in sport.

Given that the CDC/ATSDR's SVI database is based on the U.S. Census Bureau's American Community Survey results, the most granular level of data provided is at the census tract level. The SVI scores at the county and census tract levels may not be representative of individual schools. However, viewing data at these levels may help to identify regions where there may be higher SVI scores in general, and thus help policymakers and researchers understand these communities and target solutions.

The SVI database was based on the American Community Survey from 2020, whereas the CIF participation survey was from the 2022-2023 academic year. We wanted to use the most up-to-date information available to reflect the current landscape of access to school-based athletic training services, but acknowledge that there are limitations in doing so given the difference in time points. Additionally, the CIF did not collect any survey data during the 2020-2021 academic year due to the Covid-19 pandemic.

There are also limitations in the instrument used to collect our primary outcomes. The CIF Participation Census is a self-reporting instrument which depends on California high school officials to accurately respond to each question. The subjective nature of these surveys may put our study at risk of recall bias, with either overreporting or underreporting of the outcomes of interest. However, the requirement for all CIF member schools to submit responses likely stemmed from a motive to collect accurate data state-wide, and subsequently resulted in a large sample of schools. Also, given that all participants are CIF member schools, this can subject our research to selection bias. The instrument itself also has measurement issues as evidenced by its double barreled question as well as an overlap in two of its available answer choices. Subsequent iterations of this work should revise the instrument questions to improve validity of responses.

Future Directions:

Future studies investigating the role of household characteristics as a social determinant of health in sports and exercise are warranted. Researchers can consider other SDoH not included in this study, as well as their intersectionality, to capture their impact on youth sports. Moreover, mixed methods can be utilized to elicit rich narratives from individual athletes. Finally, SDoH should also be investigated at a more granular level such as within census tracts. These research directions can help develop specific interventions to bridge health disparities.

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Tables:

Table 1: Descriptive Statistics of School Characteristics

Variable	N(%) or median[IQR]
School type	
Charter	183 (11%)
Private	380 (24%)
Public	1035 (65%)
Students enrolled 2022-2023, per school	928 [327, 1817]
Number of athletes, per school*	460 [174, 750]
UT on staff	781 (49%)
Certified AT on staff**	
Yes	662 (41%)
No	887 (55%)
I don't know	48 (3%)
AT hours*	
0-10 hrs/wk	80 (10%)
11-20 hrs/wk	108 (14%)
21-30 hrs/wk	117 (15%)
31+ hrs/wk	175 (22%)
Full-time	301 (39%)

*Note: multiple sport athletes are not accounted for in this number, thus these counts may overestimate the number of unique athletes per school

**Schools that indicated no UT on staff were automatically coded to "No" AT on staff

Table 2: Association between SVI and Access to an UT and Certified AT on Staff [‡]

549

	Adjusted for UT**		Adjusted for Certified AT**	
County SVI themes[ŧ]	**OR (95% CI)***	**p-value**	**OR (95% CI)***	**p-value**
Socioeconomic status	0.98 (0.88, 1.09)	0.69	0.92 (0.83, 1.03)	0.16
Household characteristics	0.89 (0.80, 0.99)	**0.04**	0.86 (0.77, 0.96)	**0.009**
Racial & ethnic minority status	1.04 (0.92, 1.17)	0.56	1.03 (0.90, 1.17)	0.67
Housing type & transportation	1.06 (0.95, 1.19)	0.31	1.02 (0.90, 1.16)	0.73
Overall SVI percentile ranking	0.98 (0.88, 1.10)	0.75	0.93 (0.83, 1.04)	0.22
Census tract SVI themes				
Socioeconomic status	0.97 (0.92, 1.01)	0.16	0.94 (0.89, 0.98)	**0.006**
Household characteristics	0.93 (0.89, 0.97)	**0.002**	0.91 (0.87, 0.96)	**<0.001**
Racial & ethnic minority status	0.98 (0.93, 1.02)	0.34	0.98 (0.94, 1.03)	0.51
Housing type & transportation	0.96 (0.92, 1.01)	0.11	0.95 (0.91, 0.99)	**0.02**
Overall SVI percentile ranking	0.95 (0.90, 0.99)	**0.02**	0.92 (0.88, 0.97)	**<0.001**

