Bullying & State Law: Examining Associations between Anti-Bullying Statutes & School Safety Outcomes for Students

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Abstract

While state legislatures have enacted laws to address bullying among youth, there is wide variability in the provisions that are included in each state's statutes. This study analyzes state statutes for the presence and strength of various anti-bullying legal provisions. It then examines associations between these provisions and the probability of a high school student being bullied, cyberbullied, and missing school due to safety concerns. The study captures the landscape of state anti-bullying laws as of September 2018, and provides some evidence regarding the types of legal provisions that appear most effective at protecting students from bullying and other detrimental outcomes. This study finds that a protective definition of bullying, inclusion of all types of bullying, staff reporting requirements, counseling requirements, prohibitions on retaliation, publicly available data, and training for school staff are significantly associated both with a decreased probability of a student being bullied as well as cyberbullied.

Keywords: bullying, cyberbullying, anti-bullying laws, bullying laws, bullying protective factors, state anti-bullying laws, state bullying laws, bullying legal factors

1   Introduction

In recent years, bullying has come to light as a severe social problem that impacts youth well-being. It has been linked with development of PTSD in victims and is shown to be a significant risk indicator for suicide attempt. As a result, many U.S. states have addressed bullying in schools through legislation. However, this type of legislation has varied widely across states in terms of the level of extent and detail in laws that aim to protect students from bullying. The following study aims to determine whether there is any association between the probability of a student being bullied and the presence and quality of various anti-bullying legal provisions in their state. It also examines similar associations for the probability that a student will be cyberbullied or miss school due to safety concerns.

In addition to providing a snapshot of how anti-bullying legislation varied across states as of September 2018 through a formal coding of state statutes, I also explore whether and which of these provisions appear to be significantly associated with the probability of a student being bullied. To do this, I use data from this original coding of state statutes as well as data from the Center for Disease Control's Youth Risk Behavior Surveillance System (YRBSS) in a logistic regression model. In the model, the dependent variable is whether a high school student reported being bullied at school in the previous 12 months on the YRBSS survey, with independent variables for the presence and strength of each of the legal factors examined in their state on a 0-2 scale. I also control for various demographic factors, such as race and whether a student identifies as LGB or transgender, in addition to background level hate crimes per capita and violent crimes per capita in their state. Finally, the study also presents models where the dependent variable is whether a student reported being cyberbullied in the previous 12 months as well as whether a student reported missing school due to feeling unsafe in the previous 30 days in order to determine whether these outcomes are significantly correlated with the presence and strength of any anti-bullying legal provisions as well.

Overall, several of the legal provisions were associated all with a decreased probability of a student being bullied on school property, a decreased probability of a student being cyberbullied, and a decreased probability of a student missing school due to safety concerns. These protective factors include whether the statute covers all types of bullying, requires school staff to report known incidents of bullying to administrators, requires victims and bullies to be provided with counseling, addresses retaliation, makes data on bullying incidents publicly available, and requires anti-bullying training for school staff. Additionally, there is a decreased probability of a student being bullied as well as cyberbullied associated with whether the statute includes a protective definition of bullying, though this was not seen to be significant in the case of students missing school due to safety concerns. Overall, these models provide some insight on the efficacy of state level anti-bullying laws using the best available data. This can inform target areas for reform in state-level anti-bullying laws, both in terms of the types of provisions that appear to be protective factors for students as well as the recent status of these provisions across states.

2   Literature Review

2.1   Bullying and Social Psychological Effects

Following an increase in bullying-related suicides over the past couple of decades, many have recognized bullying as a severe social problem that must be addressed to protect those who are targeted. Many studies have examined bullying from a social psychological perspective to understand and identify connections between bullying and youth mental health. Such studies have linked bullying victimization with depression, anxiety, and PTSD (Hawker et. al 2000; Brunstein Klomek et. al 2007). Bullying has also been found to be a significant risk indicator for suicide attempt and ideation (Koyanagi et. al 2019; Herba et. al 2008). These kinds of studies have been crucial for exposing the tangible harmful effects of bullying and compelling policymakers to take action. Additionally, several studies have found that LGBT students are at a greater risk of experiencing bullying in schools compared with their cisgender, heterosexual peers (Musu-Gillette et. al 2017, Pampati et. al 2018).

2.2   Anti-Bullying Laws and Content

Several studies have aimed to determine how the content of anti-bullying laws differs across states. In 2011, the U.S. Department of Education (DOE) commissioned one such study that involved a coding and qualitative analysis of state anti-bullying laws based on their compliance with sixteen total policy components that had previously been identified by the DOE in a guidance document (Stuart-Cassel et. al 2011). Stuart-Cassel and other researchers commissioned by the Department analyzed state laws using both a presence/absence framework for each component as well as a composite intensity rating framework based on overall compliance with all components. As a result, authors were able to identify some of the most commonly included DOE-recommended policy components in state laws at the time. The researchers observed that "the least expansive state laws outline district requirements to develop local bullying policies without specifying policy content" (Stuart-Cassel et. al 2011). They also found that legislative components dealing with school-level procedures were more likely to be directly mandated, while programmatic elements such as training were more likely to be "encouraged".

In the same year, Lori Weaver and co-authors published a similar content analysis of state laws (Weaver et. al 2011). Rather than using the DOE-recommended components, Weaver and co-authors analyzed state laws based on the presence and strength of 27 individual protective factors on the student, parent, and system levels. These factors were identified by a conglomeration of previous studies, authors' previous experience reviewing state anti-bullying laws, and researchers' experience in K-12 schools. Authors categorized each state law's inclusion and strength of each factor (or provision) based on a 0-2 scale: "(0) no mention; (1) ambiguous, suggested, but not mandated to implement; or (2) yes, clearly stated and mandated." In this way, it accounted for greater nuance in terms of the quality and clarity of the law than the DOE framework. This study uses a similar 0-2 scale framework for the coding of state statutes. Additionally, the list of factors that Weaver and co-authors analyzed served as the starting point for the list of legal provisions that were examined in this study.

