

# Fighting bullying: An RCT intervention in Peru<sup>\*</sup>

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## **Abstract**

We evaluate the impact of a randomized anti-bullying intervention that had two components: i) increasing awareness among students and parents about the negative consequences of bullying, and ii) increasing awareness about a new tool to provide online confidential reports regarding violence. Our preliminary findings are encouraging and indicate that this a promising model for improving school climate. We find that the intervention reduced students' support for bullying, their likelihood of a bystander behavior in the presence of violence, and their willingness to report violent incidents. Also, the intervention seemed to reduce depression among students. However, the intervention had an effect not only on students' self-reported attitudes and perceptions but also on objective outcomes. In particular, we found that the intervention reduced the probability of dropout in the next school year, indicating that the effects of the intervention are persistent in the medium term.

**Keywords:** school violence; anti-bullying programs, school dropout; random control trial; Peru

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## 1. Introduction

In Peru, bullying is not uncommon phenomena. The Global School-based Student Health Survey (MINSa, 2011) reports that 38% of all students in Peru report having experienced a physical assault at school in the last 12 months. Moreover, 48% report being victims of bullying and 45% report having been robbed at school. The effects of bullying on mental health have been extensively documented by the psychology literature, and one important finding is that its negative impacts may persist in the long term (Dempsey and Storch, 2008; Shafer et al, 2004). This finding has also attracted attention from the economic literature, which has developed several studies in recent years about the effects of in-school victimization on skill accumulation and educational outcomes. For example, Sarzosa and Urzúa (2015) use longitudinal information from South Korean youths to identify that being bullied at age 15 increases the probability of feeling sick, depressed, stressed and unsatisfied with life at age 18. Sarzosa (2015) analyzes a longitudinal data set on middle school students from the United States and finds that being bullied at age 14 reduces current skill accumulation by 14% of a standard deviation, which may open a growing skill gap that reaches about one standard deviation by age 16.

Regarding the effects of bullying on educational outcomes, some possible mechanisms through which in-school victimization can negatively affect learning are depression and anxiety (Diagne, 2009) and isolation from peers (Lavy and Schlosser, 2011; Neidell and Waldfogel, 2010). Ponzio (2013) analyzes the effects of being a victim of violence on educational outcomes of children in fourth and fifth grade in Italy, finding that victims get lower scores in science and reading tests. Similar results were reported by Juvonen et al (2011), Mundbjerg et al. (2012) and Ammermueller (2007). The negative effects of bullying on school attendance and dropout have been documented as well. Kochenderfer and Ladd (1996), and Glew et al (2005) report that being a victim of bullying increases the probability of missing classes during a school day. They also claim that it increases the sense of isolation and detachment from school, making bullying victims more likely to drop from school.

To address the problem of bullying and its negative consequences, the Ministry of Education of Peru (MoE) implemented in 2013 an online platform called SiseVe ("Yes, we see it") to create opportunities for victims or witnesses of violence in schools to speak up. Individuals (including students, parents, friends or any witness) can anonymously report an incident, which is then derived to the local education authorities for follow-up and resolution. The authorities must also ensure that the victims are protected from future harm and their families know of resources available in the community to protect their children.

In this project, we evaluate the impact of a randomized intervention package that had two components: i) increasing awareness about the negative consequences of bullying; ii) increasing awareness about this new platform as an opportunity to act against school violence. Although both components are jointly delivered in this intervention, so we cannot test their impacts separately, our preliminary findings are encouraging and indicate that this a promising model for improving the school climate and children satisfaction in schools. It is worth noticing that experimental evidence is relatively scarce in the literature of what works in preventing school violence.

