

## **The Role of Out-of-School-Time Positive Experiences on Risky Behaviors**

Rik Lamm, Tai Do, Kory Vue, Kyle Nickodem, Michael C. Rodriguez  
University of Minnesota

Minnesota Youth Development Research Group  
[www.mnydr.org](http://www.mnydr.org)

April 2018

Paper presented at the annual meeting of the  
American Educational Research Association, New York, NY.

Citation:

Lamm, R., Do, T., Vue, K., Nickodem, K., & Rodriguez, M.C. (2018, April). *The role of out-of-school-time positive experiences on risky behaviors*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

## **Abstract**

The connection between Positive Youth Development, risk factors, and out of school positive experience is investigated using survey data from the Minnesota Student Survey. Positive Youth Development is identified using 3 measures of developmental skills, and 3 measures of developmental supports. 168,733 high school students were included in the analyses. The analyses showed a negative relationship between the risk factors and each measure of skills and supports. Similarly the scale of out of school positive experiences showed curvilinear negative relationships with the risk factors. These results indicate that out of school time is a good focus for support to reduce risk factors for students.

## **Introduction**

Although most educational research is done in the classroom, there is a growing trend to look beyond school time to see how else we can help students. After-school programs, community courses, and sports teams all seek to help students succeed in many areas. These programs each have a specific focus but they all can contribute to students' academic and social skills, especially when looking at students who are more at risk. Whereas simply participating in out-of-school-time (OST) programs tends to be associated with more positive outcomes, the experiences students have during these times can moderate the positive effects - more positive experiences should lead to even better outcomes.

Within the past 20 years, the amount of after school programming has grown dramatically, followed by increased attention in the research literature (Deutsch, Blyth, Kelley, Tolan, & Lerner, 2017). Overall, researchers report associations between OST program participation and positive outcomes, such as improved math and reading achievement, social and emotional learning, and resiliency skills (Anthony, Alter, & Jenson, 2009; Durlak, Weissberg, & Pachan, 2010; Lauer, Akiba, Wilkerson, Apthorp, & Martin-Glenn, 2013). These effects are more prominent among students at-risk from poorer communities. Although these after school programs were originally targeted towards those types of families and students, the benefits can be seen across student characteristics.

The effect of being in any type of out of school activity has been shown to be tied to these benefits many times yet now more is being examined relating to the quality of these programs. One study looked at the link between students involved in a program and their social competency (Shernoff & Vandell, 2007). There was a direct link, however this link was also moderated by the engagement that the student reported. Another study tied the quality of a drug-use and violence prevention program to positive reported experiences for the participants (Cross, Gottfredson, Wilson, Rorie, & Connell, 2010). These studies in addition to many others, show that engagement, implementation, and overall positive experiences have an important role when considering the effect that after school and other extra-curricular programs have on student achievement, growth, and the lowering of risk factors (Hirsch, Mekinda, & Stawicki, 2010).

Most of these studies have been examining the beneficial outcomes that can be associated with positive experiences during out of school time. Yet as we see from the original purpose of these out of school activities (Halpern, 2002) that they were designed to “save” children from factors that were seen as detrimental. Since then, there is still a major focus on how we can use these programs to help those who may not have other sources of support. There are many risk factors that lead students to lower academic success such as alcohol use (Balsa, Giuliano, & French, 2011; Jackson & Schulenberg, 2013), other substance use, and suicide (Pisani et al., 2013).

### **Perspectives**

Minnesota, through partnership with the Collaborative for Academic, Social, and Emotional Learning (CASEL, 2017) and the American Institutes for Research (AIR, 2017) 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). These social structures include self, family, schools, and communities. When students are supported in multiple relationships, contexts, and environments, their development is positively influenced. We note that supports are particularly relevant in this

context, as developmental relationships are seen as key ingredients in positive development and successful youth outcomes (Roehlkepartain et al., 2017).

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, Roehlkepartain, 2015). A number of key principles from the frameworks of PYD are common and drive our work with examining the developmental skills and supports of Somali 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 et al., 2006).

With a perspective for the PYD approach I am attempting to investigate the barriers to students' positive outcomes and how out of school positive experiences can moderate these effects. For this I will be asking what effects do alcohol use, mental distress, suicidal thoughts, and suicide attempts have on each skill and support? Also what is the relationship between OST positive experiences with the probability of each of the risky behaviors? These answers can help those who are working to remove barriers for students to be agents in their own positive development.

### **Methods & Data Sources**

The Minnesota Student Survey (Minnesota Department of Education, 2016) was taken by 330,767 students in 2013 and 2016, including grades 5, 8, 9, and 11. About 85% of public school districts participated, including nearly 68% of all eligible students. The survey was designed and distributed by the Minnesota Departments of Education, Health, Human Services and Public Safety along with collaborations from schools. The survey was designed to monitor trends regarding student experiences, beliefs, and behaviors, including risk-taking. 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 on the ecologies of positive youth development (Nickodem et al., 2017). The research team secured approval by their institutional review board.

## 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 (CtL), Positive Identity (PI), Social Competence (SC), and measures of supports included Empowerment (EM), Family/Community Support (FCS), and Teacher/School Support (TSS).

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.

In addition, four challenges were measured, including Bullied as a victim, Bullying as a perpetrator, Family Violence, and Mental Distress. Finally, a measure was created for OST Positive Experience, based on characteristics of OST participation including opportunities to learn about teamwork and leadership, develop trusting relationships with peers and adults, get help making decisions, receive joy and energy, and learn skills for the future. These measures were examined using linear and logistic regression to predict associations with four risky behaviors (Alcohol Use, Mental Distress, Suicidal Consideration, and Suicide Attempts). All analyses using the OST Positive Experience scale include 2016 data only, due to survey changes over time.

## **Procedure**

The initial analysis identifies the overall difference in the levels of developmental skills (Commitment to Learning, Positive Identity, and Social Competence) and supports (Empowerment, Family / Community Support, and Teacher / School Support), between those in the risk categories (Used alcohol, have mental distress, considered suicide, and attempted suicide) and those who are not. This is to show a baseline for how these students' risk factors are impacting their positive outcomes. Secondly, to show what could be affect these risk factors

the rates of the risk behaviors are compared between students who participate in 3 or more out of OST activities at least 3 times a week to those who do not.

Next, linear regression is used to predict the score on the skills and supports from the risk factors. These models also used control variables of sex, grade, and sexual orientation to try and remove possible confounds. These regression models identify how much of the variation in the skills and supports can be uniquely accounted for by each risk factor and also resulting in predicted score values.

Logistic regression is then used to predict the probability of being in each of the risk factors, predicted by OST Positive Experience, controlling for whether the student participated in OST activities three or more times per week. A quadratic term was added for OST Positive Experience because of skewed levels of this trait. These models also compare students who participated in sports as part of the OST and those who did not. The models also controlled for sex, sexual identity, race / ethnic group, and grade to mitigate possible confounds.

Lastly a model was built with all the predictors used previously to predicted the scores for the developmental skills and supports. OST Positive Experience conditioned on having any of the risk factors was used to predict the skills and supports, again with the quadratic term added for OST Positive Experience. Sports Participation, sex, sexual identity, race / ethnicity, and whether the student participated in OST activities three or more times per week were all added as control variables, again to remove confounds.