550 [ŧ] If AT status unknown then removed from analysis (n=48)

551 *Unit increase is 10% on vulnerability index

552 **Adjusted analyses controlled for school enrollment size, total sport participation and school

553 type

554 ŧ A random effect for county was included in all models involving county SVI themes

555

556 **Table 3: Intercounty Variability Assessed via Coefficient of Variation (CV) for Each**

557 **County Level SVI Theme**

558

County SVI themes	CV estimate
Socioeconomic status	55.74
Household characteristics	56.08
Racial & ethnic minority status	31.93
Housing type & transportation	41.56
Overall SVI percentile ranking	47.23

559

560 **Table 4: Intracounty Variability Assessed via Coefficient of Variation for Census Tract**

561 **Level Overall SVI Score**

562

County	Overall SVI census tract
Alameda	59.49
Amador	35.41
Butte	21.10
Calaveras	19.67
Colusa	46.56
Contra Costa	75.09
Del Norte	0.00
El Dorado	56.59

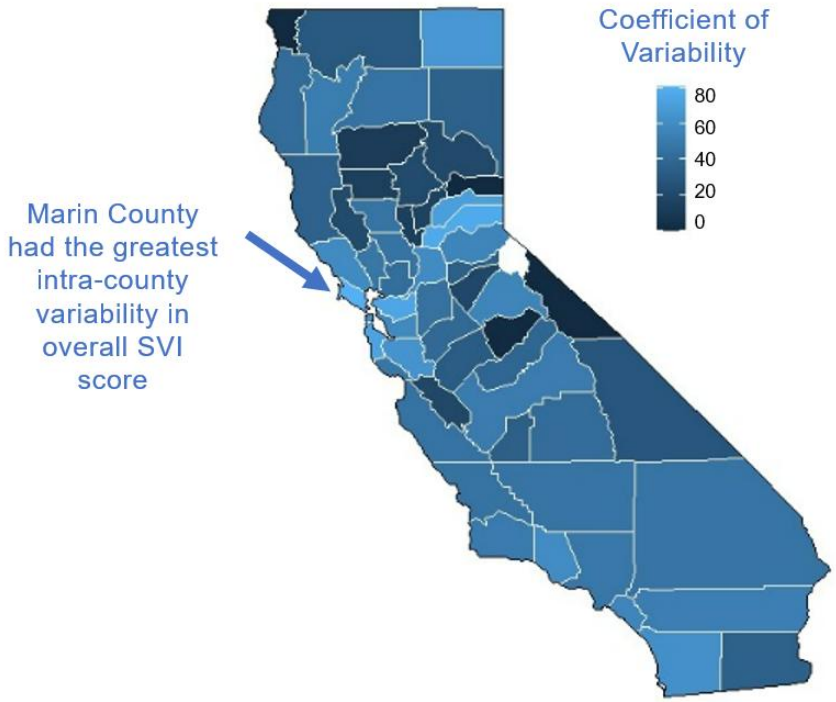
Fresno	51.32
Glenn	14.64
Humboldt	42.20
Imperial	35.16
Inyo	28.62
Kern	47.05
Kings	34.50
Lake	21.98
Lassen	35.12
Los Angeles	49.07
Madera	38.79
Marin	81.38
Mariposa	--
Mendocino	36.04
Merced	32.92
Modoc	66.90
Mono	0.118
Monterey	46.25
Napa	48.82
Nevada	71.79
Orange	57.38
Placer	77.99
Plumas	20.89
Riverside	52.94

Sacramento	60.44
San Benito	19.48
San Bernardino	46.87
San Diego	62.80
San Francisco	59.58
San Joaquin	45.23
San Luis Obispo	45.82
San Mateo	73.97
Santa Barbara	50.84
Santa Clara	65.21
Santa Cruz	48.74
Shasta	46.17
Sierra	0.00
Siskiyou	30.30
Solano	43.74
Sonoma	60.06
Stanislaus	40.51
Sutter	14.90
Tehama	11.44
Trinity	52.43
Tulare	41.87
Tuolumne	56.87
Ventura	60.75
Yolo	47.16