## **2. Literature Review**

Skill formation plays a key role in social and economic success in life. Therefore, inadequate skill accumulation during childhood can have irreversible consequences for adults. Heckman (2008), Cunha and Heckman (2008) and Cunha et al. (2010) have introduced a detailed analysis of cognitive and non-cognitive skill formation technology, demonstrating the relevance of non-cognitive skills on skill formation and how ability gap is a major source of inequality. More recently, economic literature has pointed out the relationship between non-cognitive skills, formed early in the lifecycle, and outcomes like schooling, earnings, crime, and school performance<sup>1</sup> (Heckman and Rubinstein, 2001; Heckman et al., 2000; Baker et al., 2015; Heckman et al., 2006; Cobb-Clark and Tan, 2011; Waddell, 2006). Heckman et al. (2006) study the effects of cognitive and non-cognitive skills on wages, schooling, work experience, occupational choice, and participation, concluding that latent non-cognitive skills have a positive impact on earnings through their direct impact on productivity and their indirect impact on schooling and work experience.

In this context, school violence is a social phenomenon that has been extensively documented in psychological and educational literature because of its long-term effects on mental health, which can hamper skill development. However, economic research on bullying is relatively scarce. Interestingly, Sarzosa (2015) and Sarzosa and Urzúa (2015) analyze the two-way relation between bullying and cognitive and non-cognitive skills accumulation. Sarzosa (2015) analyzes a longitudinal data set on middle school students from the United States and explore how school bullying can be a deterrence in social and economic success as adults by having a negative impact on skill accumulation. His findings suggest that being bullied at age 14 reduces current skill

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<sup>1</sup> In the case of Peru, Outes et al. (2010) use a longitudinal data from the Young Lives survey, finding that psychosocial competencies are an important determinant in the development of cognitive skills. Lavado et al. (2013) suggest that cognitive skills have an important impact on schooling and occupational choices, whereas non-cognitive skills can affect labor market outcomes. Also, they conclude that inter-gender differences in non-cognitive skills contribute to the gender gap.

accumulation by 14% of a standard deviation, which may open a growing skill gap of about one standard deviation by age 16. Furthermore, Sarzosa and Urzúa (2015), using a structural model and longitudinal information from South Korean youths, found that non-cognitive skills reduce the probability of being bullied during high school, and demonstrate that being bullied at age 15 increases the probability of feeling sick, depressed, stressed, and unsatisfied with life at age 18.

Similarly, Grogger (1997), Brown and Taylor (2008), Ponzo (2013), and Eriksen et al. (2014), for example, find that school violence has a negative impact on academic performance. Brown and Taylor (2008) conclude that partaking in bullying has a negative impact on academic performance and educational attainment. According to the authors, perpetrators of bullying, in comparison with victims, tend to have lower educational attainment, which is translated into lower wages as an adult. Using an instrumental variable approach and detailed administrative data from Denmark, Eriksen et al. (2014) suggest that bullying reduces 9th-grade test scores, whereas Ponzo (2013) analyzes the impact of being a victim of violence on educational outcomes in Italy, finding that victims get lower scores in science and reading tests.

As a result, the negative effects of bullying also reach productivity and labor market outcomes (Le et al., 2005; Drydakis, 2014; Brown and Taylor, 2008). Drydakis (2014) analyzes the long-term effects of school bullying in employment outcomes –considering bullying as a proxy for unmeasured productivity– and finds that bullying reduces labor force participation and wages, and that these negative effects seem to be higher among men, homosexuals, immigrants, people with greater mental health problems, people with lower human capital, and unmarried people. Using a panel data of the Australian Twin Register, Le et al. (2005) associate bullying with different conduct disorder problems, such as stealing, starting physical fights, using a weapon, raping, lying, and other similar behavior. Furthermore, when controlling for genetic and environmental factors, they conclude that conduct disorder problems are highly associated with a larger probability of dropping out from school, lower rates of market participation, and lower earnings.

As mentioned before, there is extensive psychological and educational literature on bullying. This literature has focused on the relationship between bullying and mental health problems, and has identified a number of possible mechanisms through which in-school victimization can negatively affect learning. Additionally, several studies have found evidence on how bullying have a negative impact on self-esteem, depression, isolation, and how physical and verbal violence affect school performance. Kaltiala-Heino et al. (1999), Hawker and Boulton (2000), Klomek et al. (2007) and Hanna-Kaisa et al. (2013) conclude that students involved in school violence episodes –victims or perpetrators– have more symptoms of depression and increased probability of having suicidal ideation (suicidal thoughts). Likewise, according to Nansel et al. (2004) and Grills and Ollendick

(2002), school violence can limit social skills development. Nansel et al. (2004) suggest that bullying victims have marked difficulties in developing relationships with their peers at school, while bullies have an increased risk of alcohol use and gun violence. Moreover, Dempsey and Storch (2008) suggest that being victims of school violence as adolescents contributes to having greater tendencies of suffering from depression, isolation, and social anxiety as adults. Rigby and Slee (1993) indicate that low self-esteem levels are associated with being victimized by others (being a victim of school bullying), while being a bully have a negative effect on happiness and enjoying school.