Weaver and co-authors found that "overall, states' anti-bullying legislation lacked clarity". Only 40% of states required school officials to report incidents of bullying and only 12% required schools to notify a victim's parents of reports of bullying. State legislation also rarely mandated counseling for the victim (6%) or bully (8%), and there were few states with systemic protections in place for transparency and accountability. Authors stressed that although most states had anti-bullying laws, all of these laws had the potential to provide further protections and specificity. Overall, these studies provided an important snapshot of what state anti-bullying laws looked like as of 2011 and where there may have been room for improvement. However, state laws have changed substantially in the years since. An updated content analysis, such as the one that is included here, can prove valuable for understanding the current status of state anti-bullying laws.

2.3   Relationship Between Anti-Bullying Policy and Bullying/Safety Outcomes

In addition to legal content analyses on the nature of state anti-bullying laws, several studies have used quantitative models to analyze the relationship between anti-bullying policies and observed bullying outcomes. These studies investigate whether anti-bullying policies have been effective at reducing bullying and making students safer, with some going further to ask which kinds of anti-bullying policies are most effective. While some of these studies have examined the efficacy of local school district policies, others have examined the efficacy of statewide policies. It is worth noting that the two concepts are connected in that state laws may require or encourage local school districts to adopt policies, and may or may not stipulate the kinds of components that should be included in the policies, though this is an important distinction nevertheless.

With regards to local school district policies, studies attempting to determine whether the mere presence of a local school district anti-bullying policy is associated with reduced rates of bullying have generally shown mixed results (Hall et. al 2017). However, two separate studies have found lower rates of bullying in schools with high quality rather than low quality policies (Ordonez 2006; Woods & Wolke 2003). Common elements of policy quality associated with decreased verbal and physical bullying across the two studies included "a comprehensive definition of bullying; school and classroom rules and procedures about bullying; plans for communicating the policy within the school community; supervision of students across school areas; involvement of parents in anti-bullying efforts; involvement of multiple stakeholders in school-wide anti-bullying actions; and working with and educating students around social, emotional, and behavioral issues to prevent bullying" (Hall et. al 2017). Studies have also consistently found that explicitly LGBTQ-inclusive anti-bullying school policies are associated with lower rates of LGBTQ bullying victimization (Hall et. al 2017).

The relationship between state-level policies and bullying outcomes has been analyzed in several studies, which are most closely related to this study. One study utilized data from the DOE's previously mentioned report regarding states' compliance with their sixteen recommended policy components. Researchers ran a logistic regression to determine the relationship between state compliance with individual DOE recommendations and bullying rates by state in that year based on the CDC's Youth Risk Behavior Surveillance System (YRBSS) results (Hatzenbuehler et. al 2015). They found that students in states with at least 1 of the DOE-recommended policy components had a 24% reduced odds of reporting bullying and a 20% reduced odds of reporting cyberbullying compared to students in states with none of the recommended components. Authors found that statement of scope, description of prohibited behaviors, and requirements for districts to develop and implement local policies were all consistently associated with lower odds of both bullying and cyberbullying after controlling for confounding covariates among states such as crime rates.

Another state-level study by Sabia took a different approach, using a difference-in-difference model to determine the relationship between state anti-bullying law quality and school safety outcomes. Data on school safety outcomes was obtained using multiple years of the YRBSS, as well as a dataset on school shootings constructed by Anderson and Sabia. The study authors also used DOE data for state policy quality, categorizing "strong" anti-bullying laws as states with DOE composite intensity ratings in the upper 25th percentile of all ratings (Sabia et. al 2017). Recall that these DOE intensity ratings were produced by the DOE based on that states' compliance or non-compliance with regards to all sixteen recommended components. This study found little evidence that the typical state anti-bullying law resulted in improvements in student safety. However, strong state anti-bullying laws were associated with a 7-13% reduction in school violence and an 8-12% reduction in bullying, in addition to a reduction in school shootings. This further suggests that not all anti-bullying laws are created equal: stronger anti-bullying laws may be more effective for protecting students.

While these two studies were groundbreaking and certainly important, it is worth noting several limitations that are important for future research. While Sabia's study attempted to measure overall state bullying law "quality", this metric was still based on whether the states were compliant or not with DOE recommended legislative components. This involves a binary categorization of compliance with each component: states were categorized as compliant or not with the recommended components based on whether they were "at least partially compliant" (Stuart-Cassel et. al 2011) This approach to policy quality may mask differences between states with more clearly worded, required provisions as opposed to states with vaguely worded or "recommended" provisions. Additionally, Sabia's study did not examine which individual policy components may be most important or effective. While Hatzenbuehler's study did help identify effective DOE recommended components, this study also used a binary categorization for compliance or non-compliance.

This study attempts to build on previous research by identifying which provisions may be most effective in terms of reducing bullying rates and improving other metrics of student safety, while also taking the level of clarity and strength of the policy provisions into account. Additionally, it examines a wider range of legal provisions beyond what the DOE included in its recommended provisions in 2010. This should prove helpful in terms of identifying specific statutory provisions that are effective for reducing bullying and improving student safety, as Hall noted was an important area for future research in his systemic review.

3   Methodology

In order to examine whether any of the anti-bullying legal provisions identified are in fact associated with the probability of a student being bullied, I first perform an original coding of state anti-bullying laws as of September 2018. I then examine any associations between these legal provisions and the probability of a student being bullied, cyberbullied, or missing school due to feeling unsafe in logistic regression models. First, I discuss the sources for the

data that was used in the model, followed by the framework for the legal factors and methodology used for the coding of legal statutes. Finally, I discuss the methodology for the statistical models.

