Do LGB Students Feel Safe and Why Does it Matter?

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Do LGB Students Feel Safe and Why Does it Matter?

Abstract

The impact sports have on LGB students is being investigated in terms of Positive Youth Development as well as feeling safe and being bullied. This is done using data from the Minnesota Student Survey. Results indicate that there is a positive link between sports participation and feeling safe during OST. There is also a decrease in the amount of bullying yet an increase for LGB students. This is important because higher levels of feeling safe are associated with higher skills and supports. As well lower levels of being bullied are tied to these positive outcomes.

Background

Within the past 20 years there have been many changes for the LGB community with increased acceptance and rights. From the Massachusetts gay marriage law being passed in 2004 (Arce, 2004) to the nationwide gay marriage ruling in 2015 (Justia Law, 2015) , with many other legal battles and interpretations in between, the fight for equality has been moving forward. Along with these legal issues, public opinions on acceptance have been moving more towards equality as well (Smith, 2011). With these improvements implemented across the country, it becomes more important to see if these changes are being reflected in our schools.

Students in this community have been doing better now than past years but there are still many problems with victimization, emotional distress, and poor educational outcomes associated with being Lesbian, Gay and Bisexual (LGB) or from questioning your sexuality (Almeida, Johnson, Corliss, Molnar, & Azrael, 2009; J. P. Robinson & Espelage, 2011; Joseph P. Robinson & Espelage, 2013). Many students report harassment, exclusion, and hearing homophobic remarks (Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2011). These habits of victimization lead to more mental distress (Merrin, Espelage, & Hong, 2016). These challenges that the students face make it more difficult for them to succeed in many areas, such as connecting with peers, being accepted, and feeling confident in academics. An important piece in combating these challenges is the level of support that students feel from their peers, educators, and family.

This support and acceptance can reduce the level of negative outcomes and help students succeed (Feinstein, Wadsworth, Davila, & Goldfried, 2014).

Previous research shows us that many students receive a great deal of support and acceptance from participating in sports and other after school activities (Nickodem et al., 2017). In addition, participating in sports have been shown to be associated with better emotional wellbeing, lower social anxiety, and other positive attributes (Schumacher Dimech & Seiler, 2011; Steptoe & Butler, 1996). This support and other beneficial outcomes are important for students' education, especially their social and emotional education. Grades and test scores are important, yet there is more to education than that. In an increasingly connected world, a student needs to have the skills to communicate effectively, manage stress, and understand emotions. These aspects of education are becoming more of a focal point in our education system and this is where sports participation can have a considerable effect.

These effects can be diminished, however, when the student feels that they do not belong in the group. This can be a major issue for LGB students who are targeted for bullying more often than those who are heterosexual, especially in sport settings. Bullying, ridicule and otherwise non-accepting behavior can produce decreased feelings of safety, which can then lead to distancing from and indifference to sports participation. Without this sense of belonging, the positive effects of participating in sports and other group activities are hypothesized to decline in comparison. These issues have been addressed by many, and much have been done to combat these issues, yet there is still a great deal to be done (Ensign, Yiamouyiannis, White, & David Ridpath, 2011; Griffin, 2012). From this framework we can investigate the interaction between LGB student athletes, their feelings of safety, and the positive associations that can result from that. These positive associations are what are seen as educational outcomes from a social and emotional learning context.

Perspectives

Because of LGB youth in the media, we tend to see the negative outcomes and failures of students in this community. This is in strong opposition to the work of educators and youth development specialists, who tend to focus on the positive aspects of youth. We take a positive youth development perspective, stemming from positive psychology and community-based youth development.

Minnesota, through partnership with the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2017) and the American Institutes for Research (AIR, https://www.air.org/) has developed a set of social and emotional learning competencies for K-12 schools (not yet released). By supporting the social and emotional learning of all youth, we hope to help all students secure success in school, college and careers, and in life more generally. In this broader context of youth development, there are complex associations between academic and social environments that are influenced by social structures in the ecology of youth development (Bronfenbrenner, 1994). When students are supported in multiple relationships, contexts, and environments, their development is positively influenced. Positive youth development (PYD) is in part a response to the deficit model (or medical model) that permeated most youth development research for too long. Rather than a focus on what is wrong with youth, PYD is an asset-oriented perspective (Masten, 2014). A number of key principles from the frameworks of PYD are common and drive our work with examining the developmental skills and supports of LGB youth, including: (a) youth have inherent capacity for positive development; (b) positive development is enabled through multiple relationships, contexts, and environments; (c) all youth benefit from positive opportunities; (d) community is a critical delivery system; and (e) youth are key actors in their own development (Benson, Scales, Hamilton, & Sesma, 2006).

From this perspective on PYD we need to find more ways to support students' own development. Factors such as bullying and not feeling safe can get in the way of this. Because of this the questions being asked are: do LGB high school students, specifically those participating in sports activities experience higher levels of being bullied; do these students have different levels of feeling safe during out of school time; and how does being bullied and feeling safe associate with the skills and supports that facilitate PYD?

Methods & Data Source

The data come from the 2013 and 2016 Minnesota Student Survey (MSS, for more details, see http://education.state.mn.us/MDE/dse/health/mss). The MSS was designed by the Minnesota Departments of Education, Health, Human Services, and Public Safety, and administered every three years to 5th, 8th, 9th, and 11th grade students from public schools. The purpose of the survey is to monitor important trends in students' habits, experiences, and beliefs about positive and risky behaviors. Students completed the survey anonymously on a computer or using a paper-and-pencil version of the survey. The MSS Interagency Team provided the researchers full access to the survey database to perform a secondary data analysis, as part of a larger program of research investigating the ecologies of positive youth development (reference blinded for review), with review by their institutional review board.

Participants

Included in the analysis were high school students in grades 9 and 11 due to the fact that the questions about sexual identity were only asked of those grades. In total 161,224 students were included. Of these 87,690 were in grade 9 and 73,534 were in grade 11. 145,103 students identified as heterosexual whereas 1,682 were gay or lesbian, 6,237 were bisexual, and 5,354 who said they were not sure or questioning. This makes 13,273 who fall into the category of LGB. 81,016 students identified as male and 79,969 as female. 71,799 participated in at least one sports activity which was 46% of the sample. For the LGB students, 2,681 participated in sports, which is only 21% of the LGB sample.

Measures

Based on models of developmental skills and supports from the Developmental Asset Profile (Search Institute, 2013), several measures were constructed and psychometrically evaluated based on MSS items. The measures of skills included Commitment to Learning, Positive Identity, Social Competence, and measures of supports included Empowerment, Family/Community Support, and Teacher/School Support.

Two primary sources of validity evidence include content-related evidence (documented in Benson, 1990, 2002; Benson et al., 2006; and Search Institute, 2013) and internal-structure or construct-related evidence (documented in the MSS Technical Report, Rodriguez, 2017). To

support construct-related inferences, the internal structure of the measures were evaluated through confirmatory factor analysis (CFA; using Mplus v. 7; Muthén & Muthén, 2012) and differential item functioning analyses by race/ethnicity, sex, and grade (using Winsteps v. 3.92; Linacre, 2016; with results summarized in Rodriguez, 2017). We followed common guideline for adequate fit indices where RMSEA is below than .10, CFI and TLI are greater than .90 (Brown, 2015; Kline, 2011), and standardized factor loadings are .40 or higher (Brown, 2015); although we note that in many factor analytic studies of research surveys, standardized factor loadings of .30 are often used to define salient loadings.