## **Results**

### **Student Characteristics**

In total for these analyses, only students in 2016 were included due to the differences in questions that were asked and the measures that could be built from those. In the sample, there are 168,733 students. Of these 84,912 were male and 83,300 were female. 41,865 in grade 5, 44,983 in grade 8, 45,30 in grade 9, and 36,576 in grade 11. The race / ethnicity characteristics are as follows: 8,662 American Indian, 5,910 Asian or Pacific Islander, 8,806 Black, 113,313 White, 15,942 Latino, 3,555 Somali, 4,644 Hmong, with 5,761 who indicated multiple races and 2,140 who did not indicate a race / ethnicity. For these students 106,941 participated in at least 3 days of out of school activities and 61,792 did not. There were no meaningful differences between sex, grade, or race / ethnicity for the participation in out of school activities.

## Analysis

Each risky behavior or challenge is shown to be associated with a lower score for all skills and supports (Table 1). The differences between those with and without each challenge range from 0.5 to 1 standard deviations for skill and support scores. This shows that these indicate a barrier to the students' positive development.

When comparing students who participate in OST activities at least 3 times a week to those who do not, we see lower rates of all four risky behaviors across grades (Figure 1). These rates range from a 2% decrease to a 13% decrease. This indicates that participation in any type of OST activity is associated with lower rates of these risk factors.

Linear regression was used to explore variation in developmental skills, supports, and challenges with alcohol use (Figure 2), mental distress (Figure 3), suicidal consideration (Figure 4), and suicide attempts (Figure 5). These associations were examined with controlling for sex, grade, and LGB identity. These main effects for the models were all found to be significant at a  $p < 0.05$  level (Tables 2 to 5). From the results, we see a predicted 0.63 to 1.5 point decrease in each of the skills and supports between those in the risk groups and those who are not. This corresponds to a 0.417 to 0.798 standard deviations of change.

Logistic regression comparing OST Positive Experience to each of the risk factors was then used to examine the associations after controlling for whether the student participated in OST activities three or more times per week (Figure 6 to 9 and Table 6). These results were compared between students who participated in sports and those who did not. The models also controlled for sex, sexual identity, and grade. All the models were significant at a  $p < 0.05$  level. These models indicate a 15 to 60 percent decrease in the probability of each risk factor between the lowest scores of OST Positive Experience to the highest.

Finally the regression models using OST Positive Experience and whether the student had one or more risk factors was analyzed (Figure 10 and Table 7). The risk factor variable was the largest effect size for the majority of the models. It predicted between a 0.5 and 0.8 decrease in the skills and supports after the variance from all other variables were accounted for. OST Positive Experience was a significant predictor in all models as well.

## Discussion and Significance

These results show that there are negative associations in the developmental skills and supports for students who have indicated that they have drunk alcohol, have mental distress, considered suicide, and attempted suicide. This is to be expected but it shows clearly that these risks are part of the barrier for student's positive development. These results are also shown when controlled for other variables to show that this impact is still significant above and beyond the associations with the control variables. The association to the positive skills and supports is in addition to the problems associated with these challenges more directly. This leads to the results of how to help this moderating variable.

From the second round of analyses we see a way to reduce the probability of each risk. Out of school positive experience is shown to have a negative relationship with each of the risks. In addition, the relationship is curvilinear which indicates that the relationship is stronger at the lower end of the scale. This is particularly important because it suggests that the students who do not report a strong level of positive experiences during out of school time are in a good position to be targeted for interventions and additional support. A small rise in the level of positive experiences for those who report a lower score can have a drastic change in the probability for each risk. This means that if correctly targeted and implemented after school and out of school activities can support students with little invested. Through this perspective we can learn more about the students that have the most difficulty with their development and how best to support them.

The last analysis was done to bring everything else together. From the regression using OST Positive Experience and at least one risk predicting the skills and supports, we can see how important each of these variables is. Both were significant after accounting for the variance due to all other variables in the model. The risk factor variable is especially important because it predicted a decrease that is uniquely accounted for by this variable. The decrease is substantial which shows the level to which these factors can play a role in the skills and supports. However as mentioned previously, increasing the positive experiences students have can help moderate this relationship.

Students confront a number of challenges which affect many aspects of their lives in and out of school. We can do what we can to prevent risk factors, yet there is a limit to the influence that others can make. By identifying other areas where we can make change, we can attempt to

support these children. The importance of afterschool programming, more importantly quality programming, is being more and more pushed to the side yet we have seen the positive influence that it can have. This research will hopefully contribute to the national conversation and reverse this trend, leading to more support systems for those students who are most at need.

## References

- Anthony, E.K., Alter, C.F., & Jenson, J.M. (2009). Development of a risk and resilience-based out-of-school time program for children and youths. *Social Work, 54*(1), 45–55. <https://doi.org/10.1093/sw/54.1.45>
- Balsa, A.I., Giuliano, L.M., & French, M.T. (2011). The effects of alcohol use on academic achievement in high school. *Economics of Education Review, 30*(1), 1–15. <https://doi.org/10.1016/j.econedurev.2010.06.015>
- Benson, P.L. (1990). *The troubled journey: A portrait of 6th to 12th grade youth*. Minneapolis, MN: Search Institute. Retrieved at <http://pub.search-institute.org/file/archive/1990-Benson-Troubled-Journey.pdf>
- Benson, P.L. (2002). Adolescent development in social and community context: A program of research. In R.M. Lerner, C.S. Taylor, & A. von Eye (Eds.), *New directions for youth development: Pathways to positive development among diverse youth, 95*, 123–147.
- Benson, P.L., Scales, P.C., Hamilton, S.F., & Sesma, A. (2006). Positive youth development: Theory, research, and applications. In W. Damon & R.M. Lerner (Eds.), *Handbook of child psychology: Vol. 1* (6th ed., pp. 894-941). New York, NY: John Wiley & Sons.
- Cross, A.B., Gottfredson, D.C., Wilson, D.M., Rorie, M., & Connell, N. (2010). Implementation quality and positive experiences in after-school programs. *American Journal of Community Psychology, 45*(3–4), 370–380. <https://doi.org/10.1007/s10464-010-9295-z>
- Deutsch, N.L., Blyth, D.A., Kelley, J., Tolan, P.H., & Lerner, R.M. (2017). Let's talk after-school: The promises and challenges of positive youth development for after-school research, policy, and practice. In N. L. Deutsch (Ed.), *After-school programs to promote positive youth development: Integrating research into practice and policy, Volume 1* (pp. 45–68). Cham: Springer International Publishing. [https://doi.org/10.1007/978-3-319-59132-2\\_4](https://doi.org/10.1007/978-3-319-59132-2_4)
- Durlak, J.A., Weissberg, R.P., & Pachan, M. (2010). A Meta-Analysis of After-School Programs That Seek to Promote Personal and Social Skills in Children and Adolescents. *American Journal of Community Psychology, 45*(3–4), 294–309. <https://doi.org/10.1007/s10464-010-9300-6>
- Halpern, R. (2002). A different kind of child development institution: The history of after-school programs for low-income children. *Teachers College Record, 104*(2), 178–211. <https://doi.org/10.1111/1467-9620.00160>
- Hirsch, B.J., Mekinda, M.A., & Stawicki, J.A. (2010). More than attendance: The importance of after-school program quality. *American Journal of Community Psychology, 45*(3–4), 447–452. <https://doi.org/10.1007/s10464-010-9310-4>
- Jackson, K.M., & Schulenberg, J.E. (2013). Alcohol use during the transition from middle school to high school: national panel data on prevalence and moderators. *Developmental Psychology, 49*(11), 2147–2158. <https://doi.org/10.1037/a0031843>