3.1   Data

The data that were used in the following models comes from three different sources: the original coding of legal statutes, the Center for Disease Control's (CDC's) Youth Risk Behavior Surveillance System (YRBSS), and FBI Uniform Crime Reporting. NexisUni served as the legal database for the coding of state statutes, and methodology for this coding is discussed in further detail in the following section. This coding is the source for data on the presence and strength of various anti-bullying legal provisions in each state.

The Center for Disease Control's (CDC's) Youth Risk Behavior Surveillance System (YRBSS) was the source of data for the dependent variables of interest, which were student outcomes on bullying, cyberbullying, and missing school due to safety concerns. The YRBSS is a national survey conducted every two years to collect information on the status of various risks to youth health and well-being. Students self-report answers to the survey on pencil and paper. The YRBSS data used here comes from the survey administered in spring 2019. One question of particular interest for this study asked whether the student was bullied on school property in the previous 12 months. This would include the last couple of months of the 2017-2018 school year and most of the 2018-2019 school year. Similarly, the survey also asked whether the student had been cyberbullied in the previous 12 months. The last dependent variable examined came from a question on the survey asking youth how many days in the last 30 days they did not go to school because they felt unsafe at school or on their way to and from school. Students could answer 0 days, 1 day, 2 or 3 days, 4 or 5 days, or 6 or more days, though this was converted into an indicator variable representing whether they had missed school at all due to feeling unsafe in the previous 30 days (CDC 2020, Combined Dataset User's Guide).

In addition to these dependent variables, a few independent variables in the model were also sourced from the YRBSS. This included student demographic information that was important to control for to best isolate the effects of state statutes. These demographic factors included the 4-level race variable (white, Black or African American, Hispanic/Latine, and all other races), whether a student was LGB or questioning, and whether a student was transgender or questioning. For purposes of this study, students who responded that they were "unsure" about their sexuality were grouped with students who responded that they were gay, lesbian, or bisexual in order to represent students who were LGB or questioning. The same approach was taken with students who responded that they were unsure if they were transgender in order to represent students who were either transgender or questioning. Overall, it was important to control for these factors in case there were significant differences in student demographics between different states. For example, as queer students have been shown to be at greater risk of bullying, it was important to prevent any differences in the amount of queer students surveyed in each state from driving associations between the legal provisions in that state and the outcomes of interest.

This study uses the YRBSS high school state-level dataset from 2019.[1] The YRBSS uses a multi-staged, clustered sampling design to draw representative samples of 9th-12th grade students for each included state. It also includes sample weights to adjust for nonresponse and oversampling of students of various demographics. Overall, the state-level dataset is the most appropriate choice for this study as the national dataset is intended to be representative of all students in the U.S. rather than representative at the state level. The dataset included 182,491 observations for 41 states. As not all states participate in the YRBSS or release their data to the CDC, the study can only be representative of the states that are included.

Lastly, data on hate crimes per capita and violent crimes per capita in each state was sourced from the FBI's Uniform Crime Reporting (UCR) Program. The data is collected from participating law enforcement agencies in each state. The model controlled for hate crimes per capita and violent crimes per capita, as this could give some idea of the background level of violence or hate crimes in each state, which could conceivably feed into school climate and be related to the phenomenon of bullying. There was an option to use data from either 2018 or 2019, neither of which aligns perfectly with the time period that students were asked about in the YRBSS. Ultimately, the 2018 data were used in order to best align with the time period in question. Since the YRBSS was administered in spring 2019 and asked about the previous 12 months, hate crime and violent crime data collected for 2019 would mostly capture incidents that occurred after the survey was administered, making 2018 the better choice for the study.

3.2   Coding of State Statutes

To determine which legal provisions should be examined in coding state anti-bullying laws, I used the factors identified by Weaver and co-authors in their content analysis as a starting point.

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[1] ASCII files for States A-M and N-Z were downloaded and combined to produce a dataset for all states.

Though their study did not specify exactly which legal provisions were examined, I was able to contact the authors to obtain the list of provisions that were studied. However, I also added to and modified their list based on my professional experience working with the National Association of People Against Bullying (NAPAB). Through my work with this non-profit, I have helped advocate for bullied students and their families with school administrators. During this time, we have heard input from these families regarding the specific steps that they would like school administrators to take in responding to incidents of bullying.

In addition to the presence of specific legal provisions, the strength of these provisions was also considered. For example, a legal provision of interest could be mentioned in anti-bullying laws in two different states, but there could be a difference in terms of strength if one law states that school administrators "shall" take the action while another "encourages" or says that they "may" take that action. In order to capture this kind of nuance, each legal provision was coded on a 0-2 scale for each state. In general, 0 represents that the particular provision was not mentioned in the state's law, 1 represents that it was addressed in weak or non-binding terms, and 2 represents that it was strongly addressed. Specific details regarding what this entails for each individual provision are further discussed in the table below.

It is important to note that many of the state laws examined require local school administrative units (i.e. school districts) to adopt anti-bullying policies. The laws also often lay out various provisions that the policies must include at a minimum. In fact, this is the form that most state laws take rather than stating directly that it is illegal for administrators to act or not act in a particular way. For purposes of this study, laws that actively require school districts to adopt policies that include the relevant legal factor (in its strongest form) are considered to strongly address that factor and are rated with a 2. In contrast, laws that stated that local policies "may" include the relevant legal factor or that include the legal factor as part of a model policy that does not form a minimum basis for local policies are rated with a 1 since they are not binding. There were also a few cases where laws stated that local policies may include the relevant legal provision in itself in a weak or non-binding form (for example, if the law states that policies may include that staff are encouraged to report incidents of bullying). This would be the only instance where a legal provision is actually mentioned in the law but still rated with a 0 due to the extremely weak nature of the provision.