The measures were then scored using the partial credit Rasch model in Winsteps 3.92 (Linacre, 2016). The partial credit Rasch model allows each item to have its own structure (given the ordinal nature of the response scales) and places persons and items onto the same scale. The Rasch reliabilities of these measures were also adequate: CtL (.70), PI (.79), SC (.79), EM (.72), FCS (.71), and TSS (.85).

A three-factor CFA was fit to the data for the three measures of developmental skills (CtL, PI, SC). The global fit indices indicate adequate fit., where RMSEA is .84, CFI is .92, and TLI is .91. The model fit indices for each developmental skill as a separate measures also were estimated. For CtL, RMSEA is .11, CFI is .95, and TLI is .91; for PI, RMSEA is .17, CFI is .96, and TLI is .93; and for SC, RMSEA is .13, CFI is .94, and TLI is .92. In the three-factor CFA, the standardized factor loadings ranged from .37 to .84 (18/20 are over .50). Overall, these fit indices and factor loadings support the use of these items as indicators of developmental skill measures. Moreover, since the measures are not used at the individual level, they provide strong indicators of developmental supports at the group level, the intended level of analyses.

A three-factor CFA was fit to the data for the three measures of developmental supports (FCS, EM, TSS). The global fit indices indicate nearly adequate fit, where RMSEA is .13, CFI is .89, and TLI is .87. The model fit indices for each developmental support as a separate measure also were estimated. For FCS, RMSEA is .13, CFI is .98, TLI is .95; for EM, RMSEA is .23, CFI is .91, and TLI is .85; and for TSS, RMSEA is .13, CFI is .98, and TLI is .97. In the three-factor CFA, the standardized factor loadings ranged from .53 to .91. Overall, these fit indices, and particularly the factor loadings, support the use of these items as indicators of development support measures. Moreover, since the measures are not used at the individual level, they provide strong indicators of developmental supports at the group level, the intended level of analyses.

The disattenuated correlations among the three developmental skills range from moderate to high; the correlations of PI with CtL is .57, SC with CtL is .68, and SC with PI is .85.

The disattenuated correlations among the three developmental supports are moderate; the correlations of FCS with EM is .77, TSS with EM is .63, and TSS with FCS is .73.

Analysis

Only students who had responded to the questions relating to sexuality, sports participation, feeling safe, and the skills and supports were included in the analyses. There were two questions that asked about gender identity but these items were not clear indicators for how the student would identify. In addition sexual identity and gender identity, however related, are seen as separate ideologies and thus only the question about sexual identity were included in the analyses. The sports variable was identified by the students who indicated at least one day of a sports activity. The way the data were collected did not allow for identification for which sport or sports they played as well as if the sport was in the school or with an outside organization. To answer the question of how safe students feel, a variable called safety was made using the question, "When you spend time doing activities outside of the regular school day, how often do you feel safe?". The question was converted into a 0,1 variable with the 1 category being feeling safe including the responses of "Often" and "Very Often" and the 0 category of not feeling safe including the responses of "Sometimes" and "Rarely or never".

Logistic regression was used in multiple models to attempt to explain the relationship between our variables: sexual identity, sports participation, and feeling safe. This type of analysis is similar to standard regression, yet, because our outcome is dichotomous and not continuous, we predict probabilities instead of values. To do this we use regression to predict the odds of an event happening, in this case selecting a certain answer for the survey question. Because odds-ratios are heavily skewed, we perform a log transformation to have our predicted outcome in the units of log odds. From the unit of log odds, we have our standard beta coefficients and the resulting *p* values. These then can show the importance of each variable and allow us to convert the outcome predictions into probabilities.

A logistic model using the sexual identity variable along with sex and grade as control variables was performed to predict the probability of saying that the participant feels safe. This was done as a baseline to show the differences in general between heterosexual and LGB groups

for safety. A dichotomously coded sports participation variable was then added to the model to show its additional effect on predicting the probabilities for the safety question. In addition, an interaction effect was added to show the relationship between sports participation and sexual identity when describing safety. A similar model was run with the sports participation variable separated into how many days one participated in sports, rather than if they participate at all. This was compared to the previous model to identify if it matters more the amount of days a student participates in sports, or that they just participate in any.

Following this, a linear model was built with sexual identity and sports participation predicting the score on the measure of being bullied, again with sex and grade as controls. This model shows the individual effect each of the variables have on predicting the level of bullying along with the possible additional interaction effect. Similar to the previous models, this relationship was run both with sports participation being dichotomously coded as participating at all or not, and coded for the amount of days the student participated in sports. Standard linear regression is appropriate for this, instead of logistic regression, because it is being used to predict a measure that is on an interval scale. Therefore the predicted numbers can be directly interpreted.

This first portion of the analysis is to explore the hypothesis that students who identify as LGB and participate in sports are less likely to report feeling safe when doing activities outside of the school day and are bullied more often. This is based on previous literature and is an issue that deserves deeper analysis. After answering this question, there is the follow up question for why this matters. To answer this question, the outcomes of feeling safe and being bullied are used as the new predictors to explain the developmental skills and supports as well as self-reported grades. As a baseline for these effects, the standardized mean differences between sexual identities and sports participation are identified for each developmental skill and support.

Linear regression was used to predict the score for each skill and support as well as self-reported grades compared between each response to the safety question, for each sexual identity, and sports participation. Backwards model selection was used to build a model with significant interaction effects. Next, regression was used to predict the score for each skill and support and self-reported grades using the score of bullying, sexual identity as predictors, and sports participation. Backward model selection was again used to determine the significant interaction

effects. For this, bullying was included as a quadratic term as well because it is a skewed scale with the higher levels showing multiplicative impacts on other outcomes.

Results

Initial results for students show somewhat more negative results for students who identify as LGB compared to those who are heterosexual. As found in our sample, LGB students are 17% less likely to participate in out of school activities at least 3 times a week and 27% less likely to participate in any sports activities. According to the logistic regression predicting the response to the question of safety, students who identified as LGB had a fitted value that is .199 lower than heterosexuals for the probability of selecting feeling safe. When accounting for sports participation, LGB students have a significant decrease in probability for safety, students participating in sports have an increased probability for safety, and there is a negative interaction between the two, after controlling for sex and grade. This leads to an overall increase in probability for safety for all students participating in sports with a slightly larger effect for LGB students at an increase of .102 in probability compared to an increase of .071 in probability for heterosexual students (Figure 1 and Table 1).

The analysis for level of sports participation shows a similar trend. Both groups have an increase in the fitted predicted value of probability of selecting feeling safe as the amount of sports activity goes up. No days of sports participation to 5 or more days has a fitted increase of .106 for LGB students and .081 for heterosexual students (Figure 2).