Yuba	16.69

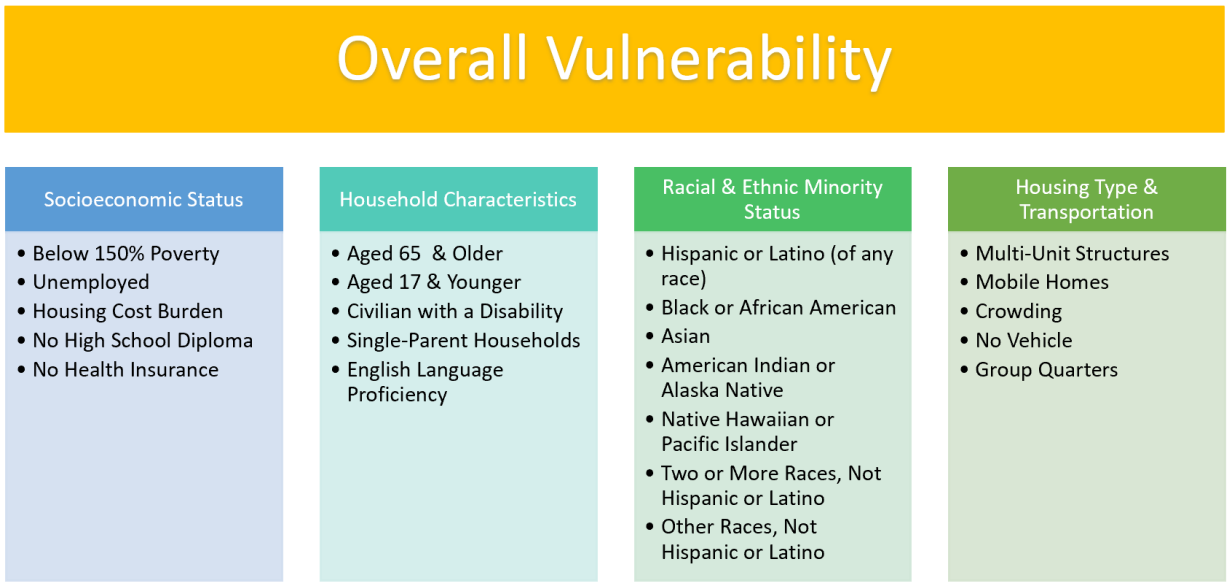
Figures:

Figure 1: Heat Map of Intra-county Variability in Overall SVI scores



Appendix:

Appendix A: The Social Ecological Model.



Appendix B: U.S. Census Variables Utilized in Calculating The Overall Social Vulnerability Index (SVI) Score. Adapted with Permission from The CDC.

582 Appendix C: CIF Participation Census 2022-2023 Questions.

PLEASE SUBMIT PARTICIPATION CENSUS TO CIF HOME BY April 7, 2023. THANK YOU.

More Information: www.cifstate.org/coaches-admin/census

TOTAL STUDENT ENROLLMENT: **BOYS**_____ **GIRLS**_____

INSTRUCTIONS:

1. Please provide figures for the total number of coaches across all levels in your entire athletic program. Example, if an individual coaches football in the fall and softball in the spring, please count him/her as two coaches. Additionally, please separate your coaches into on-campus and off-campus.
2. "Boy Participants" and "Girl Participants" should be calculated based upon the maximum number of individuals who participated in the sport for any length of time during the 2022-23 school year.
3. "Boy Participants" and "Girl Participants" are representative of interscholastic athletics (NOT intramural or club.) **Count a student for every sport in which he/she participates.**
4. Please provide figures for any of the listed sports offered by your high school, regardless of whether it is sanctioned by the CIF.
5. If your high school includes only 10th through 12th grades, but 9th grade students participate on your high school's teams, please include their number in the participation figures.