In Diagne (2009), the author concludes that depression and anxiety can reduce the concentration levels of students, while Neidell and Waldfoegel (2010) indicate that isolation leads students to benefit less from school peer effects. Interestingly, Lavy and Schlosser (2011) find that a higher proportion of female peers decreases the level of classroom violence, improves the relationship between students, and increases student satisfaction in school. Juvonen et al. (2011) suggest that victims of school violence tend to have poorer perceptions about their school environment and teachers, have lower grades, and are less academically engaged. Bullying victimization can also have a direct impact on school refusal behavior (Kochenderfer and Ladd, 1996; Glew et al., 2005). Both studies claim that bullying increases the sense of isolation, school adjustment problems, and detachment from school, thereby making bullying victims more likely to drop out from school. Moreover, Alvarez-Garcia et al. (2010) find that students who have ever repeated course are more likely to perceive higher levels of school violence in comparison to those ones who have never repeated, finding also that the most common type of school violence is verbal violence. Additionally, Goodman et al. (2011) present evidence that the resulting psychological health problems affect generation and intergenerational social mobility.

Even though there is a growing literature on the consequences of bullying, there is limited research about anti-bullying measures. This paper attempts to fill this gap by analyzing the impact of a randomized intervention implemented in Peru. This will help shed light on the negative effects of bullying while highlighting useful evidence about public interventions that reduce school violence in developing countries, all of which will be especially useful for policy makers.

### **3. School violence and bullying in Peru**

School violence affects millions of students in Peru. According to the Peruvian National Survey on Social Relations (ENARES, 2015), approximately 75.3% of children and 75.7% of adolescents have experienced psychological or physical violence at school at least once. Even worse, 75.7% of children and 80.3% of adolescents reported that violence at school had primarily taken place in the classroom. The same survey revealed that almost 50.1% of children and 47.4% of

adolescents had suffered violence at school in the previous 12 months. Similarly, a 2011 Global School-based Student Health Survey (MINSa, 2011) showed that 38% of all students in Peru reported that they had been physically assaulted at school in the previous 12 months. Moreover, 48% reported being victims of bullying and 45% reported having been forcefully robbed at school.

Although all children and adolescents could potentially face bullying or other kinds of violence at school, a number of key factors –such as poverty, socioeconomic status, sexual orientation or gender identity, ethnicity, and special health needs or disabilities– increase that risk. This, in turn, creates a vicious circle of sorts where school violence contributes to social inequalities that can persist later in life.

In 2012, for instance, a national urban survey found that respondents whose children went to public schools –lowest socioeconomic status– tended to perceive bullying as a more frequent problem than those parents whose children went to private school. Likewise, recent studies have raised alarms about homophobic bullying in Peru. According to Cardenas et al. (2011), for instance, 66.7% of LGBT students have experienced homophobic bullying at school in Lima and Callao. Similarly, a recent school climate study (PROMSEX, 2016) found that 7 out of 10 students had felt insecure at school because of their sexual orientation and that 3 out of 10 students had felt too insecure (1-5 times in the previous month) to attend school.

It is important to note that although many Latin American countries have successfully reduced poverty rates in the last few years, violence continues to be one of the most serious challenges. In this regard, past civil conflicts, economic crises, and political turbulence in Peru have all had long-term impacts on its citizens<sup>2</sup>.

In 2011, the Peruvian Government decided to put in place measures against violence by establishing a law that promotes a peaceful coexistence in educational institutions. The objective of the law is to provide students with a safe school environment by preventing, identifying, resolving, and eliminating bullying in schools. Additionally, since 2013, the Government, through the MoE, has been attempting to strengthen the law by implementing a nationwide strategy against school violence, which includes two specific initiatives: *Escuela Amiga* and *SiseVe* (“Yes, we see it”).