The analysis for being bullied shows that there is a positive association between LGB and being bullied, a negative association between sports participation and being bullied, and a significant positive interaction, after controlling for sex and grade. This leads to an increase in bullied rate for LGB students participating in sports beyond the main effect increase and it changes the association with sports participation from a positive to a negative. Heterosexual students in sports activities have an associated decrease of 0.067 in the bullied score compared to heterosexual students not in sports, yet participating in sports has an increase of 0.056 for LGB students (Figure 3 and Table 2). A similar result happens fro
m the model predicting bullying from level of sports participation (Figure 4).

Comparing LGB students to heterosexual students shows a lower level of skills and supports and higher challenges for the LGB students (Figure 5). These differences range between

-0.3 to -0.7 standardized mean decreases for the skills and supports, and between 0.2 to 1.2 standardized mean increases for the challenges. Comparing sports participation shows an opposite trend with higher skills and supports and lower challenges (Figure 6). The standardized mean differences range between 0.2 to 0.5 for increases in skills and supports with a range of 0.05 to 0.4 in decreases for the challenges.

Predicting the skills and supports from the safety question shows selecting “often” or “very often” is associated with an increase in all of the skills and supports, beyond what can be predicted by sexual orientation and sports participation (Figure 7 and Table 3). Being LGB had a significant negative association with all the skills and supports whereas sports participation had a positive association with all. In addition all the models had a significant, negative interaction between feeling safe and being LGB. This shows that the positive association between feeling safe and these skills and supports is lessened for LGB students. A positive significant interaction between safety and sports was identified for 4 of the models, a negative interaction was identified for 5 models, and the model predicting Positive Identity identified a significant three way interaction.

Similarly, self-reported grades showed the same trend with LGB predicting lower grades (Figure 8), yet feeling safe and sports participation predicting higher grades. Again there was a significant negative interaction showing a dampening effect on the effect of feeling safe for LGB students.

Linear regression predicting the skills and supports from bullied score showed a significant unique main effect and quadratic effect for all skills and supports (Figure 9 and Table 4). All models showed a negative association with the bullied quadratic effect which shows the compounding nature of higher levels of being bullied on the decrease of the skills and supports (Figure 10). Similar to previously, the main effect for LGB showed a negative association with all skills and supports, and sports participation had a positive association with all. Significant interaction effects between bullied and sports participation were found for 5 of the models, between bullied score and LGB students for 4 of the models, and between LGB students and sports participation for 2 of the models. Again a model was built to predict self-reported grades. This showed significant main effects, bullied quadratic effects and significant interactions between bullied score and sports participation as well as between LGB students and sports participation. All significance testing was done at a $p < 0.05$ level.

Discussion and Significance

The results from the primary analysis is promising. Although being LGB is associated with more negative outcomes: less likely to respond that they feel safe, higher rates of bullying, and lower developmental skills and supports, this negative association can be moderated by sports participation. In general, we see that sports participation generally is associated with more positive outcomes. The outcomes for feeling safe are even stronger for LGB students, which is promising for those students who are at risk and need more support. The association with participating in sports for LGB students and the increase in level of being bullied however is concerning. This shows that we need to provide more of a safe and supportive environment for our LGB athletes.

When answering the question of why this matters, we can look at the ties these effects have to the measures of developmental skills and supports. This shows that there is a reason beyond what we already know to ensure that students are feeling safe. Overall students who report feeling safe have higher levels for all the skills and supports. These range from a 0.57 to 1.6 point increase after accounting for the other variable in the models. These constitute between 0.37 and 0.84 standard deviation increase. This is a considerable increase especially because this is only the unique main effect beyond LGB and sports participation. This is the largest main effect size which shows that fostering an environment where all students feel safe can be powerful tool for helping students.

This is especially true for LGB students who were shown to have a negative interaction with the influence from safety on the skills and supports. As mentioned previously, this negative interaction means the potential benefits from feeling more safe are not as strong for students who identify as LGB. This could be due to these students having more limitations beyond what is seen here. Addressing these limitations and additionally increasing the safe environment can do more to support these students.

Additionally a similar trend is found in the interaction between LGB students and sports participation for predicting all skills and supports except Commitment to Learning. Again sports participation has an overall positive association with all skills and supports, predicting around a 0.5 point (0.33 SD) increase uniquely accounted for. This effect is dampened for LGB students to a point where Positive Identity and Teacher / School Support are almost entirely removed. We want sports participation to help all students but as this shows, there is at least one community

that it is not working as well for. This issue can be potentially described by many other factors that play into this relationship such as sports culture, acceptance of LGB students, and the next variable: bullying.

Next the association between how being bullied predicts the skills and supports was examined in a model with sports participation and sexual orientation as contributing predictors. In the regression, the largest of the effects were either sports participation or being bullied depending on the skill or support being predicted. This shows that, similar to feeling safe, being bullied has a significant effect (between .004 and .01 η^2) that is accounted for after controlling for the other variables in the model. What this means is, similar to the analysis for the safety variable, that although sports participation and sexual orientation plays a role in developmental skills and supports, being bullied, which may lead from these variables, has a larger impact.

This impact that being bullied has on these skills and supports is affected as well by the interaction effects. There were interaction effects between sports participation and bullying for all models except Teacher and School support, likely because sports participation does not take place in the normal school day. This interaction is negative, which means that the potential negative associations that bullying has with the skills and supports is somewhat increased for those who participate in sports. Students who participate in sports who are also being bullied show even worse levels for these outcomes than the added, individual effect. Which shows that there may be something about this relationship and culture that enables this outcome.

On a more positive note, the interaction between being bullied and sexual orientation is significantly positive for all outcomes except Commitment to Learning and Teacher / School Support. Again this is likely because this is not as relevant to the normal school day. This positive interaction makes it so the negative effect that being bullied has on these outcomes is somewhat lessened for the LGB students. There is still the quadratic effect for being bullied which shows that the greater levels of being bullied cannot be helped as much. This is not a large effect but can be a starting point for where we can direct support and encouragement for LGB students participating in sports. Not only is participating in sports activities helpful for the students' physical and psychological well-being, but it is tied to more positive developmental skills and supports. This shows that if we do what we can to foster a healthy sports atmosphere for the schools it can help students become better agents of change for their own positive development.

These results can do a lot to explain the relationship between LGB students and sports participation. Some of the results look grim, however there are hopeful findings. These are associations found between students from all across Minnesota so there may be communities that are doing a better job of supporting LGB student athletes. We cannot say for certain how this support system would directly affect this relationship yet we can learn from those that are found to be successful. In addition educators can learn from these associations to try and connect LGB students into sports and other out of school activities, but in a safe and supported way. Curbing the bullying that happens in this environment is crucial for the support. Attending to the safety and support will then hopefully lead to the eventual flourishing of outcomes for out LGB student athletes.