- Lauer, P.A., Akiba, M., Wilkerson, S.B., Apthorp, H.S., & Martin-Glenn, M.L. (2013). Out-of-school-time programs: A meta-analysis for at-risk of effects students. *Review of Educational Research*, 76(2), 275–313.
- Linacre, J.M. (2016). Winsteps® (Version 3.92.0) [Computer Software]. Beaverton, Oregon: Winsteps.com. Retrieved from <http://www.winsteps.com/>
- Minnesota Department of Education. (2016). Minnesota Student Survey: Frequently asked questions. Retrieved from <http://education.state.mn.us/mde/dse/health/mss/MDE059027>
- Muthén, L.K., & Muthén, B.O. (2012). Mplus. (Version 7). [Software program]. Los Angeles, CA: Authors.
- Pisani, A.R., Wyman, P.A., Petrova, M., Schmeelk-Cone, K., Goldston, D.B., Xia, Y., & Gould, M.S. (2013). Emotion regulation difficulties, youth-adult relationships, and suicide attempts among high school students in underserved communities. *Journal of Youth and Adolescence*, 42(6), 807–820. <https://doi.org/10.1007/s10964-012-9884-2>
- Roehlkepartain, E.C. (2015). *25 years of developmental assets*. Minneapolis, MN: Search Institute. Retrieved from <http://www.search-institute.org/blog/25-years-of-developmental-assets>
- Roehlkepartain, E., Pekel, K., Syvertsen, A., Sethi, J., Sullivan, T., & Scales, P. (2017). *Relationships first: Connections that help young people thrive*. Minneapolis, MN: Search Institute. Retrieved from <http://www.search-institute.org/what-we-study/developmental-relationships>
- Shernoff, D.J., & Vandell, D.L. (2007). Engagement in after-school program activities: Quality of experience from the perspective of participants. *Journal of Youth and Adolescence*, 36(7), 891–903. <https://doi.org/10.1007/s10964-007-9183-5>
- Search Institute. (2013). *Developmental Assets Profile: Technical summary*. Minneapolis, MN: Author. Retrieved at <http://www.search-institute.org/surveys/dap>

## Appendix

Table 1  
*Mean scores of skills and supports for students with and without each risky behavior or challenge. Standardized mean differences are indicated in parentheses*

Trait	Alcohol Use		Mental Distress		Considered Suicide		Attempted Suicide		SD
	With	Without	With	Without	With	Without	With	Without	
Commitment to Learning	11.335	12.259 (0.61)	11.711	12.364 (0.43)	11.561	12.270 (0.47)	11.376	12.188 (0.54)	1.51
Positive Identity	10.281	11.222 (0.51)	10.130	11.634 (0.82)	9.733	11.434 (0.92)	9.408	11.225 (0.98)	1.84
Social Competence	10.242	11.519 (0.78)	10.715	11.689 (0.59)	10.486	11.553 (0.65)	10.160	11.432 (0.78)	1.64
Empowerment	11.574	12.563 (0.53)	11.508	12.939 (0.76)	11.094	12.757 (0.88)	10.716	12.559 (0.98)	1.88
Family / Community Support	11.460	12.375 (0.50)	11.401	12.723 (0.72)	10.990	12.562 (0.86)	10.664	12.372 (0.93)	1.83
Teacher / School Support	10.582	11.915 (0.61)	11.051	12.106 (0.48)	10.689	11.987 (0.59)	10.360	11.836 (0.67)	2.19

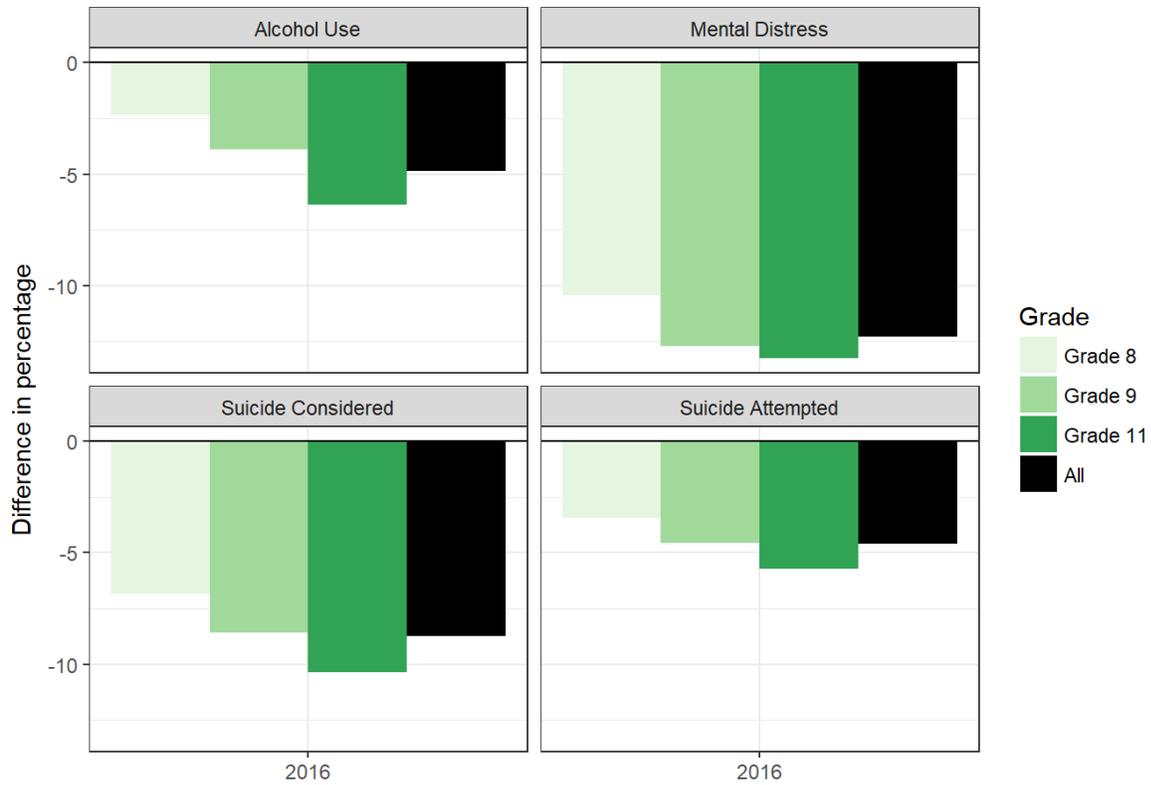


Figure 1. Difference in percentage of responses comparing those who spend 3 or more days in after school activities versus those who do not. n = 321727