The *Escuela Amiga* initiative aims to promote a safe school environment by reducing violence, especially in high-risk schools. *Escuela Amiga* includes teacher training in socioemotional skills so that they can prevent bullying, protect students, and improve the relationship between the school and the community.

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<sup>2</sup> For instance, recent statistics have also raised concerns about gender violence in Peru –according to the National Institute of Statistics and Information (INEI, 2014), 32.3% of women have experienced physical or sexual violence at some point in their lives.

SiseVe is an online platform that helps victims or witnesses of school violence to report it – students, parents, friends, or any witness to violence can anonymously report an incident. The report is then forwarded to the local education authorities, who must verify the authenticity of the report and ensure that victims are protected from future harm. The online platform also includes relevant information on the resources available in the community to protect children and adolescents from any kind of violence. This initiative spans multiple ministries, including the Ministry of Health, Ministry of Women and Vulnerable Populations, Ministry of Justice, Ministry of the Interior, and the Public Ministry.

Overall, these initiatives are helping students to break the cycles of violence they have been exposed to since a young age and thereby prevent these and other forms of violence.

#### **4. The Intervention**

The inclusion criteria for being selected for the intervention included i) being a public school (either under direct public administration or under private administration); ii) being a secondary school; iii) being located in an urban area; iv) having computers connected to Internet; v) and not being concurrently enrolled in other interventions by the MoE (for example, *Escuela Amiga*). Access to computers and Internet were required because the SiseVe platform is an online tool. From all schools that met the criteria, we randomly selected 33 schools for treatment and 33 schools for control. Figure 1 presents the distribution of treatment and control schools.

We performed balance checks on schools characteristics, such as number of students and teachers per school, students per classroom, type of administration, and other relevant variables were performed, and find no statistically significant differences between treatment and control schools, as shown in Table 1.

The intervention was carried out during October 2015, and it was conducted by a specialized team that worked directly with the MoE. Only students from the first and second grades of secondary education (13-14 years old) participated. Before the intervention, the team received training sessions where they obtained detailed information about school violence, the SiseVe platform, and materials to be delivered to teachers. The intervention was also previously coordinated with the pedagogical team of the Regional Education Department (DRE) and the Local Education Management Unit (UGEL), as well as with the research team. All treatment schools received a visit from the intervention team and some unannounced visits from regional and local authorities.

The randomized intervention package had two components: i) increasing awareness about the negative consequences of bullying, and ii) increasing awareness about the SiseVe platform as an

opportunity to act against school violence. Both components were delivered jointly, thus in this study, we are not able to test their individual effects.

In order to achieve the first component, the intervention team ran three types of activities to raise awareness about the effects of school violence among students, teachers, and parents. The intervention involved: i) workshops or discussions about bullying, including the provision of information on the long-term consequences of school violence on school performance and future earnings; ii) interactive activities, including classroom wall displays, crafting signs and role-playing games; and iii) development and delivery of informative material about school violence, (see Annex 1). In the first activity, the intervention team highlighted the importance of fighting bullying through workshops or discussions for all first and second-grade students, teachers, and administrative staff. It is important to note that the initiatives related to the second and third activity were developed by the school community with the guidance of the intervention team. The second activity included initiatives such as anti-bullying posters, bulletin boards, slogans, in-school parades, and role-plays. In the third activity, the informative material was developed by students at school and then delivered to their parents. Because the second and third activities were developed by the school community, the number of initiatives done in each school varied, therefore we were able to analyze the intensity of the intervention.

For the second component, the intervention team had three main tasks: i) signing up schools with SiseVe, ii) training teachers, students, and parents on how to use the SiseVe platform, and iii) launching an awareness campaign to increase students, teachers, and parents' knowledge about the SiseVe platform. The intervention team promoted the SiseVe platform by showing the school community how to access, register, and use the online tool. The team also explained that users were guaranteed anonymity and that reports were followed up by local authorities.