Appendix A contains a table detailing the legal provisions that were examined as well as the criteria for a 0, 1, or 2 rating for each factor. The table also includes a brief explanation for why each provision is included in terms of how it might protect students from bullying. Note that some provisions that are included in this coding are not included in the final statistical models or are included in a modified form, which will be discussed in further detail in the model methodology section. However, the framework and results for the full coding of legal statutes are still presented as it could be useful for future scholars or advocates to have this level of detail.

To perform the coding of state statutes, NexisUni was used as the legal database. The term "bullying" was searched in "statutes and legislation" in order to review all laws that mentioned bullying specifically.[2] The search was restricted to the category "Codes" in order to exclude any anti-bullying bills that were never passed and to ensure that the laws being reviewed were actually part of the State Code. As NexisUni has a function to sort laws based on jurisdiction, anti-bullying laws for each state could be reviewed comprehensively by viewing all laws that fulfilled these search criteria for one state at a time. To perform the coding, all parts of the state code mentioning bullying were read comprehensively and rated for the inclusion and strength of each legal provision mentioned above. In the analysis, only the states that had anti-bullying statutes were included. Hawaii was the only state that did not return any specific anti-bullying statutes, and was thus the only state that was excluded in the final model. Only state statutes were reviewed for this analysis; the analysis does not consider the effect of regulations or guidance documents administered by state agencies as this would not be possible with the time and resource constraints for the study.

The coding examined state laws that were in effect as of September 2018. While it was difficult to determine the ideal cutoff date, September 2018 appeared reasonable in that youth were asked about their experience with bullying in the previous 12 months in the spring of 2019. Therefore, laws that were in effect during the entire 2018-2019 school year could have conceivably affected students' experiences with bullying as reported on the YRBSS.

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[2] While a search for the term "bullying" would not necessarily capture state laws that are indirectly related to bullying, this was nevertheless the best choice for this study. This study is concerned with bullying in particular as a social phenomenon among youth, and state lawmakers have made targeted attempts to address this issue through legislation. Additionally, a search including more general terms such as "harassment" would be infeasible as it could potentially pull up hundreds of laws unrelated to bullying, such as sexual harassment laws and workplace harassment laws. Finally, it is important to note that the YRBSS asked youth about whether they had experienced bullying specifically, not whether they had experienced harassment or some other form of violence at school.

Additionally, it is worth noting that there did not appear to be many changes made to these state anti-bullying laws after September 2018, so it would likely not have significantly affected the study to also include laws that were in effect at a later date. While it would be ideal to have several people coding the statutes cross-referencing multiple legal databases for the highest level of accuracy, this was not possible due to resource limitations. Descriptive statistics involving the number of states with different scores for each provision are included in Appendix B.

3.3   Statistical Model

This study uses logistic regression models to examine associations between student outcome variables of interest and anti-bullying legal provisions. This analysis was done using Stata, with stratum, sample weights, and sampling units designated as indicated by the 2019 Software for Analysis of YRBS Data guide. Samples were weighted in the model to align with YRBSS methodology and ensure representativeness for each state. Outcome variables included whether a student reported being bullied, cyberbullied, or missing school due to safety concerns on the YRBSS. As the student outcomes are represented as indicator variables (e.g. 0 if a student was not bullied and 1 if a student was bullied), a logistic regression model is the appropriate choice for this analysis.

The legal provisions discussed in the preceding section were included as independent variables in the model, with a few adjustments and exclusions to avoid issues associated with multicollinearity. For example, although requirements to notify the victim's parents that bullying had occurred were coded separately from requirements to notify the bully's parents, these variables were highly correlated as it was likely that a statute would mention both sets of parents if it mentioned one at all. Therefore, these variables were collapsed into a single "Notify Parents" variable for purposes of the statistical analysis. The new variable was assigned a 2 if both were coded as a 2, 1 if either was coded as a 1, or 0 if both were coded as a 0. This would translate to a 2 if both parents were required to be notified, 1 if either was mentioned as being notified, and 0 if neither were mentioned as being notified. The same approach was taken for the victim counseling and bully counseling variables since these were also highly correlated. These were collapsed into a single "Counseling" variable and assigned a 2 if both were required to be provided counseling options, 1 if either was mentioned as being provided counseling options, and 0 if no counseling for either was mentioned. Lastly, superintendent and schoolboard reporting were also excluded in the final model due to issues with collinearity.

While the legal provisions were assigned a 0, 1, or 2 value depending on their presence and strength in the law, these were treated as factor variables rather than numeric variables in the model. The primary reason for this is that it was not clear that moving from a 0 to a 1 on a particular legal provision could be assumed to have the same impact on student outcomes as moving from a 1 to a 2 on the same provision. Therefore, the "i." command was used in Stata to produce separate coefficients for the 1 and 2 scores on each provision. This resulted in each legal provision being treated as a set of 2 indicator variables (first, whether a 1-level strength provision was included in the statute and separately, whether a 2-level strength provision was included in the statute).

Other independent variables in the model included demographic variables from the YRBSS as well as hate crimes per capita and violent crimes per capita in the student's state from the FBI UCR. The demographic variables included whether a student identified as LGB or questioning as well as whether a student identified as transgender or questioning, which were represented by the indicator variables "LGB" and "transgender". Race was also included in the analysis and represented by the indicator variables "Black", "Latine", and "other race". It was important to include only three of the four race categories from the survey to avoid perfect collinearity.

4   Results

Full results from the models are presented in the following charts. Independent variables showing a statistically significant relationship with the outcome variable ($p < .05$) are starred.