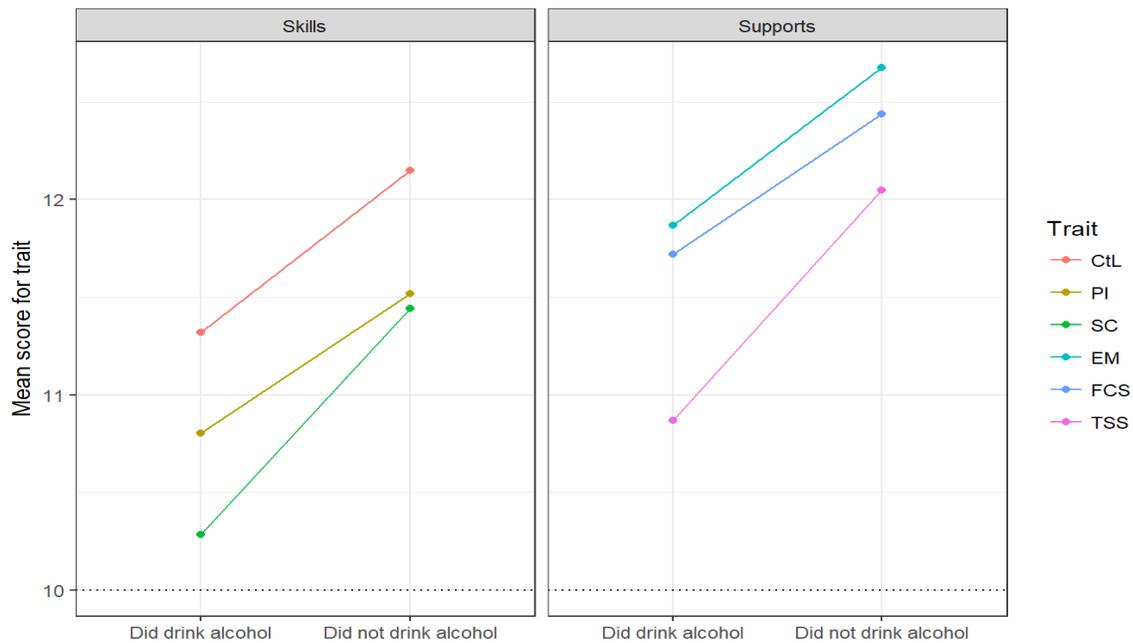


Figure 2. Linear regression predicting score for each skill and support between students who have drunk alcohol in the past 30 days and those who hadn't.

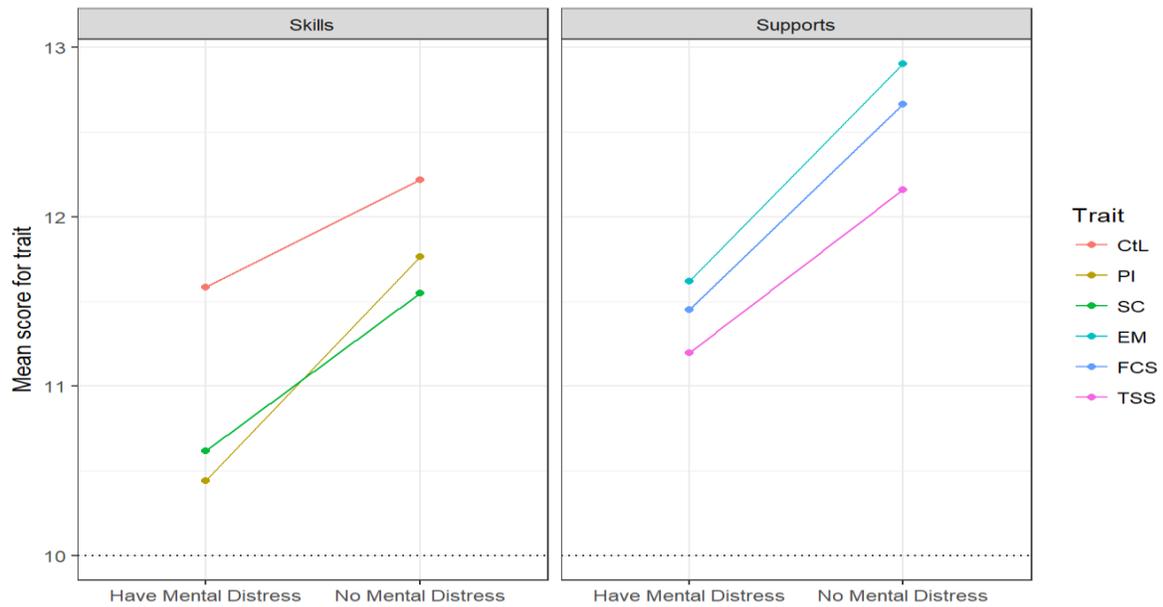


Figure 3. Linear regression predicting score for each skill and support between students who report mental distress and those who haven't.

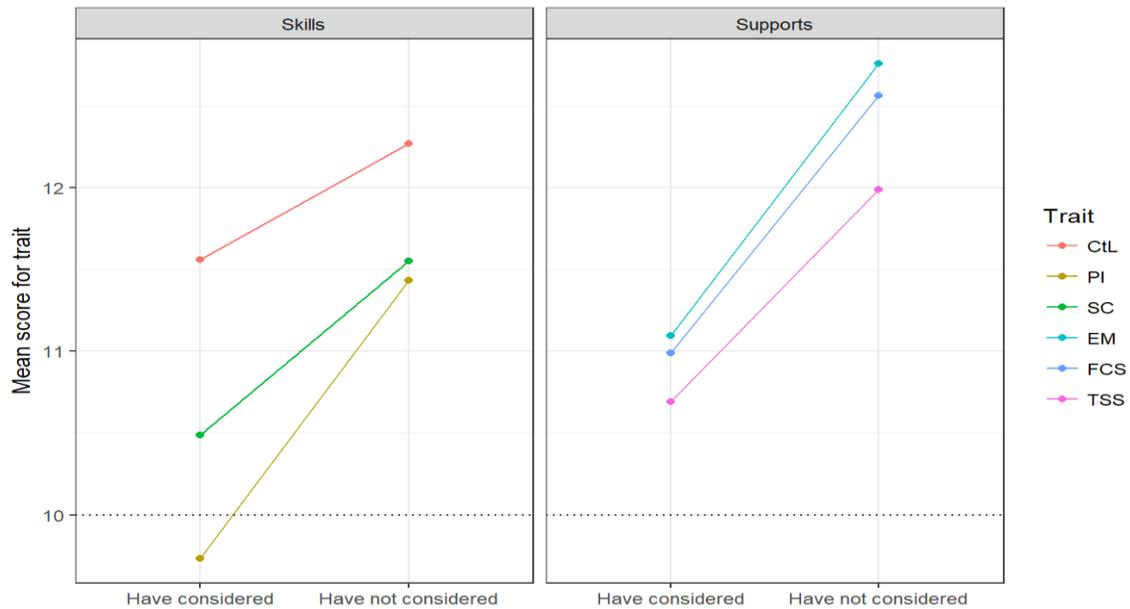


Figure 4. Linear regression predicting score for each skill and support between students who have considered suicide and those who haven't.