Finally, each school received a detailed informational package<sup>3</sup> about the available resources that they had to prevent and resolve school violence episodes. Table 2 shows the intervention structure, activities, and initiatives that each component involved.

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<sup>3</sup> The informational package was called: "10 Recursos para Prevenir y Atender casos de Violencia Escolar" (Ten Resources to Prevent and Address Cases of School Violence)



## 5. Data

Data on the school climate and self-reported well-being was collected at baseline and endline. As mentioned before, only students from first and second grades of secondary education participated. The surveys were collected by a specialized team, different from the intervention team. Surveyors were previously trained by specialists from the MoE.

The timing of the surveys is shown in Figure 2. The baseline survey was collected from April 2015 through May 2015 in treatment and control schools. The first module of the survey identifies different student characteristics, such as gender, age, mother tongue, disability, self-reported health status, household composition, and socioeconomic household characteristics (including information on access to basic services and property characteristics).

The surveys also collected detailed self-reported information that allowed us to construct indexes measuring several aspects of individuals' wellbeing, their perceptions about the violence in their schools, their attitudes towards violence, whether there is violence at home, and whether they have been a victim or a perpetrator of school violence. The indexes were constructed by adding the responses to a set of questions on the same subject. Annex 2 shows the detailed construction process of each index. The internal consistency or reliability of each index was measured through the Cronbach's Alpha, finding that the reliability was considered high or acceptable in eight of the nine indicators (see Annex 3). Table 6 presents the mean values of these indexes at the baseline by treatment status, indicating no statistical differences between students in treatment and control schools.

The available indexes measure the following dimensions: i) depression, by asking students questions on feelings of helplessness and hopelessness, loss of interest in activities, and happiness; ii) isolation, by asking about how often children felt left out, isolated from others, and if they lacked companionship; iii) bullying victimization and perpetration, by asking about personal experiences of in-school violence (including verbal intimidation, physical assault, threats of physical assault, and cyberbullying); iv) bystander behavior, by asking question about students behavior when they witness different acts of bullying at school; v) help-seeking behavior, by asking whether students are likely seeking help from someone at school and of reporting bullying episodes to school authorities and teachers; vi) general school climate perception, by asking about the relationship between teachers and students, violence around school areas, school safety, and satisfaction; vii) in-school violence perception, by asking about specific violent episodes such as verbal abuse, physical harassment, cyberbullying, and treats; viii) violence at home, by asking about witnessing domestic violence or been victims of domestic violence; and ix) learning expectations, by asking about their beliefs on how school violence affected their learning process.

The same questionnaire was administered in an endline survey. This endline was fielded between one and two months after the intervention, from November 2015 through December 2015. As in the baseline survey, data was collected on self-reported personal wellbeing, school environment perception, and the peer nomination section. The response rate to the follow-up survey was 92%. Table 3 shows the distribution of the final sample of respondents that answered the baseline and the endline surveys. Table 4 provides summary statistics of this sample.

Based on these surveys, we were able to study whether the intervention had an effect on the constructed indexes. Given the short time between the intervention and the endline survey, we are only able to measure short-term outcomes on individuals' perception and attitudes towards bullying and school violence. Fielding the endline one to two months after the intervention was an administrative constraint, since the school year ends in December in Peru, followed by a long summer break during January-March. Thus, the objective was to measure if the intervention had any effects before the break.

Nevertheless, we are able to measure medium-term effects using administrative data provided by the MoE. In particular, we use school enrollment data to measure if school bullying, violence, and poor climate is associated with higher levels of dropout and to test if the intervention had a positive effect on reducing dropout rates. The data on school enrollment comes from a national online system for educational institutions called SIAGIE. This system provides schools with a tool that simplifies the registration process for student's enrollment, attendance, and performance.<sup>4</sup> The SIAGIE is generally updated every month. We used the most up-to-date enrollment information for 2015 and 2016. We defined school dropouts as not being enrolled in any educational institution (public or private).