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Appendix

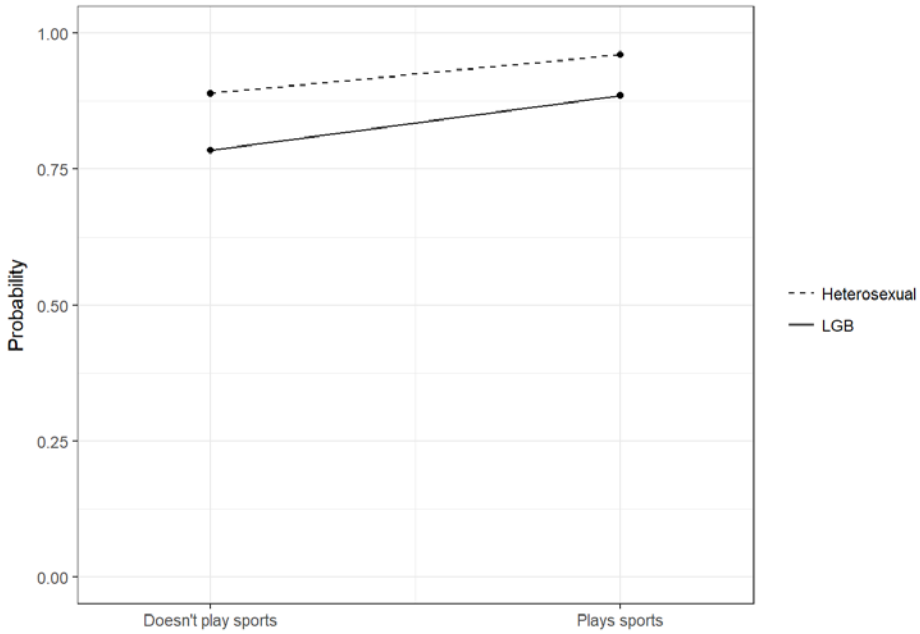

Figure 1. Logistic regression predicting the probability of selecting "Often" or "Very Often" to the question "When you spend time doing activities outside of the regular school day, how often do you feel safe?" compared between heterosexual and LGB students as well as between those who participate in sports activities and those who do not.

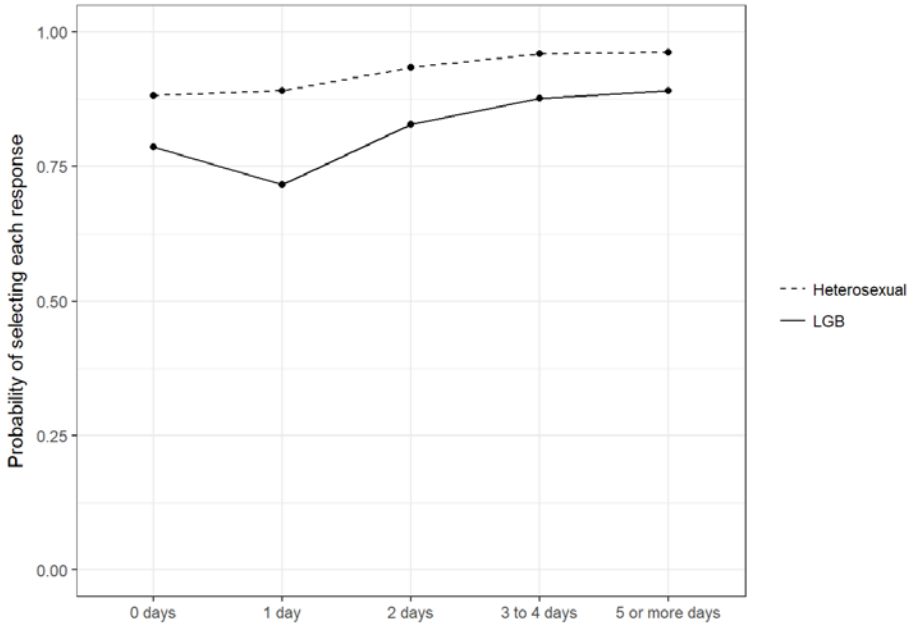

Figure 2. Logistic regression predicting the probability of selecting "Often" or "Very Often" to the question "When you spend time doing activities outside of the regular school day, how often do you feel safe?" compared between heterosexual and LGB students as well as between each level of participating in sports activities.

Table 1

Logistic Regression for Models with LGB and Sports Participation while Controlling for Sex and Grade to Predict Sense of Safety

	LGB Main Effect	**LGB and Sports Participation**	**LGB and Level of Sports Participation**
(Intercept)	2.52***	2.09***	2.01***
	(0.02)	(0.02)	(0.03)
LGB	-1.07***	-0.79***	-0.71***
	(0.03)	(0.04)	(0.04)
Female	0.11***	0.13***	0.12***
	(0.03)	(0.03)	(0.03)
Grade 11	0.11***	0.17***	0.18***
	(0.03)	(0.03)	(0.03)
Sports Participation		1.12***	
		(0.04)	
LGB x Sports Participation		-0.36***	
		(0.10)	
Participates 1 day			0.08***
			(0.06)
Participates 2 days			0.64***
			(0.06)
Participates 3 or 4 days			1.15***
			(0.01)
Participates 5 or more days			-1.21***
			(0.04)
LGB x Participates 1 day			-0.45
			(0.14)
LGB x Participates 2 days			-0.36
			(0.16)
LGB x Participates 3 or 4 days			0.49***
			(0.16)
LGB x Participates 5 or more days			0.41
			(0.12)

Note. Coefficients are in log odds metric.