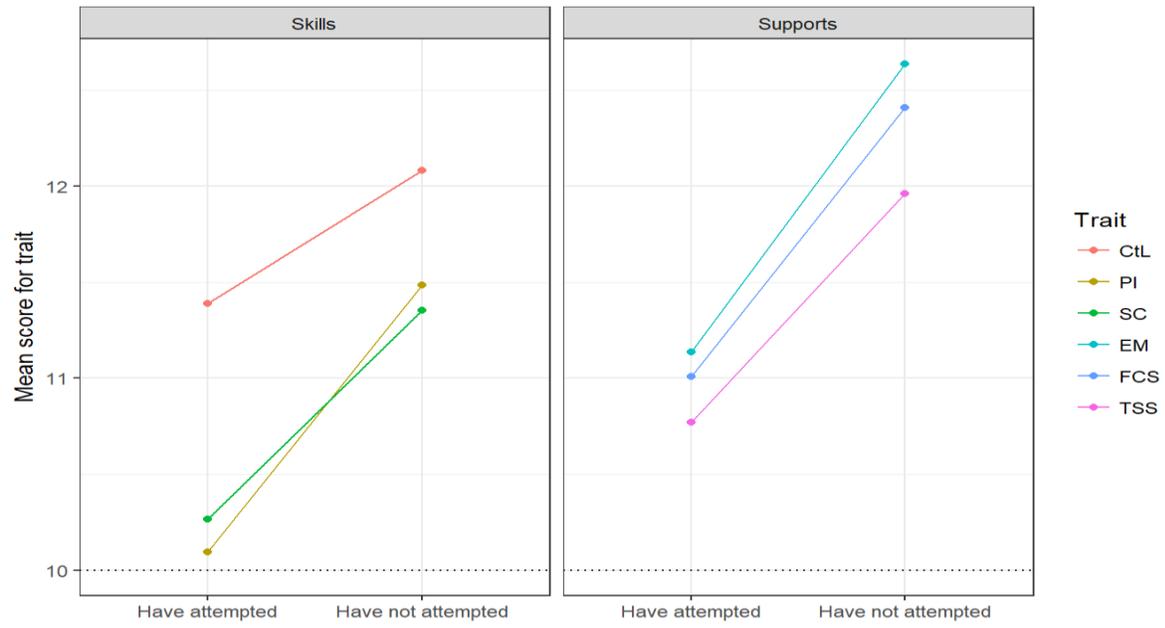


Figure 5. Linear regression predicting score for each skill and support between students who have attempted suicide and those who haven't.

Table 2

*Coefficients and standard errors outputs for the regression model using alcohol use, grade, sexual identity, and sex to predict each skill and support*

	CtL	PI	SC	EM	FCS	TSS
(Intercept)	12.15 <sup>***</sup> (0.01)	11.52 <sup>***</sup> (0.01)	11.44 <sup>***</sup> (0.01)	12.67 <sup>***</sup> (0.01)	12.44 <sup>***</sup> (0.01)	12.05 <sup>***</sup> (0.01)
Alcohol Use	-0.83 <sup>***</sup> (0.01)	-0.71 <sup>***</sup> (0.02)	-1.16 <sup>***</sup> (0.02)	-0.81 <sup>***</sup> (0.02)	-0.72 <sup>***</sup> (0.02)	-1.18 <sup>***</sup> (0.02)
Grade 11	-0.06 <sup>***</sup> (0.01)	-0.08 <sup>***</sup> (0.01)	0.00 (0.01)	0.05 <sup>***</sup> (0.01)	-0.04 <sup>**</sup> (0.01)	0.02 (0.02)
LGB	-0.51 <sup>***</sup> (0.02)	-1.10 <sup>***</sup> (0.02)	-0.70 <sup>***</sup> (0.02)	-1.21 <sup>***</sup> (0.02)	-1.11 <sup>***</sup> (0.02)	-0.60 <sup>***</sup> (0.03)
Female	0.33 <sup>***</sup> (0.01)	-0.46 <sup>***</sup> (0.01)	0.22 <sup>***</sup> (0.01)	-0.09 <sup>***</sup> (0.01)	-0.02 (0.01)	-0.23 <sup>***</sup> (0.02)

$p < 0.001^{***}$ ,  $p < 0.01^{**}$ ,  $p < 0.05^*$

Table 3

*Coefficients and standard errors outputs for the regression model using mental distress, grade, sexual identity, and sex to predict each skill and support*

	CtL	PI	SC	EM	FCS	TSS
(Intercept)	12.22 <sup>***</sup> (0.01)	11.77 <sup>***</sup> (0.01)	11.55 <sup>***</sup> (0.01)	12.90 <sup>***</sup> (0.01)	12.66 <sup>***</sup> (0.01)	12.16 <sup>***</sup> (0.01)
Mental Distress	-0.63 <sup>***</sup> (0.01)	-1.32 <sup>***</sup> (0.01)	-0.93 <sup>***</sup> (0.01)	-1.28 <sup>***</sup> (0.01)	-1.21 <sup>***</sup> (0.01)	-0.96 <sup>***</sup> (0.02)
Grade 11	-0.15 <sup>***</sup> (0.01)	-0.13 <sup>***</sup> (0.01)	-0.12 <sup>***</sup> (0.01)	-0.01 (0.01)	-0.09 <sup>***</sup> (0.01)	-0.10 <sup>***</sup> (0.02)
LGB	-0.31 <sup>***</sup> (0.02)	-0.62 <sup>***</sup> (0.02)	-0.41 <sup>***</sup> (0.02)	-0.75 <sup>***</sup> (0.02)	-0.68 <sup>***</sup> (0.02)	-0.31 <sup>***</sup> (0.03)
Female	0.40 <sup>***</sup> (0.01)	-0.29 <sup>***</sup> (0.01)	0.33 <sup>***</sup> (0.01)	0.07 <sup>***</sup> (0.01)	0.14 <sup>***</sup> (0.01)	-0.11 <sup>***</sup> (0.02)

$p < 0.001^{***}$ ,  $p < 0.01^{**}$ ,  $p < 0.05^*$

Table 4

*Coefficients and standard errors outputs for the regression model using suicide consideration, grade, sexual identity, and sex to predict each skill and support*

	CtL	PI	SC	EM	FCS	TSS
(Intercept)	12.13 <sup>***</sup> (0.01)	11.59 <sup>***</sup> (0.01)	11.42 <sup>***</sup> (0.01)	12.74 <sup>***</sup> (0.01)	12.51 <sup>***</sup> (0.01)	12.04 <sup>***</sup> (0.01)
Considered Suicide	-0.67 <sup>***</sup> (0.01)	-1.42 <sup>***</sup> (0.02)	-0.98 <sup>***</sup> (0.01)	-1.44 <sup>***</sup> (0.02)	-1.41 <sup>***</sup> (0.02)	-1.14 <sup>***</sup> (0.02)
Grade 11	-0.14 <sup>***</sup> (0.01)	-0.12 <sup>***</sup> (0.01)	-0.11 <sup>***</sup> (0.01)	0.00 (0.01)	-0.08 <sup>***</sup> (0.01)	-0.09 <sup>***</sup> (0.02)
LGB	-0.32 <sup>***</sup> (0.02)	-0.64 <sup>***</sup> (0.02)	-0.43 <sup>***</sup> (0.02)	-0.74 <sup>***</sup> (0.02)	-0.65 <sup>***</sup> (0.02)	-0.27 <sup>***</sup> (0.03)
Female	0.39 <sup>***</sup> (0.01)	-0.31 <sup>***</sup> (0.01)	0.32 <sup>***</sup> (0.01)	0.06 <sup>***</sup> (0.01)	0.13 <sup>***</sup> (0.01)	-0.12 <sup>***</sup> (0.02)