## 6. Empirical Approach and Findings

Because we have baseline and follow-up information on several outcomes (individual's wellbeing, in-school violence perception, attitudes towards violence, violence at home, and school violence victimization or perpetration) we employ a difference-in-difference approach, where the first difference should remove any potential unobserved differences between students in control schools and students in schools that received the intervention, even after the random assignment to the intervention group. We estimate the regression model in equation (1), where  $i$  indexes students,  $j$  indexes schools, and  $t$  indexes time. The dependent variable  $y_{ijt}$  are the constructed indexes; the

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<sup>4</sup> Additionally, the SIAGIE data provides information about school characteristics such as type of administration, school size, school type (single-sex or co-educational), and educational levels.

variable  $T_j$  equals 1 if the student is at a treated school and equals 0 otherwise; the variable  $time_j$  equals 0 for the baseline (prior to the intervention) and 1 for follow-up (after the intervention); the variables  $X_i$  and  $Z_j$  are controls at the student and at the school level, respectively; the term  $\varphi_i$  captures fixed effects at student level. Standard errors  $\epsilon_{ijt}$  are clustered at the school level.

$$y_{ijt} = \alpha_0 + \alpha_1 T_j + \alpha_2 time_j + \alpha_3 T_j * time_j + \alpha_4 X_i + \alpha_5 Z_j + \varphi_i + \epsilon_{ijt} \quad (1)$$

The estimation results are shown in Table 7. We only report the estimates for the coefficient of interest,  $\alpha_3$ .<sup>5</sup> We find that the intervention is associated with a statistically significant increase in the index for reporting violent incidents, meaning that as a result of the intervention student say they are more likely seek help from someone at school and to report bullying episodes to school authorities and teachers. This effect might be result of student better understanding the negative consequences of bullying and also of being presented with an option, the SiseVe platform, to speak out and report violence incidents. Thus, it seems that the intervention was been successful in making bullying more visible, so that teachers and authorities can act upon it.

The natural follow up question is whether students do not only say they are more willing to report violent incidents but whether do they actually do it. To investigate this issue further, we analyzed data on reports entered in the SiseVe platform. We calculated the total number of reports linked to treatment and control schools. As Figure 3 shows, although the number of reports entered is small (suggesting that still much of daily violent incidents go unreported) we do observe a significant increase in the treatment schools, especially in the months following the intervention. The difference seems to wind down in December-March, coinciding with the summer break. Thus, at least there is evidence that students in the treated schools have used more the SiseVe to report incidents, lending credence to the validity of their self-reported attitudes.

Table 7 also shows that intervention reduced the index on bystander behavior, meaning that students in treated schools reported to be less likely to encourage bullying acts, more likely to report them and to more likely help the victims of bullying than students in control schools. This result can also be interpreted as the effect of both understanding the negative consequences of bullying and also of having access to a relatively easy way to report incidents. We also find that the intervention is associated with a reduction in the index for depression (significant at the 10% level).

Regarding the other indexes, the estimated have the expected sign but they are not statistically significant. For instance, we find that the intervention is associated with a reduction in

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<sup>5</sup> Full estimation results will be available on an online appendix.

the index for isolation, a reduction in the in-school violence perception, and a reduction in the index of bullying victimization and perpetration, and an increase in the learning expectations index. This last result means that students in treated schools are more likely to say that they would have better achievement gains if school there were less school violence.

As discussed above, we also estimate the effect of the intervention on the probability of dropout for the 2016 school year. We estimate the OLS model in equation (3), where  $D_{ij}$  is an indicator variable that equals one if the student drops out from school in 2016 and equals zero otherwise. We define dropout as not being enrolled in any school, not only schools in the treatment or control groups. The other variables are defined as before and the standard errors are clustered at the school level.

$$D_{ij} = \beta_0 + \beta_1 T_j + \beta_2 X_i + \beta_3 Z_j + \epsilon \quad (3)$$

The estimation results are shown in Table 8. We find that the intervention is associated with a statistically significant reduction in the dropout probability of 0.078 percentage points. In other words, this finding is important for two reasons. First, because it shows that the intervention had an effect not only on students' self-reported attitudes and perceptions but also on objective outcomes such as dropout rates. Second, it shows that the effects of the intervention also last over the medium term, affecting enrollment in the next academic year.