***p < 0.001, **p < 0.01, *p < 0.05

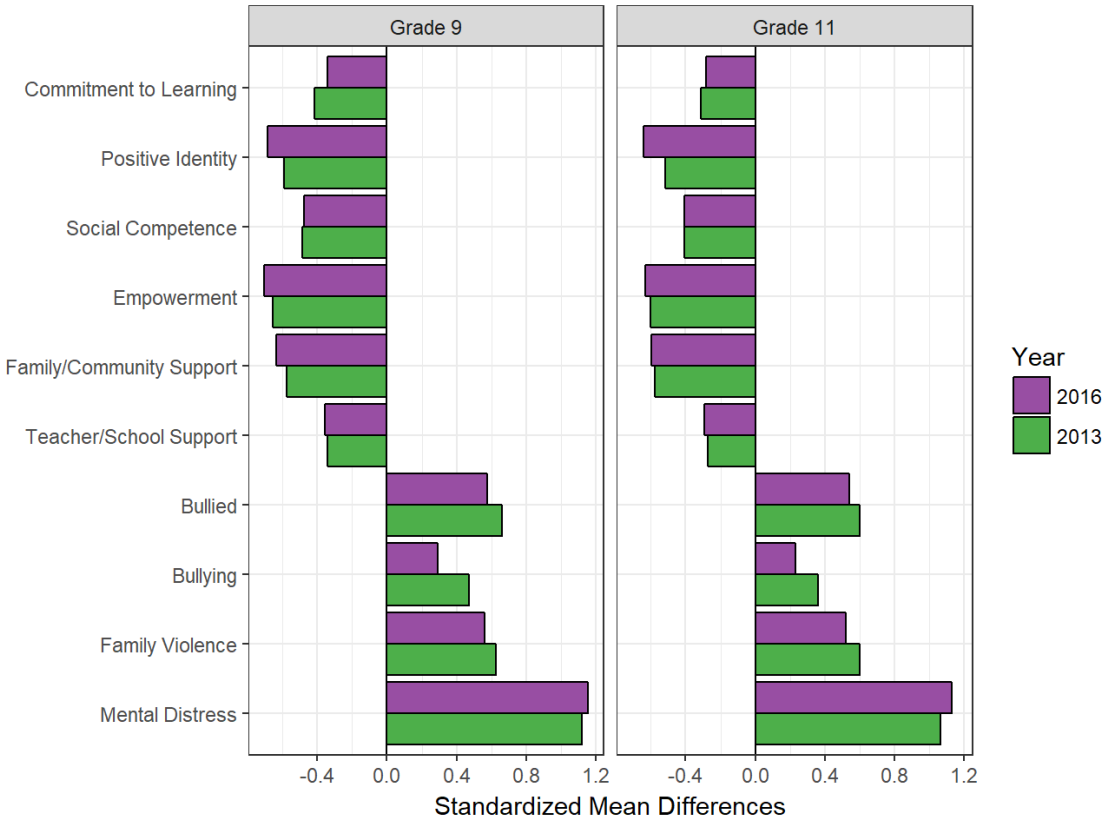

Figure 3. Standardized mean differences comparing LGB students to heterosexual students for each developmental skill, support, and challenge.

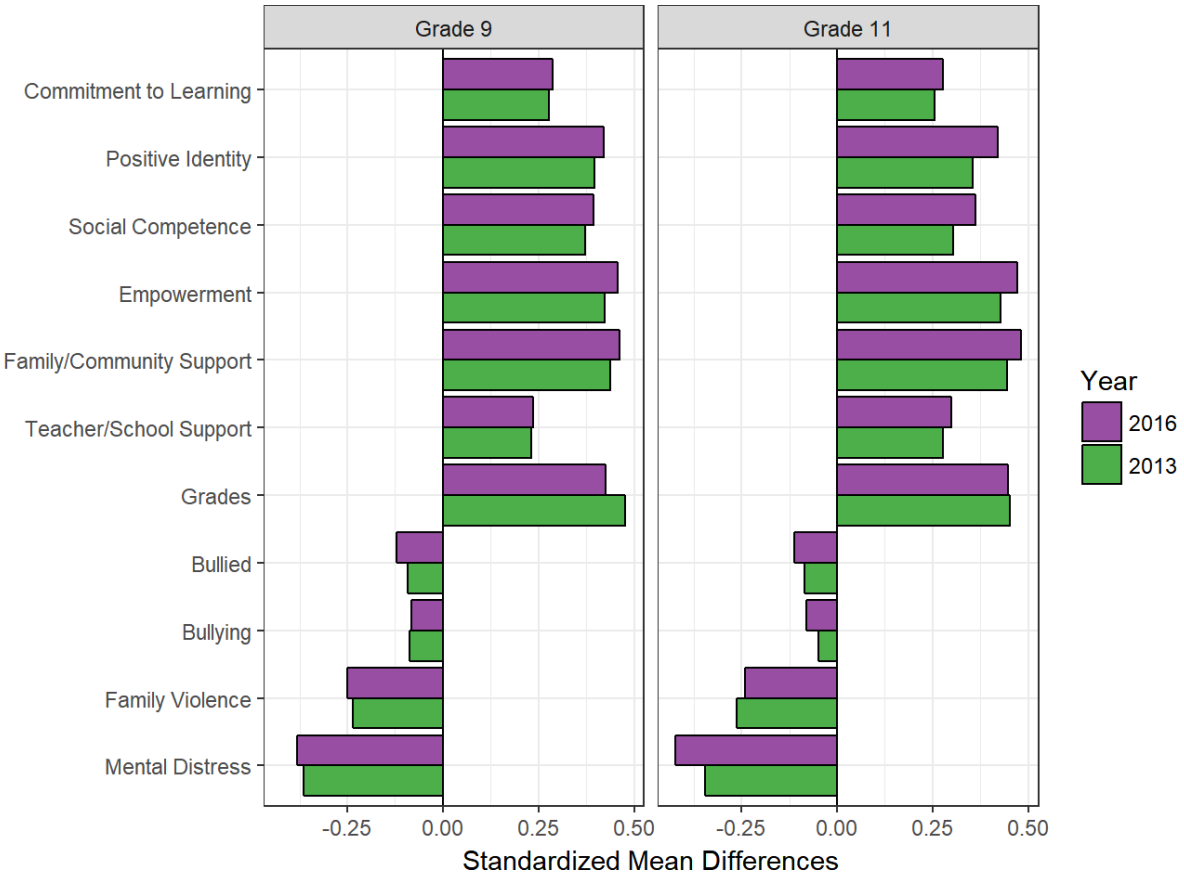

Figure 4. Standardized mean differences comparing students who participate in sports to students who do not for each developmental skill, support, and challenge.

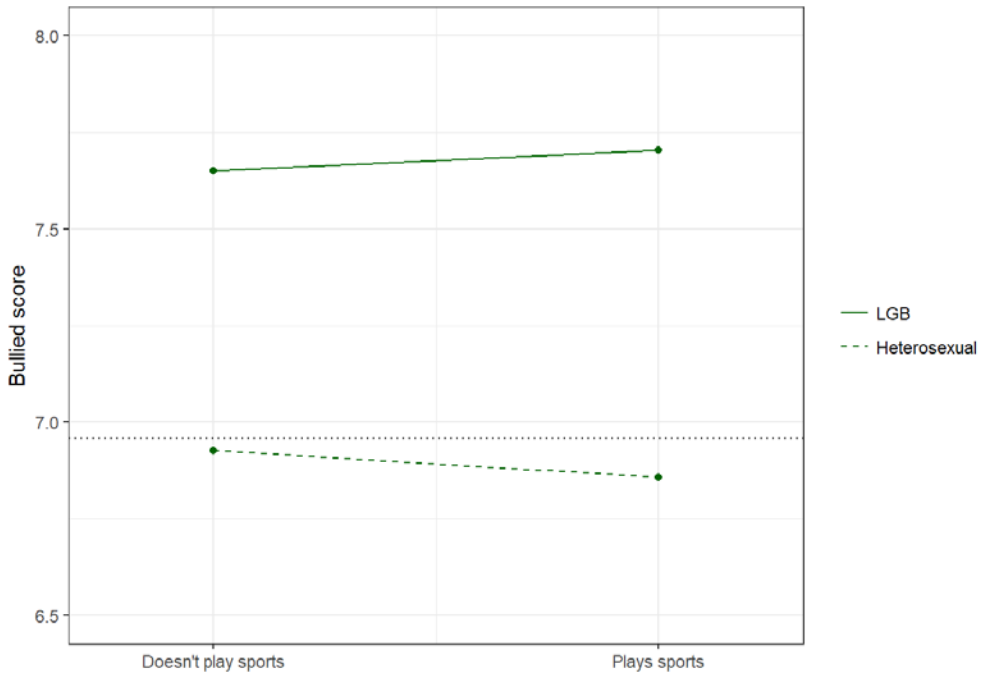

Figure 5. Linear regression predicting the score of the bullying challenge for students participating in sports activities compared to those who do not split between heterosexual students and LGB students.