Bullied Model

Variable	coeff.	p-value
1.Protective Definition	-0.305*	(0.0000289)
2.Protective Definition	-0.146	(0.144)
1.All Types	-0.349*	(0.000107)
2.All Types	-0.385*	(2.66e-09)
1.Staff Reporting	-0.433*	(0.00107)
2.Staff Reporting	-0.053	(0.385)
1.Identify Investigator	-0.067	(0.384)

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2.Identify Investigator	0.216*	(0.0475)
1.Report Investig Process	0.146	(0.314)
2.Report Investig Process	0.103	(0.118)
1.Investig Timeframe	0.404*	(0.00000687)
2.Investig Timeframe	0.236*	(0.0393)
1.Notify Parents	0.678*	(9.81e-08)
2.Notify Parents.	-0.019	(0.759)
1.Notify Vic Parent Steps	-0.083	(0.700)
2.Notify Vic Parent Steps	-0.148	(0.0817)
1.Counseling.	0.022	(0.816)
2.Counseling	-0.586*	(5.41e-10)
1.Retaliation	-0.577*	(5.57e-13)
2.Retaliation	0.111	(0.175)
1.Protect Victim	-0.123	(0.228)
2.Protect Victim	0.205*	(0.0174)
1.Dept Educ Reporting	0.601*	(0.0000910)
2.Dept Educ Reporting	-0.072	(0.306)
1.Data Public	-0.861*	(0.00000432)
2.Data Public	-0.131	(0.171)
1.Annual Training	-0.510*	(1.33e-10)
2.Annual Training	-0.042	(0.739)
hate crimes per cap	1052.723	(0.509)
vi crimes per cap	-90.564*	(1.35e-10)
LGB	0.592*	(0)
transgender	0.281*	(4.01e-09)
Black	-0.489*	(0)
Latine	-0.265*	(1.34e-08)
"otherrace"	-0.313*	(8.11e-08)

Observations	149028
Pseudo R-squared	0.020

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p-values in parentheses   * p<.05

Cyberbullied Model

Variable	coeff.	p-value
1.Protective Definition	-0.267*	(0.000916)
2.Protective Definition	-0.185	(0.0900)
1.All Types	-0.273*	(0.00647)
2.All Types	-0.282*	(0.000111)
1.Staff Reporting	-0.471*	(0.000454)
2.Staff Reporting	0.032	(0.605)
1.Identify Investigator	0.068	(0.326)
2.Identify Investigator	0.102	(0.311)
1.Report Investig Process	0.033	(0.831)
2.Report Investig Process	0.083	(0.237)
1.Investig Timeframe	0.413*	(0.0000114)
2.Investig Timeframe	0.412*	(0.000473)
1.Notify Parents	0.878*	(5.62e-11)
2.Notify Parents	0.156*	(0.0321)
1.Notify Vic Parent Steps	-0.474*	(0.0338)
2.Notify Vic Parent Steps	-0.220*	(0.0190)

1.Counseling	-0.317*	(0.00175)
2.Counseling	-0.547*	(7.68e-09)
1.Retaliation	-0.588*	(1.91e-12)
2.Retaliation	0.082	(0.343)
1.Protect Victim	-0.025	(0.823)
2.Protect Victim	-0.024	(0.786)
1.Dept Educ Reporting	0.392*	(0.0167)
2.Dept Educ Reporting	0.038	(0.621)
1.Data Public	-0.504*	(0.00820)
2.Data Public	0.010	(0.906)
1.Annual Training	-0.457*	(1.56e-08)
2.Annual Training	-0.174	(0.219)
hate crimes per cap	1376.432	(0.378)
vi crimes per cap	-82.105*	(3.59e-08)
LGB	0.610*	(0)
transgender	0.313*	(5.27e-10)
Black	-0.513*	(0)
Latine	-0.327*	(4.41e-10)
"other race"	-0.172*	(0.00711)

Observations	168417
Pseudo R-squared	0.019

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p-values in parentheses   * p<.05

Unsafe Absence Model

Variable	coeff.	p-value
1.Protective Definition	-0.171	(0.0701)
2.Protective Definition	0.200	(0.138)
1.All Types	-0.851*	(3.24e-14)
2.All Types	-0.484*	(2.37e-08)
1.Staff Reporting	-1.214*	(1.05e-12)
2.Staff Reporting	-0.166*	(0.0284)
1.Identify Investigator	-0.492*	(0.000000207)
2.Identify Investigator	0.902*	(3.24e-09)
1.Report Investig Process	0.518*	(0.00614)
2.Report Investig Process	-0.057	(0.535)
1.Investig Timeframe	0.030	(0.799)
2.Investig Timeframe	-0.458*	(0.00432)
1.Notify Parents	0.908*	(3.27e-08)
2.Notify Parents	0.102	(0.276)
1.Notify Vic Parent Steps	0.434	(0.150)
2.Notify Vic Parent Steps	0.205	(0.0666)
1.Counseling	0.196	(0.0962)
2.Counseling	-0.494*	(0.000135)
1.Retaliation	-0.695*	(2.13e-11)
2.Retaliation	0.181	(0.0965)
1.Protect Victim	-0.668*	(0.000000752)
2.Protect Victim	0.369*	(0.00288)
1.Dept Educ Reporting	1.267*	(2.09e-10)
2.Dept Educ Reporting	0.443*	(0.000000719)
1.Data Public	-1.516*	(3.69e-11)

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2.Data Public	-0.593*	(0.000000483)
1.Annual Training	-0.884*	(5.55e-15)
2.Annual Training	-0.528*	(0.00902)
hate crimes per cap	-5759.394*	(0.00406)
vi crimes per cap	-80.859*	(0.0000190)
LGB	0.578*	(0)
transgender	0.483*	(2.00e-15)
Black	0.414*	(1.81e-13)
Latine	0.482*	(2.22e-16)
"other race"	0.161*	(0.0406)

Observations	167013
Pseudo R-squared	0.025

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p-values in parentheses   * p<.05

5   Discussion

Overall, several of the legal provisions studied were shown to be significantly associated with a decreased probability of a student being bullied, cyberbullied, or missing school due to safety concerns. Students in states with laws that included these provisions were less likely to be bullied (or cyberbullied or miss school due to safety concerns) compared with students in states with laws that did not include these provisions. Interestingly, some legal provisions were associated both with a decreased probability of a student being bullied and a decreased probability of a student being cyberbullied. These included a protective definition of bullying (1), addressing all types of bullying (1 and 2), staff reporting requirements (1), counseling requirements (2), addressing retaliation (1), making data publicly available (1), and training for school staff (1). Furthermore, all of these factors were also significantly associated with a decreased probability of students being absent from school due to safety concerns, with the exception of the protective definition of bullying, which was only significant in the bullying and cyberbullying models.