ALL MALE COACHES (Head, Asst, Varsity, JV, Frosh)	**ALL FEMALE COACHES (Head, Asst, Varsity, JV, Frosh)**
Total number of on-campus PAID Coaches_____	Total number of on-campus PAID Coaches_____
Total number of on-campus UNPAID Coaches_____	Total number of on-campus UNPAID Coaches _____
Total number of off-campus PAID Coaches _____	Total number of off-campus PAID Coaches_____
Total number of off-campus UNPAID Coaches_____	Total number off-campus UNPAID Coaches _____
Total number of Male Coaches Employed_____	Total number of Female Coaches Employed _____

Total number of MALE Head Coaches coaching FEMALE athletic teams _____

Total number of FEMALE Head Coaches coaching MALE athletic teams _____

Athletic Director is Male _____ Female _____

Athletic Director Position is Full-time_____ Part Time _____

Do you have an Assistant Athletic Director Position (how many): _____

Number of Release Periods for Athletic Director: N/A 0 1 2 3 4 5 6

Years as High School Athletic Director: First Year _____ 2-4 years _____ 5-9 years _____ 10 or more _____

Do you have an athletic trainer on staff (hours per week)? None 0-10 hrs 11-20 hrs 21-30 hrs 31-40 hrs

Is your athletic trainer ATC Certified? Yes_____ No____ Don't Know ____ N/A_____

How many AEDs does your Athletic Department have access to during practice/events? _____

First Day of School (m/d/y)_____ **Last Day of School**_____ **Graduation Date**_____

583

SPORTS	Boy Participants	Girl Participants	Number of boy's teams (Fr./So./JV/Varsity)	Number of girl's teams (Fr./So./JV/Varsity)
Badminton				
Baseball				
Basketball				
Beach Volleyball				
Cheer- Traditional Competitive				
Cheer- Competitive Sport				
Cross Country				
Esports				
Field Hockey				
Flag Football				
Football – 11 player				
Football – 8 player				
Golf				
Gymnastics				
Lacrosse				
Skiing - Alpine				
Skiing - Cross Ctry				
Snowboarding				
Soccer				
Softball				
Swimming & Diving				
Tennis				
Track & Field				
Volleyball				
Water Polo				
Wrestling				
Archery*				
Bowling*				
Cheer- Sideline*				
Crew*				
Cycling*				
Dance*				
Decathlon*				
Drill Team*				
Equestrian*				
Fencing*				
Figure Skating*				
Football 6-player*				
Ice Hockey*				
Judo*				

584

Kyaking*				
Martial Arts*				
Mountain Biking*				
Rifle*				
Rock Climbing*				
Rodeo*				
Roller Hockey*				
Rugby*				
Sailing*				
Slow Pitch Softball*				
Squash*				
Surfing*				
Ultimate Frisbee*				
Weightlifting*				
Adapted Basketball*				
Adapted Bowling*				
Adapted Cross County*				
Adapted Floor Hockey*				
Adapted Football*				
Adapted Golf*				
Adapted Soccer*				
Adapted Softball*				
Adapted Swim*				
Adapted Tennis*				
Adapted Track*				
Adapted Volleyball*				
Unified Basketball*				
Unified Bowling*				
Unified Cheer*				
Unified Cross Country*				
Unified Flag Football*				
Unified Golf*				
Unified Soccer*				
Unified Softball*				

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Unified Tennis*				
Unified Track & Field*				
Unified Volleyball*				
Other *				

The National Federation of High School's would like to obtain information on the following activities. If possible please do the best you can.

NFHS ACTIVITIES	TOTAL
Band*	
Choir*	
Dance Team*	
Dance/Drill/Pom Pon*	
Debate/Forensics*	
Decathlon*	
DRAMA*	
Drill Team*	
FBLA*	
FCCLA*	
FFA*	
Lincoln Douglas Debate*	
Math Team*	
Music*	
Newspaper*	
Orchestra*	
Pom Pon Squad*	
Speech*	
Student Council*	
Student Government*	
Theatre*	
Vocal*	
Yearbook*	

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