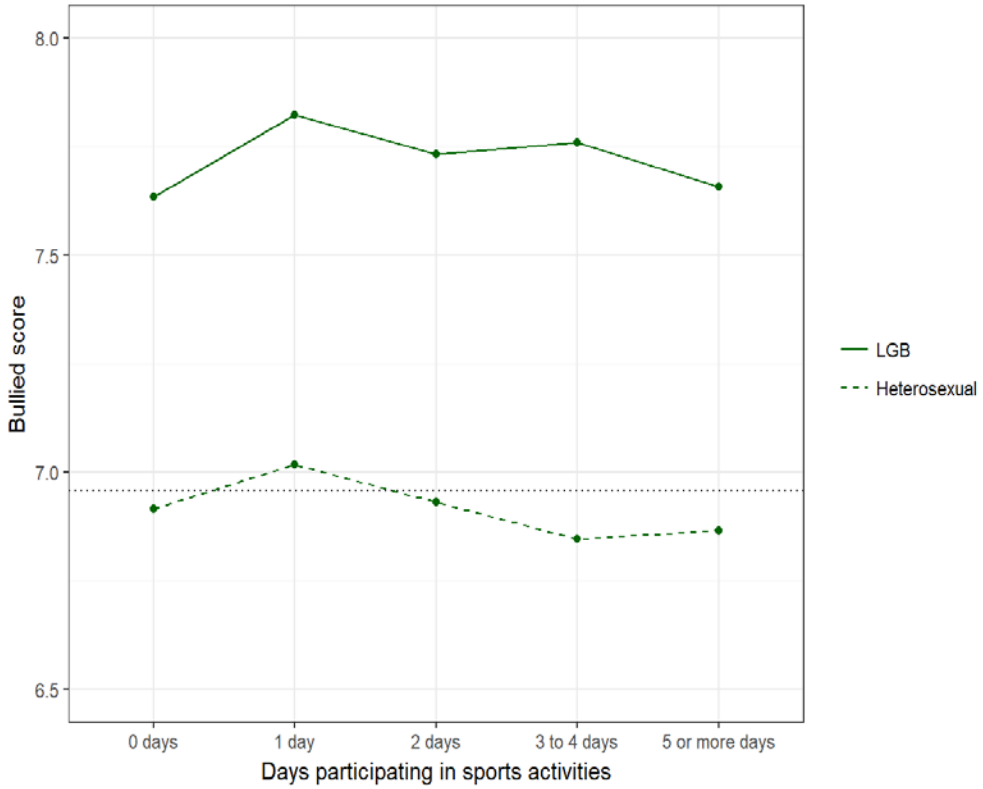

Figure 6. Linear regression predicting the score of the bullying challenge compared for each level of sports participation between heterosexual students and LGB students.

Table 2

Linear Regression for Models using LGB and Sports Participation while Controlling for Sex and Grade to Predict Bullied Level

	LGB Main Effect	**LGB and Sports Participation**	**LGB and Level of Sports Participation**
(Intercept)	6.84***	6.87***	6.86***
	(0.01)	(0.01)	(0.01)
LGB	0.71***	0.67***	0.66***
	(0.01)	(0.01)	(0.02)
Female	0.27***	0.27***	0.27***
	(0.01)	(0.01)	(0.01)
Grade 11	-0.16***	-0.17***	-0.17***
	(0.01)	(0.01)	(0.01)
Sports Participation		-0.07***	
		(0.01)	
LGB x Sports Participation		0.12***	
		(0.03)	
Participates 1 day			0.10***
			(0.02)
Participates 2 days			0.01***
			(0.02)
Participates 3 or 4 days			-0.07***
			(0.01)
Participates 5 or more days			-0.05***
			(0.01)
LGB x Participates 1 day			0.09
			(0.06)
LGB x Participates 2 days			0.08
			(0.06)
LGB x Participates 3 or 4 days			0.20***
			(0.04)
LGB x Participates 5 or more days			0.07
			(0.04)

******p < 0.001, **p < 0.01,*** *p < 0.05

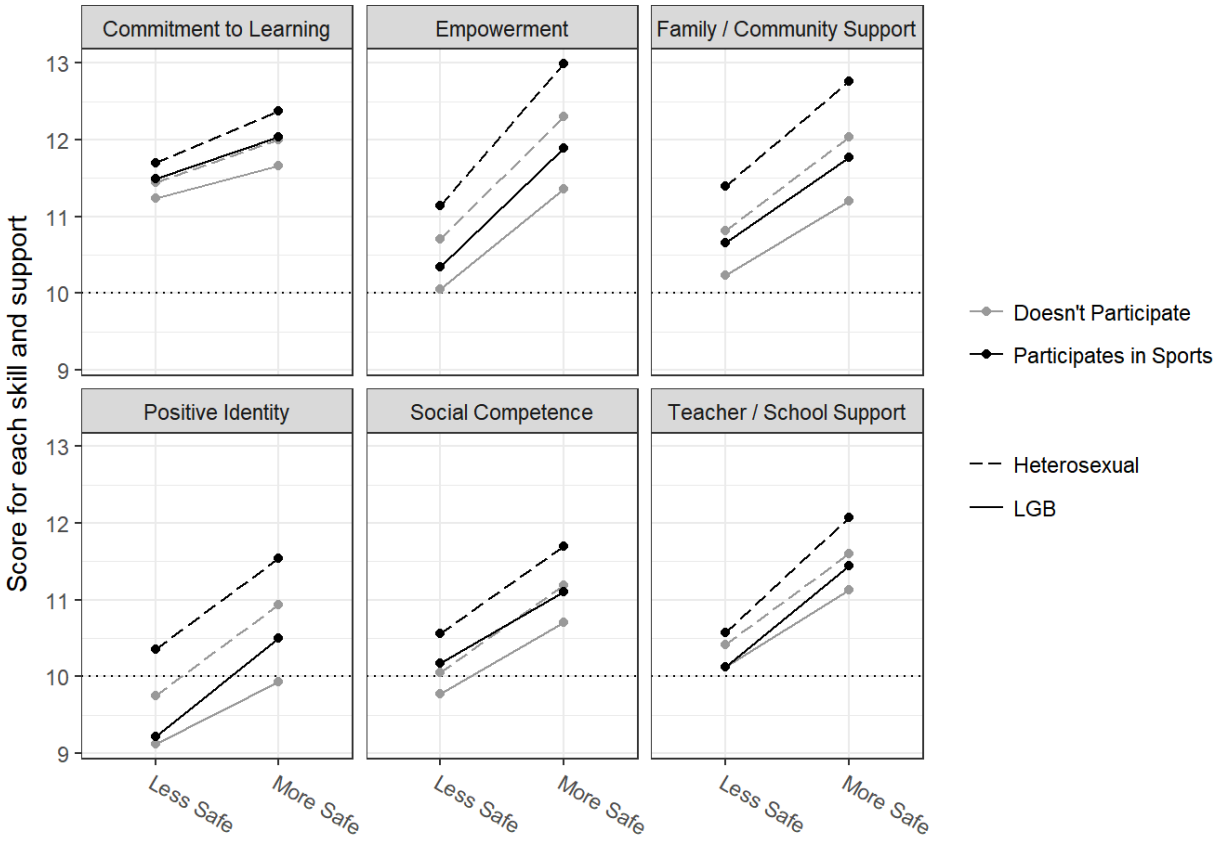

Figure 7. Linear regression predicting each skill and support using each answer to the question "When you spend time doing activities outside of the regular school day, how often do you feel safe?", sexual identity, and sports participation as predictors. A score above 10 is considered equipped for learning.