This provides some evidence that these provisions are important to include in anti-bullying state statutes to best protect students from bullying and cyberbullying. Since a protective definition of bullying was found to be significant at the 1-level score, it appears to be important not to define bullying as involving an imbalance of power, being intentional, or being repeated in state legislation, as this may lead to an overly restrictive definition. Additionally, explicitly addressing all types of bullying (physical, verbal, relational, and cyber) as well as retaliation in the law appears to be helpful, as well as making data on bullying incidents publicly available and providing training for school staff (even if not specified as occurring annually, as this was found to be significant at the 1-level score). Finally, it also appears important to actively require both the victims and bullies to be provided with counseling, as this provision was only found to be significant at the 2-level score. It is also worth noting that notifying the victim's parent of steps taken (1 and 2) was found to be significantly associated with a decreased probability of a student being cyberbullied. Although it was not found to be significant in the case of in-person bullying or missing school due to safety concerns, it may nevertheless be worthwhile to include in anti-bullying laws if it reduces the risk of a student being cyberbullied.

It is worth considering why some of these legal provisions were associated with a decreased probability of the detrimental outcomes only at the 1 or 2-level score rather than both. Regarding counseling requirements, these may only be impactful at the 2-level score if mentioning counseling in the law or stipulating that it must only be done "as needed" or "as appropriate" is not sufficient to actually ensure students receive counseling. However, it is less intuitive to understand why some provisions may only be significant at the 1-level score rather than both. One possible explanation is that there may simply not have been enough states that received a 2-level score on particular provisions to show statistical significance. For example, only 4 states scored a 2 on the protective definition of bullying, which may be why this legal provision was only significant at the 1-level score. Standards for the coding were created based on a normative outlook, without prior knowledge about how many states would meet these standards.

Several demographic variables were also significantly associated with the probability of a student being bullied. Notably, LGB and transgender students were far more likely to experience detrimental school safety outcomes compared with their cisgender, heterosexual, and non-questioning peers. This included an increased probability of experiencing bullying, cyberbullying, and absences due to safety concerns. This finding closely aligns with past literature on the subject of LGBT bullying and further supports the need to protect LGBT students in schools.

Interestingly and perhaps more counterintuitively, students who were Black, Latine, or "other race" were significantly less likely to report being bullied or cyberbullied in the previous twelve months compared with their white peers. This is counterintuitive in that racist bullying is increasingly discussed as a major category of bullying and could be due to a myriad of reasons that would be interesting to further study and explore. For example, it is possible that students who are Black, Latine, or "other race" may be less likely or willing to label an experience as "bullying" even if it closely aligns with the definition of bullying. This could be due to cultural differences regarding the stigma around bullying. It could also be the case that schools with higher proportions of white students may be better resourced in terms of anti-bullying education, and students in those schools may thus be more likely to directly recognize and identify bullying when it happens to them. Overall, this is just one possible explanation, and further research would be needed to identify the driving forces behind this finding. It is also important to note that students who were Black, Latine, or "other race" were significantly more likely to report missing school due to safety concerns compared with their white peers. This suggests that students in these racial groups are still experiencing less safe school environments compared with their white peers, further supporting the theory that their decreased probability of self-reported bullying could be an issue of terminology.

Additionally, there were somewhat counterintuitive results when it came to hate crimes per capita and violent crimes per capita in the state. While the goal was to control for background levels of hate and violence in each state, neither of these factors significantly increased the probability that a student would be bullied, cyberbullied, or miss school due to safety concerns. In fact, violent crimes per capita was significantly negatively associated with the probability that a student would be bullied or cyberbullied. This may again be an issue with recognition and anti-bullying education if states with more violent crimes per capita devote less resources and attention to anti-bullying awareness. Alternatively, violent crimes per capita may simply be correlated with another factor that makes students less likely to be bullied. Additionally, hate crimes per capita and violent crimes per capita were also significantly and negatively associated with the probability that a student would miss school due to safety concerns. This counterintuitive result could again be due to a confounding covariate. For example, if states with higher crime rates attempt to be more proactive about addressing violence in schools, this could explain the correlation. Overall, it is not immediately clear what is driving these associations and further research would likely be needed.

It is worth noting that a few of the legal provisions were positively associated with the probability of a student experiencing the detrimental outcomes, meaning that the presence of these legal factors was associated with an increased probability of a student being bullied, cyberbullied, or missing school due to safety concerns. Encouragingly, only a few variables were statistically significant in this unexpected direction across multiple models. Investigation timeline (1 and 2), notifying parents (1), and reporting data to the Department of Education (1) were the only variables that were positively associated both with the probability of a student being bullied as well as cyberbullied. Only notifying parents (1) and reporting data to the Department of Education (1) were significantly positively associated with the probabilities of all three detrimental outcomes. There are several possibilities regarding why these provisions would be positively associated with these outcomes. It is possible that these legal factors are truly counterproductive and work to increase the probability of a student being bullied; it is also possible that these factors are simply correlated with other variables that are not captured in the models. For example, it is possible that the states requiring school districts to report data on bullying incidents to their Department of Education could be doing so in response to existing high levels of concern about bullying and school climate in their state. Additionally, it is possible that while notifying parents of bullying incidents may not actively reduce the probability that a student will be bullied, it may still help protect students in other ways. For example, a parent who is aware of a bullying situation may be able to help the student deal with negative mental health impacts from bullying or be on the lookout for suicide attempt or self-harm, which would not be apparent from the safety outcomes that were examined in this study.