We also re-estimate equations (1) and (3) interacting the treatment indicator  $T_j$  with individual characteristics from the baseline survey, including gender, poverty, and reported violence at home. The results are shown in Tables 9 and 10. There is not a consistent gradient in the estimates along these characteristics across outcomes, probably because of the smaller sample sizes and larger standard errors when estimating effects by subgroups. However, it is important to note that the intervention seems to have had a larger effect on self-reported well-being outcomes for students who are not exposed to violence in their homes (although the effect on dropout is not statistically different depending on whether the student reports violence at home).

## 7. Final Remarks

Using an experimental design, we evaluate the effects of an anti-bullying intervention, which combines information about an online tool to report cases of violence and activities to increase awareness about the negative consequences of bullying, on students emotional well-being (depression and isolation), perception about the school environment, attitude towards violence and student outcomes (dropout).

Our preliminary results are encouraging and indicate that the intervention had a statistically significant impact in reducing students' support for bullying, their likelihood of a bystander behavior in the presence of violence, and their willingness to report violent incidents. The intervention also seemed to reduce depression, although this effect is only significant at the 10% level. We also found that the intervention reduced the probability of dropout in the next school year, indicating that the effects of the intervention are persistent in the medium term. Thus, the intervention design is a promising model for improving school climate and student outcomes.

A limitation of the current study is that the treatment packaged included both the promotion of the SiseVe tool and the activities aimed at increasing awareness of the negative effects of bullying and school violence. Therefore, we are not able to disentangle the effects of each of these initiatives. Given the promising findings in this pilot study, we are planning a larger study with two randomized treatment arms, each one corresponding to one component of the treatment package in this study

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Figure 1: Location of Study Schools by Treatment Status  
(Regions)

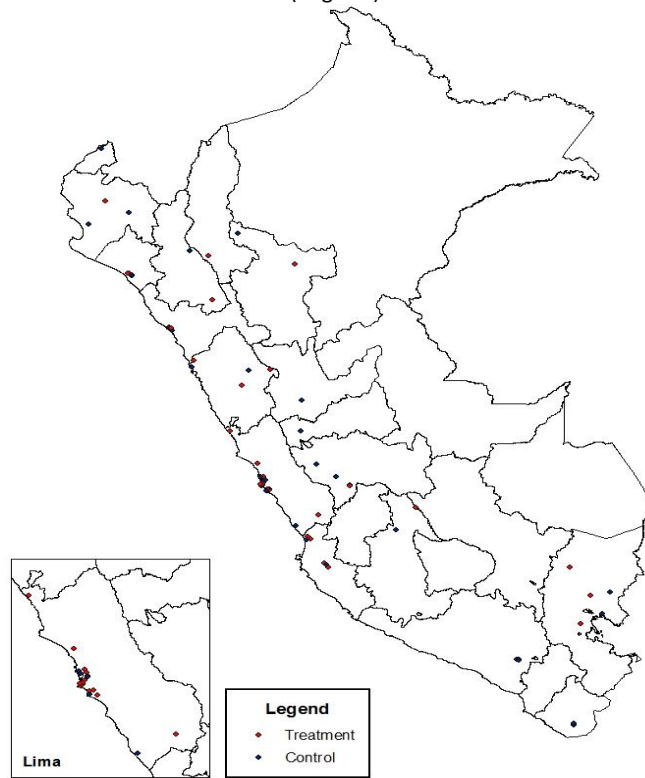
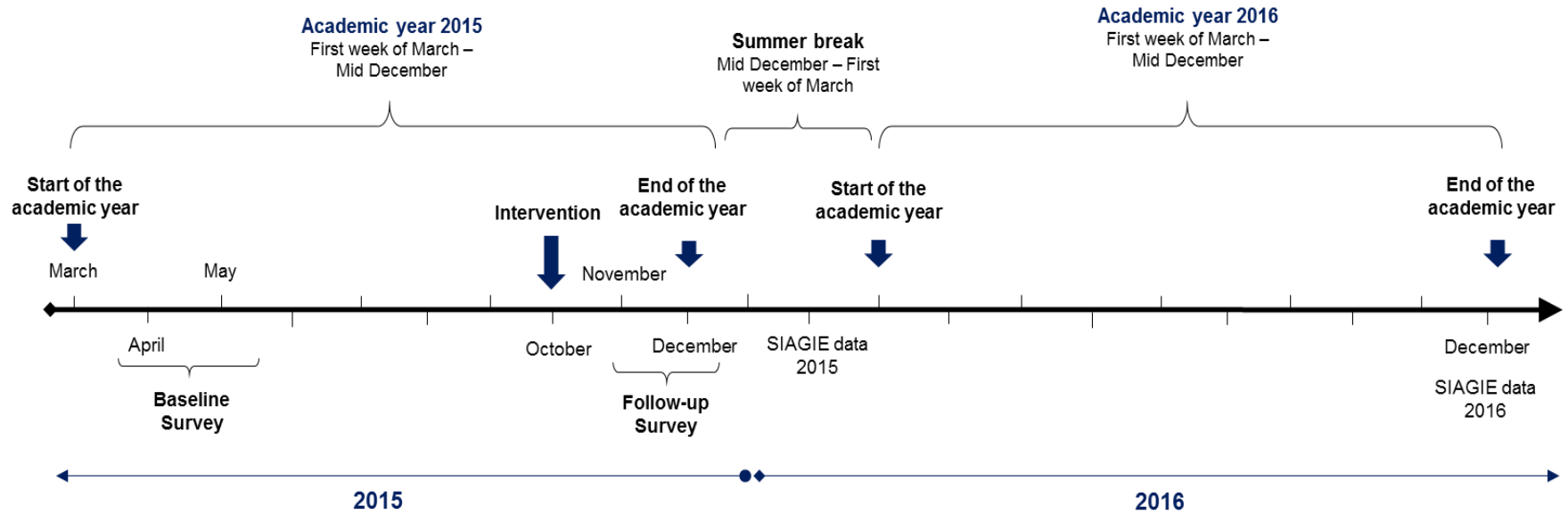