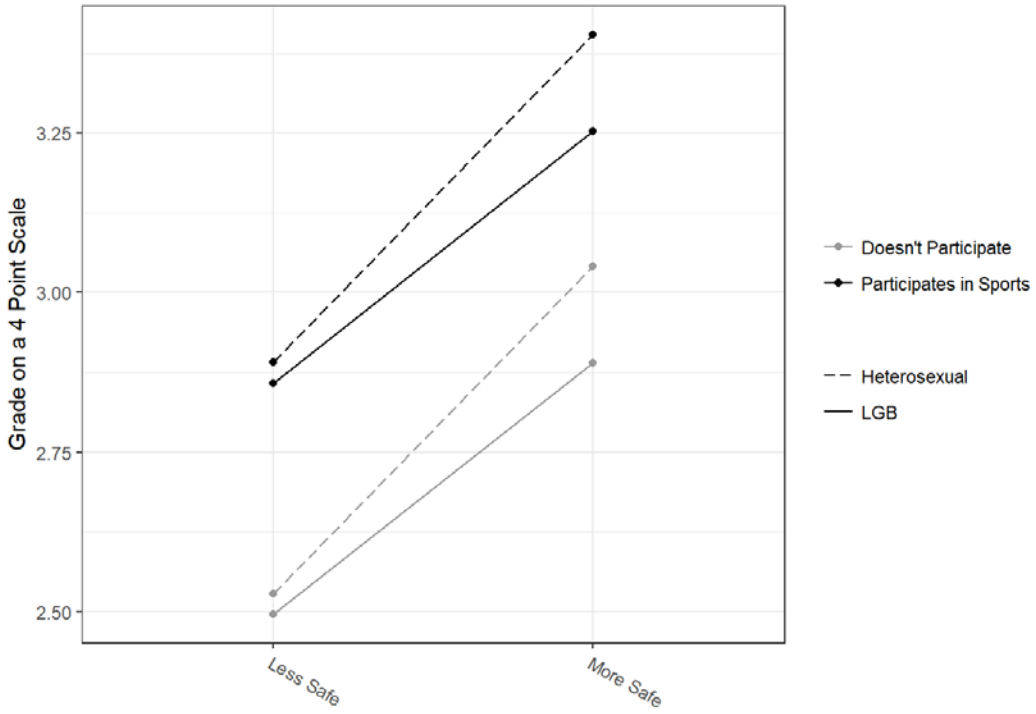

Figure 8. Linear regression predicting self-reported grade on a 4 point scale using each answer to the question "When you spend time doing activities outside of the regular school day, how often do you feel safe?", sexual identity, and sports participation as predictors.

Table 3

Linear regression outputs for models using LGB, Sports Participation, and feeling safe as main effects with the interaction effects to predict each developmental skill and support

	Commitment to Learning	Positive Identity	Social Competence	Empowerment	Family & Community Support	Teacher & School Support	Grades
(Intercept)	11.44*** (0.02)	9.75*** (0.03)	10.05*** (0.02)	10.70*** (0.03)	10.82*** (0.03)	10.42*** (0.04)	2.53*** (0.01)
GLBQ	-0.20*** (0.05)	-0.62*** (0.06)	-0.27*** (0.05)	-0.65*** (0.06)	-0.59*** (0.06)	-0.29*** (0.07)	-0.03 (0.03)
Safe	0.57*** (0.03)	1.19*** (0.03)	1.14*** (0.02)	1.60*** (0.03)	1.22*** (0.03)	1.19*** (0.04)	0.51*** (0.01)
Sports	0.26*** (0.05)	0.61*** (0.01)	0.50*** (0.01)	0.45*** (0.06)	0.58*** (0.06)	0.16* (0.07)	0.36*** (0.01)
LGB x Safe	-0.14** (0.05)	-0.38*** (0.06)	-0.21*** (0.05)	-0.29*** (0.06)	-0.25*** (0.06)	-0.18* (0.08)	-0.12*** (0.03)
Safe x Sports	0.11* (0.05)			0.24*** (0.06)	0.13* (0.06)	0.32*** (0.07)	
LGB x Sports		-0.52** (0.16)	-0.11* (0.05)	-0.15** (0.05)	-0.15** (0.05)	-0.16* (0.07)	
LGB x Safe x Sports		0.47** (0.17)					