Finally, it is important to note that all the associations discussed are correlative and cannot be concluded to be causal at this time, and can only be representative of students at the high school level in the 40 states that were included in the model. This is simply a fact of the nature of regression analyses. In the future, it would be interesting to run a similar study as a difference-in-difference analysis. This would take into account the way that anti-bullying laws (and subsequently bullying rates) have changed over time in particular states. By including data on anti-bullying laws and bullying outcomes at two different points in time for each state, this could help better isolate the effects of changing legal provisions. While this was not possible with the time and resource limitations for this study, it would nevertheless be a useful direction for future research. Other possibilities for future research could include case studies at the level of individual school districts to provide insight as to how local administrators come to understand and implement anti-bullying laws in their state, and the effects of local school district policies on bullying outcomes.

6   Conclusion

This study examined associations between the probability that a high school student would experience a detrimental school safety outcome (bullying, cyberbullying, or missing school due to safety concerns) and anti-bullying legal provisions in their state. Data on the anti-bullying legal provisions came from an original coding of state statutes using NexisUni as a legal database. Several legal provisions were significantly associated both with a decreased probability of a student being bullied as well as cyberbullied. These included a protective definition of bullying (1), addressing all types of bullying (1 and 2), staff reporting requirements (1), counseling requirements (2), addressing retaliation (1), making data public (1), and training for school staff (1). All of these provisions were also significantly associated with a decreased probability of a student missing school due to safety concerns, with the exception of the protective definition of bullying.

Overall, this study can provide useful information regarding the types of anti-bullying laws that appear to be effective in terms of preventing and addressing bullying among youth. The results of the study suggest that state lawmakers should strive to include a protective definition of bullying, all types of bullying, staff reporting requirements, counseling requirements, retaliation, publicly available data, and training for school staff in state statutes to best protect high school students from bullying and cyberbullying. Additionally, the number of states receiving each score for the examined provisions, found in Appendix B, may be useful for reference by future anti-bullying scholars or activists. Future studies could examine associations between anti-bullying legal provisions and school safety outcomes using a difference-in-difference approach and/or local case studies at the district level

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Appendix A: Framework for Coding of State Statutes

Legal Factor	Criteria	Explanation	Scale
Protective Definition	Law has a definition that defines bullying based on the environment that is created for the victim.	Similar to sexual assault which is described as unwanted behavior creating a hostile environment for the victim, it stands to reason that a protective definition of bullying would also be fundamentally based on the victim's perspective. If the criteria for what is considered bullying under state law is not easily met, school administrators may be less likely to take steps to address the issue if they believe they are rarely obligated under law. For example, if bullying is defined based on an imbalance of power, administrators may not know how to recognize this and declare that a situation is not bullying if students involved are similar in size and stature.	0- If bullying is defined as involving a power imbalance and/or being intentional and/or being repeated 1- If bullying is defined as creating "substantial interference" in a students' education or being "substantially detrimental" to their mental health 2- If bullying is defined as behavior creating a "hostile environment" or a "hostile environment" for a "reasonable person"
All Types	Law addresses all four types of bullying—physical, verbal, relational, and cyber.	If state law covers all types of bullying, this may encourage school administrators to recognize and address a wide range of bullying behaviors beyond obvious acts of physical violence.	0- 0-2 types of bullying are mentioned 1- 3 types of bullying are mentioned 2- All 4 types of bullying are mentioned
Staff Reporting	Law requires school staff to	If school staff are mandated reporters for	0- Staff reporting is not mentioned, including laws that state staff will

	report acts of bullying that they are aware of to the relevant school administrator.	acts of bullying, this may result in administrators becoming aware of and addressing a larger portion of the incidents of bullying that occur.	"make reasonable efforts to resolve the incident" or "intervene when safe to do so" 1- Staff are "encouraged" to report acts of bullying 2- Staff are required to report acts of bullying
Identify Investigator	Law requires school districts to identify the person responsible for investigating reports of bullying.	Identifying individuals responsible for investigating reports may help ensure that this investigation actually happens by encouraging accountability.	0- Personnel responsible for dealing with bullying incidents is generally not discussed 1- Personnel responsible for receiving reports of bullying or for implementing the bullying policy generally are identified, though investigative function is not specifically mentioned 2- Personnel responsible for investigating reports of bullying must be identified
Reporting & Investigation Process	Law requires school districts to implement a process for the reporting and investigation of bullying incidents.	If school districts do not have a reporting and investigation process, it is not clear how incidents of bullying will be effectively addressed. A legal requirement to have this kind of process may result in school districts adopting a process where they otherwise would not have had one.	0- Reporting and investigation process is not mentioned 1- Encouraged to adopt or may adopt a reporting and investigation process 2- Required to adopt a reporting and investigation process
Investigation Timeframe	Law requires administrators to begin or complete bullying investigations within a set timeframe.	If administrators delay bullying investigations, students may not get the help that they need when they need it.	0- Timeline for investigations is not mentioned 1- Investigations will occur "promptly" 2- Investigations will begin or be completed within a specified timeframe (e.g. 10 days)
Victim Parent Notification of Bullying	Law requires administrators to provide notification about bullying incidents to victim's parent or guardian.	If parents are notified that their child is being bullied, they may be able to help ensure that the student receives adequate support and that the situation is resolved.	0- Victim parent or guardian notification is not mentioned 1- Encouraged to or may provide notification to victim parent or guardian 2- Required to provide notification to victim parent or guardian
Bully Parent Notification of Bullying	Law requires administrators to provide notification about bullying incidents to bully's parent or guardian.	If parents are notified that their child is bullying others, they may be able to help ensure that the student receives adequate support to change this behavior and ensure the situation is resolved.	0- Bully parent or guardian notification is not mentioned 1- Encouraged to or may provide notification to bully parent or guardian 2- Required to provide notification to bully parent or guardian