$p < 0.001^{***}$ ,  $p < 0.01^{**}$ ,  $p < 0.05^*$

Table 5

*Coefficients and standard errors outputs for the regression model using attempted suicide, grade, sexual identity, and sex to predict each skill and support*

	CtL	PI	SC	EM	FCS	TSS
(Intercept)	12.08 <sup>***</sup> (0.01)	11.48 <sup>***</sup> (0.01)	11.35 <sup>***</sup> (0.01)	12.63 <sup>***</sup> (0.01)	12.41 <sup>***</sup> (0.01)	11.96 <sup>***</sup> (0.01)
Attempted Suicide	-0.69 <sup>***</sup> (0.02)	-1.39 <sup>***</sup> (0.03)	-1.09 <sup>***</sup> (0.02)	-1.50 <sup>***</sup> (0.03)	-1.40 <sup>***</sup> (0.03)	-1.19 <sup>***</sup> (0.03)
Grade 11	-0.16 <sup>***</sup> (0.01)	-0.15 <sup>***</sup> (0.01)	-0.14 <sup>***</sup> (0.01)	-0.04 <sup>***</sup> (0.01)	-0.11 <sup>***</sup> (0.01)	-0.12 <sup>***</sup> (0.02)
LGB	-0.43 <sup>***</sup> (0.02)	-0.89 <sup>***</sup> (0.02)	-0.57 <sup>***</sup> (0.02)	-0.98 <sup>***</sup> (0.02)	-0.89 <sup>***</sup> (0.02)	-0.46 <sup>***</sup> (0.03)
Female	0.35 <sup>***</sup> (0.01)	-0.40 <sup>***</sup> (0.01)	0.26 <sup>***</sup> (0.01)	-0.03 <sup>***</sup> (0.01)	0.04 <sup>***</sup> (0.01)	-0.18 <sup>***</sup> (0.02)

$p < 0.001^{***}$ ,  $p < 0.01^{**}$ ,  $p < 0.05^*$

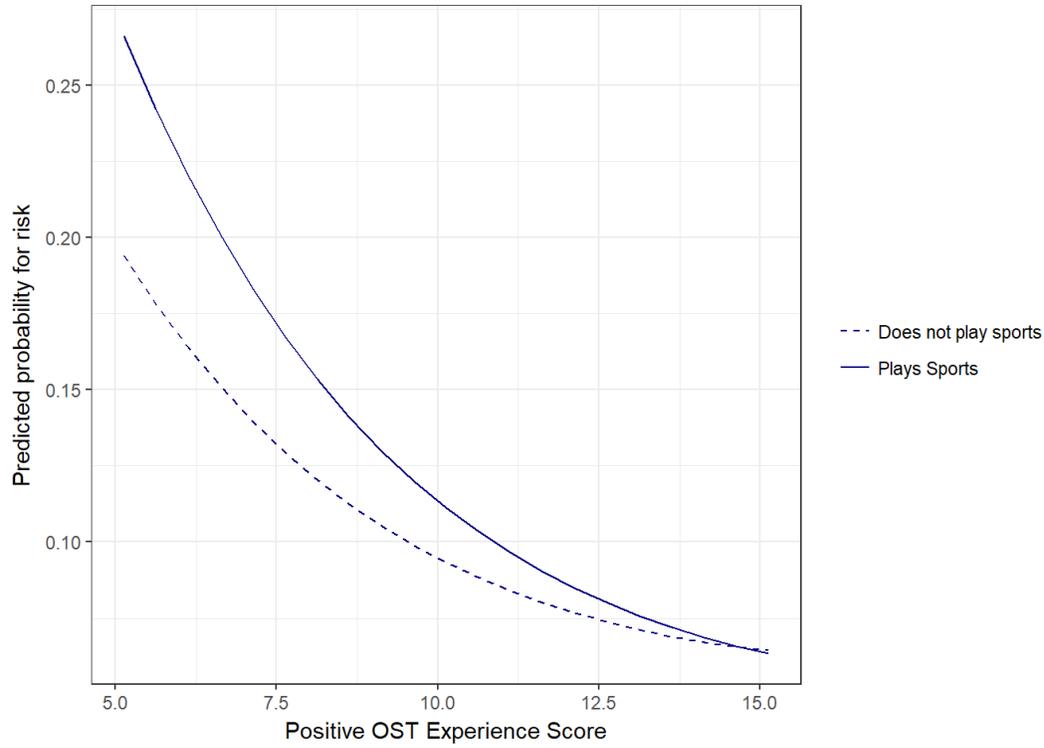


Figure 6. Positive OST experience score and sports participation predicting predicted probability for alcohol use.

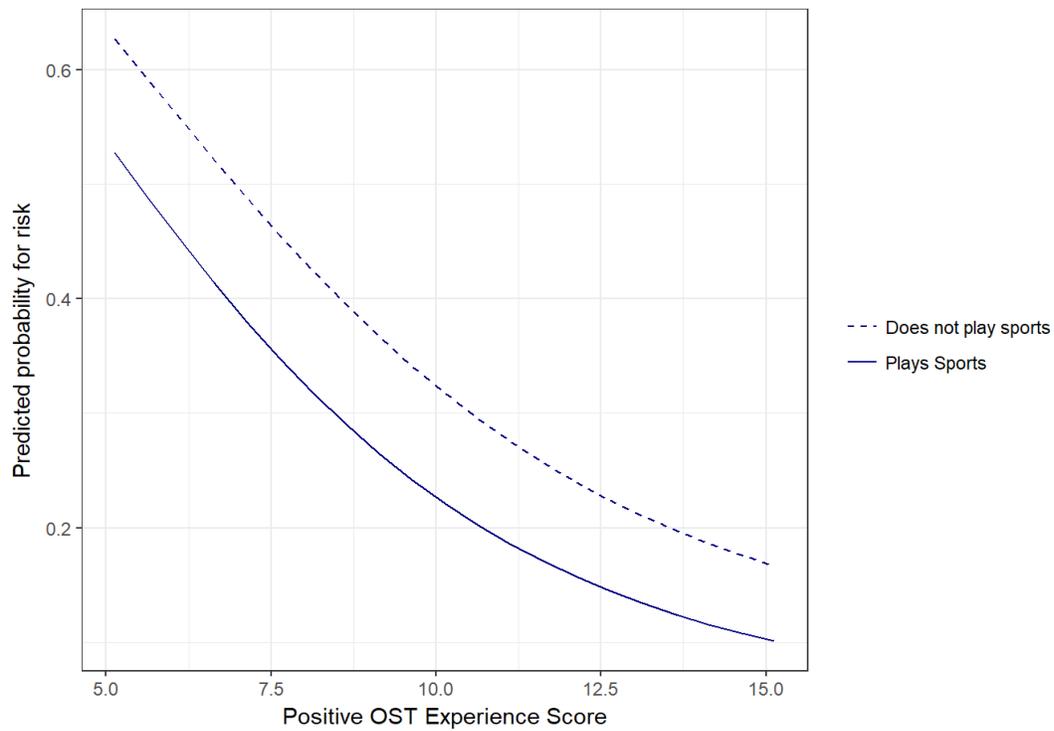


Figure 7. Positive OST experience score and sports participation predicting predicted probability for mental distress..