***p < 0.001, **p < 0.01, **p < 0.05

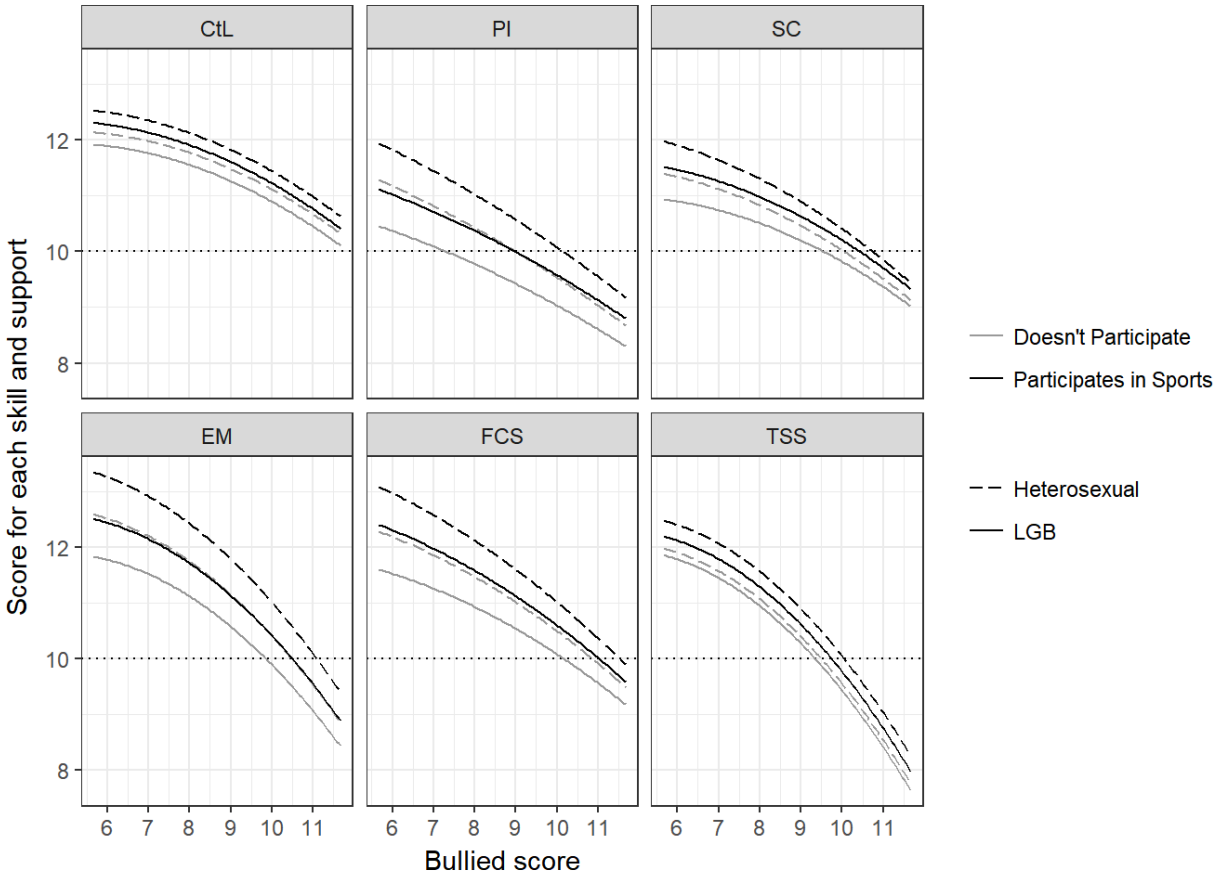

Figure 9. Linear regression predicting each skill and support using the quadratic effect of the being bullied score and sexual identity as predictors.

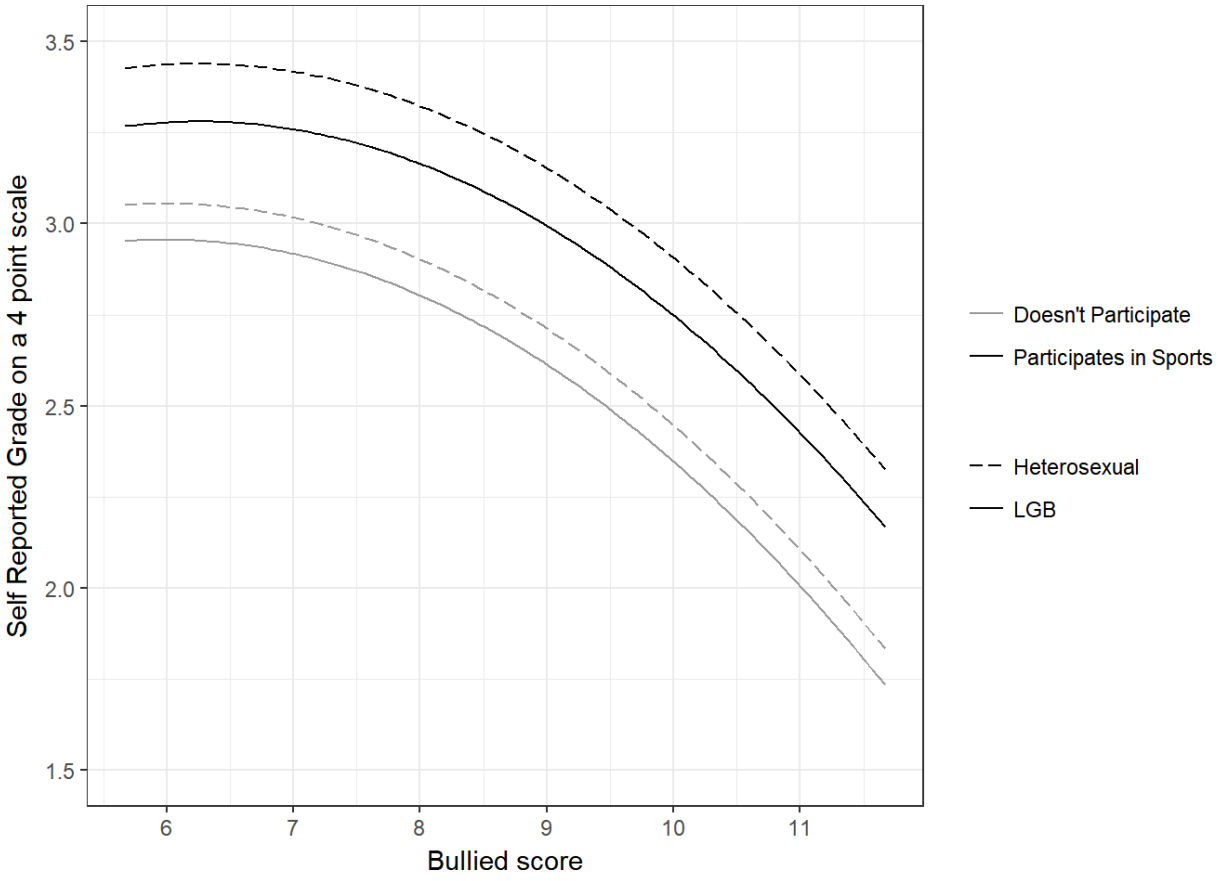

Figure 10. Linear regression predicting self-reported grade on a 4 point scale using the quadratic effect of the being bullied score and sexual identity as predictors.

Table 4

Linear regression outputs for models using LGB, Sports Participation, and being bullied as main effects with the interaction effects to predict each developmental skill and support

	Commitment to Learning	Positive Identity	Social Competence	Empowerment	Family & Community Support	Teacher & School Support	Grades
(Intercept)	11.21*** (0.13)	12.52*** (0.16)	11.07*** (0.15)	11.36*** (0.16)	12.81*** (0.15)	10.27*** (0.19)	1.69*** (0.08)
Bullied	0.39*** (0.04)	-0.11. (0.04)	0.27*** (0.04)	0.62*** (0.04)	0.09. (0.04)	0.79*** (0.05)	0.46*** (0.02)
Bullied Squared	-0.04*** (0.00)	-0.02*** (0.00)	-0.04*** (0.00)	-0.07*** (0.00)	-0.03*** (0.00)	-0.09*** (0.00)	-0.04*** (0.00)
LGB	-0.22*** (0.01)	-1.26*** (0.09)	-0.79*** (0.08)	-1.07*** (0.09)	-1.04*** (0.09)	-0.12*** (0.02)	-0.10*** (0.01)
Sports	0.47*** (0.04)	0.81*** (0.05)	0.83*** (0.05)	0.96*** (0.05)	1.18*** (0.05)	0.49*** (0.01)	0.26*** (0.03)
Bullied x Sports	-0.01. (0.01)	-0.03*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	-0.07*** (0.01)		0.02*** (0.00)
Bullied x LGB		0.08*** (0.01)	0.06*** (0.01)	0.06*** (0.01)	0.06*** (0.01)		
LGB x Sports				-0.08. (0.04)		-0.15** (0.05)	-0.06** (0.02)

***p < 0.001, **p < 0.01, **p < 0.05