Victim Parent Notification of Steps Taken	Law requires administrators to communicate with the victim's parent or guardian regarding the steps that will be taken to address the bullying situation.	This type of provision could encourage accountability on the part of school administrators to take actions to address the incident if they know they will have to communicate about their efforts to the parent or guardian of the bullied student.	0- Communication with a victim's parent or guardian (aside from notification that bullying has occurred) is generally not mentioned 1- Administrators will notify parent or guardian of the victim that "remedial action" has been taken generally 2- Administrators will communicate the steps being taken to address the incident to the victim's parent or guardian (within limits established by privacy laws regarding student disciplinary records)
Victim Counseling	Law requires school districts to have a process to refer victims of bullying to counseling.	Since bullying is shown to impact mental health of youth, it appears prudent to offer counseling services to students who are affected.	0- Counseling is not addressed in the law (including laws that mention "self-esteem building" or "resources" generally) 1- Availability of counseling will be discussed "as appropriate" or "where necessary" 2- Required to lay out available counseling options for victims of bullying
Bully Counseling	Law requires school districts to have a process to refer bullies to counseling.	Bullying may be a sign of larger issues or insecurities in the lives of bullies, and offering counseling services may help the bully change their behavior.	0- Counseling is not addressed in the law (including laws that mention "self-esteem building" or "resources" generally) 1- Availability of counseling will be discussed "as appropriate" or "where necessary" 2- Required to lay out available counseling options for victims of bullying
Retaliation	Law addresses reprisal or retaliation against a person who reports bullying.	If those who report bullying are protected from retaliation, there may be a greater willingness to report bullying incidents which can then be addressed by school administrators.	0- Retaliation not addressed 1- Retaliation mentioned but addressed in weak or non-binding terms 2- Retaliation must be prohibited in district policies
Protect Victim	Law requires administrators to protect a victim from additional bullying following a report of bullying	Administrators may be able to prevent additional bullying following a report if they are alert and know they have a responsibility to do so.	0- Victim protection from further bullying is not addressed 1- Administrators may take steps to protect victim from bullying following a report, or administrators are only obligated to protect the victim from additional bullying following results of the investigation 2- Required to protect victim from additional bullying following the report, or required to protect victim from additional bullying without timeline specified.
Superintendent Reporting	Law requires administrators to	If administrators are accountable to the	0- Superintendent reporting not mentioned

	report all substantiated incidents of bullying to the district superintendent or designee.	superintendent regarding bullying incidents in their school, this may encourage greater accountability and transparency.	1- Superintendent reporting mentioned but addressed in weak or non-binding terms 2- Required to report substantiated bullying incidents to district Superintendent
District Board Reporting	Law requires all substantiated incidents of bullying to be reported to the district's Board of Education.	If administrators are accountable to the district Board regarding how bullying incidents are handled, this may encourage greater accountability and transparency.	0- Board reporting not mentioned 1- Board reporting mentioned but addressed in weak or non-binding terms 2- Required to report substantiated incidents of bullying to Board
Department of Education Reporting	Law requires school districts to report all substantiated incidents of bullying to their state Department of Education.	If school districts and administrators are accountable to their state Department of Education regarding bullying incidents in their school, this may encourage greater accountability and transparency.	0- Department of Education reporting not mentioned, or only incidents resulting in suspension or expulsion are reported 1- Department of Education reporting mentioned but addressed in weak or non-binding terms, or is only required for incidents of physical bullying 2- Required to report all substantiated incidents of bullying to Department of Education
Data Publicly Available	Law states that data on substantiated incidents of bullying will be made available to the public.	If school districts and administrators are accountable to the public regarding bullying incidents in their school, this may encourage greater accountability and transparency.	0- Data being made publicly available is not mentioned 1- Public nature of data is mentioned but addressed in weak or non-binding terms 2- Data on substantiated incidents of bullying will be made available to the public
Staff Training	Law requires school staff to be trained on bullying prevention practices annually.	If school staff are knowledgeable about bullying and strategies for prevention, they may be able to help prevent and address bullying incidents.	0- School staff training is not mentioned 1- School staff will be trained "to the extent funds are available", or will be trained but not specified as an annual requirement 2- School staff are required to be trained annually

Appendix B: Number of States Receiving Each Score in the Coding of State Statutes

	Number of States Scoring:		
Legal Factor	**0**	**1**	**2**
Protective Definition	32	13	4
All Types	12	4	33
Staff Reporting	24	6	19
Identify Investigator	22	8	19
Reporting & Investigation Process	12	3	34
Investigation Timeframe	22	17	10
Victim Parent Notification of Bullying	23	2	24
Bully Parent Notification of Bullying	25	1	23
Victim Parent Notification of Steps Taken	39	1	9
Victim Counseling	36	7	6
Bully Counseling	35	8	6
Retaliation	13	3	33
Protect Victim	34	7	8
Superintendent Reporting	45	0	4
District Board Reporting	41	2	6
Department of Education Reporting	28	3	18
Data Publicly Available	38	3	8
Staff Training	16	27	6

*Note: 49 of the 50 states had anti-bullying statutes. Hawaii was the only state with no statutes returned containing the word "bullying". Since only states with anti-bullying statutes were included in the analysis, each row in this chart totals 49 states.