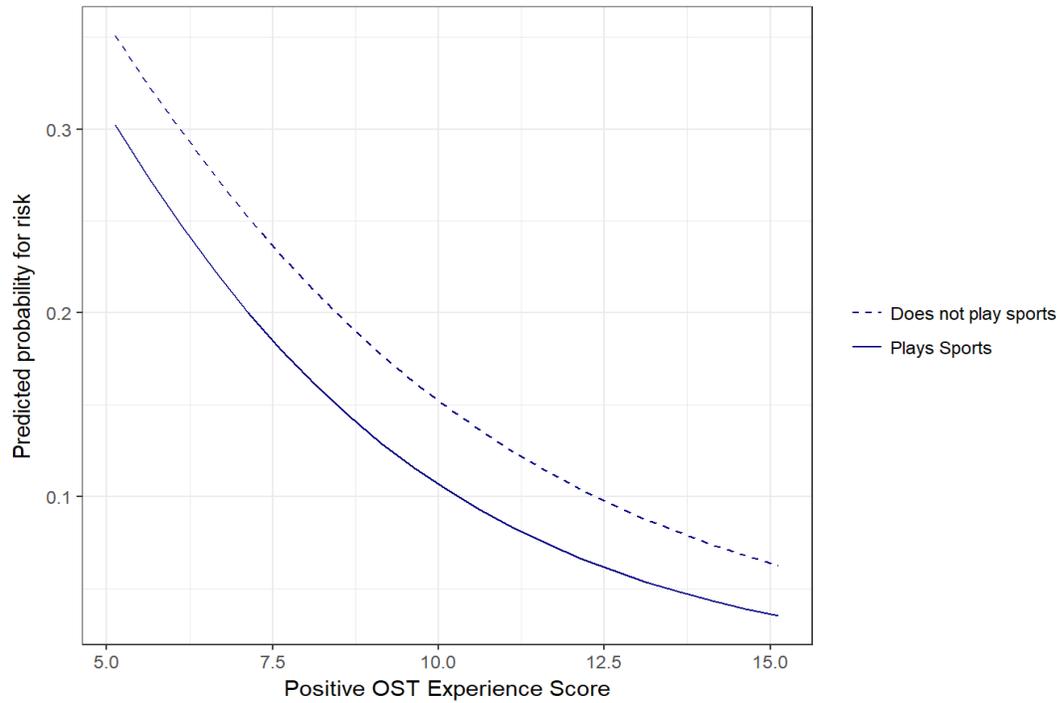


Figure 8. Positive OST experience score and sports participation predicting predicted probability for suicide consideration.

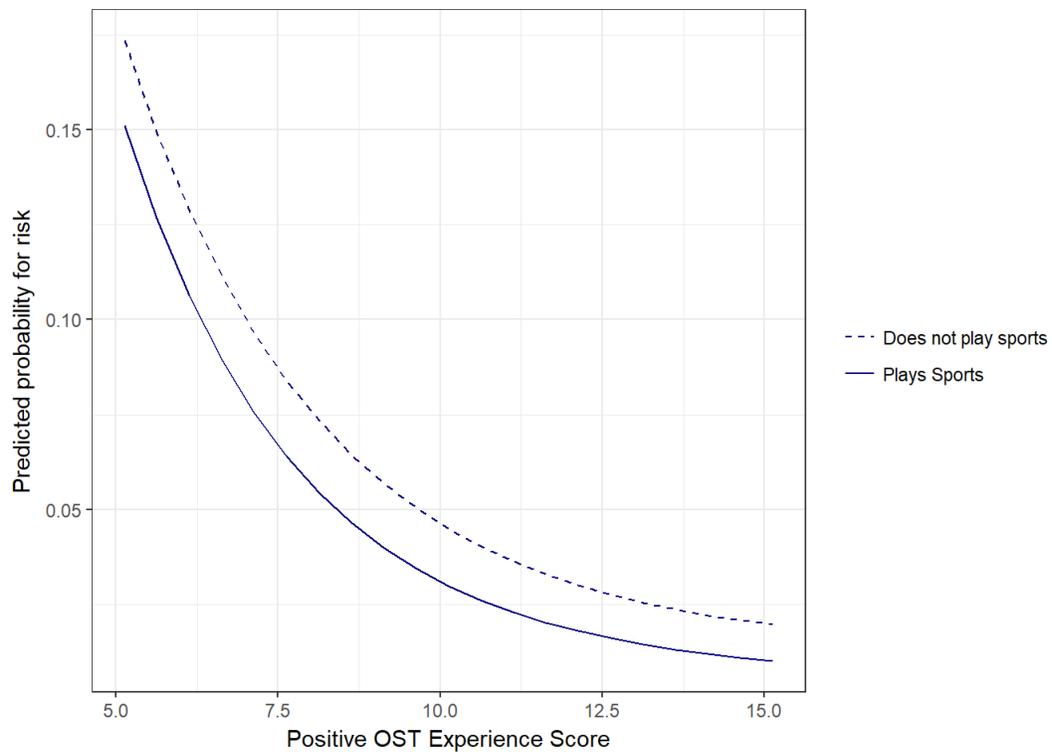


Figure 9. Positive OST experience score and sports participation predicting predicted probability for suicide attempt.

Table 6

*Coefficients and standard errors outputs for the regression model using OST participation, Sports involvement, OST Positive Experience, a quadratic term for OST positive experience, race / ethnicity, sexual orientation, sex, and grade, to predict each risk factor*

	<b>Alcohol Use</b>	<b>Mental Distress</b>	<b>Considered Suicide</b>	<b>Attempted Suicide</b>
(Intercept)	-4.28 <sup>***</sup> (0.24)	1.03 <sup>***</sup> (0.22)	-1.12 <sup>***</sup> (0.23)	-0.87 <sup>**</sup> (0.30)
Afterschool Participation	-0.31 <sup>***</sup> (0.03)	0.02 (0.02)	0.00 (0.03)	-0.09 <sup>*</sup> (0.04)
Sports Participation	0.63 <sup>***</sup> (0.14)	-0.32 <sup>**</sup> (0.12)	-0.02 (0.15)	0.10 (0.22)
OST Positive Experience	-0.31 <sup>***</sup> (0.04)	-0.39 <sup>***</sup> (0.04)	-0.28 <sup>***</sup> (0.04)	-0.50 <sup>***</sup> (0.05)
OST Positive Experience <sup>2</sup>	0.01 <sup>***</sup> (0.00)	0.01 <sup>***</sup> (0.00)	0.00 (0.00)	0.01 <sup>***</sup> (0.00)
White	-0.01 <sup>*</sup> (0.01)	-0.05 <sup>***</sup> (0.01)	-0.04 <sup>***</sup> (0.01)	-0.04 <sup>***</sup> (0.01)
LGB	0.27 <sup>**</sup> (0.03)	1.43 <sup>***</sup> (0.03)	1.40 <sup>***</sup> (0.03)	1.27 <sup>***</sup> (0.03)
Female	0.50 <sup>**</sup> (0.01)	0.09 <sup>**</sup> (0.01)	0.14 <sup>**</sup> (0.01)	0.12 <sup>**</sup> (0.01)
9 <sup>th</sup> Grade	0.11 <sup>***</sup> (0.02)	0.64 <sup>***</sup> (0.02)	0.76 <sup>**</sup> (0.02)	0.76 <sup>**</sup> (0.03)
Sports x OST Pos Ex.	-0.04 <sup>***</sup> (0.01)	-0.02 (0.01)	-0.04 <sup>**</sup> (0.01)	-0.05 <sup>**</sup> (0.02)
Log Likelihood	-31724.61	-42536.03	-33332.69	-17641.92

$p < 0.001$ ,  $p < 0.01$ ,  $p < 0.05$

$p < 0.001$ \*\*\*,  $p < 0.01$ \*\* ,  $p < 0.05$ \*

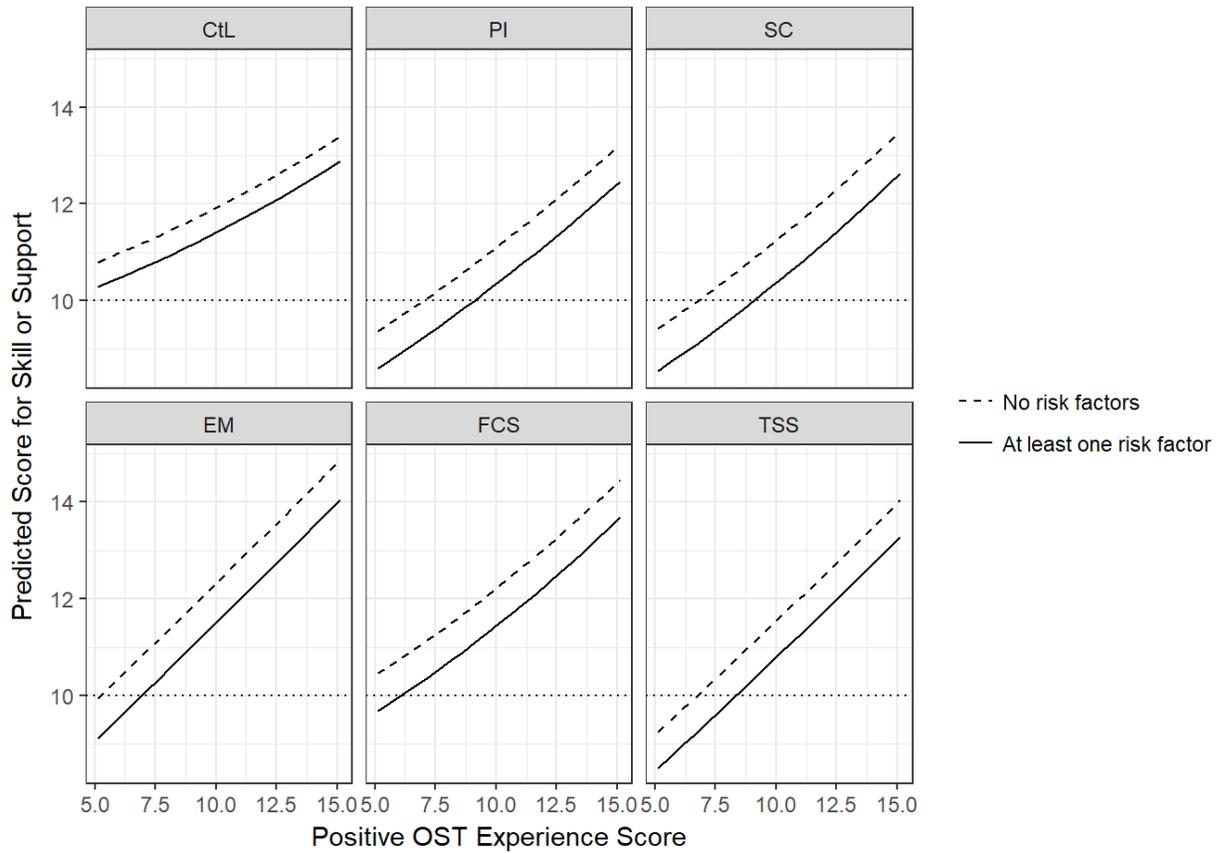


Figure 10. Positive Out of School Time Experience score predicting each skill and support compared between risk factors involved in.

Table 7

*Coefficients and standard errors outputs for the regression model using any risk factor, OST participation, Sports involvement, OST Positive Experience, a quadratic term for OST positive experience, race / ethnicity, sexual orientation, sex, and grade, to predict each skill and support*

	<b>Commitment to Learning</b>	<b>Positive Identity</b>	<b>Social Competence</b>	<b>Empowerment</b>	<b>Family &amp; Community Support</b>	<b>Teacher &amp; School Support</b>
(Intercept)	10.06*** (0.13)	8.76*** (0.15)	8.07*** (0.13)	7.48*** (0.15)	9.25*** (0.15)	8.03*** (0.19)
Any Risk Factor	-0.51*** (0.01)	-0.88*** (0.01)	-0.76*** (0.01)	-0.82*** (0.01)	-0.77*** (0.01)	-0.75*** (0.02)
Afterschool Participation	0.28*** (0.01)	0.06*** (0.02)	0.23*** (0.01)	0.12*** (0.02)	0.13*** (0.02)	0.21*** (0.02)
Sports Participation	-0.22* (0.07)	-0.09 (0.08)	-0.28*** (0.07)	-0.09 (0.08)	-0.00 (0.08)	-0.76*** (0.10)
OST Positive Experience	0.13*** (0.02)	0.26*** (0.02)	0.25*** (0.02)	0.46*** (0.02)	0.22*** (0.02)	0.39*** (0.03)
OST Positive Experience <sup>2</sup>	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00 (0.00)	0.01*** (0.00)	0.00 (0.00)
White	0.02*** (0.00)	0.01* (0.00)	0.01* (0.00)	0.01** (0.00)	-0.01 (0.00)	0.03*** (0.00)
LGB	-0.14*** (0.02)	-0.43*** (0.02)	-0.15*** (0.02)	-0.50*** (0.02)	-0.46*** (0.02)	-0.03 (0.02)
Female	-0.07*** (0.01)	-0.06*** (0.01)	-0.06*** (0.01)	-0.01 (0.01)	-0.04*** (0.01)	-0.06*** (0.01)
9 <sup>th</sup> Grade	0.36*** (0.01)	-0.38*** (0.01)	0.27*** (0.01)	-0.02* (0.01)	0.05*** (0.01)	-0.18*** (0.01)
Sports x OST Pos Ex.	0.01* (0.01)	0.02** (0.01)	0.02*** (0.01)	0.02** (0.01)	0.02** (0.01)	0.06*** (0.01)

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

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