Figure 2: Timeline  
(School calendar and data collection)



Note: The academic year in Peru goes from March to December, and the summer vacation goes from January to March.

Figure 3: Number of cases reported in SiseVe by school treatment status

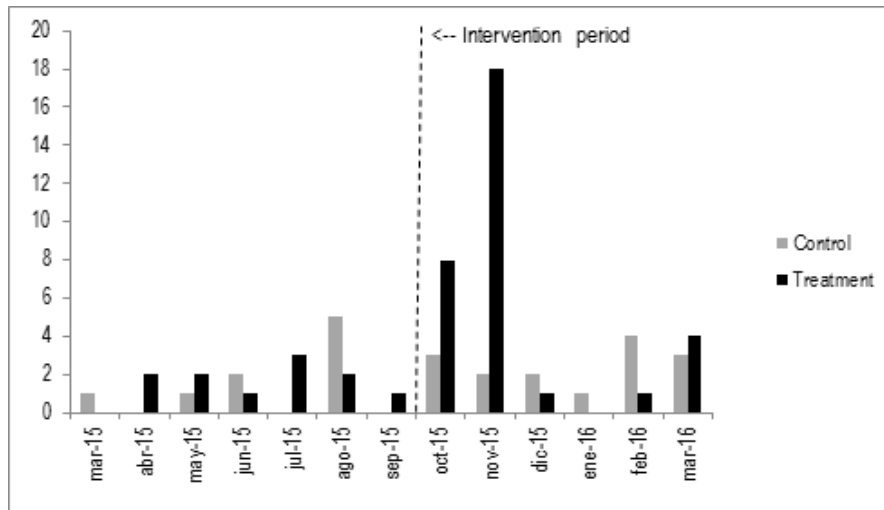


Table 1: Final sample of schools balance  
(Sample selection)

Variable	Treatment	Control	Difference	P-value
# students at secondary level	900.938	723.091	177.847	0.448
School administration (public administration = 1, private administration = 2)	1.063	1.045	0.017	0.822
% Single-sex schools (men)	0.063	0.000	0.063	0.246
% Single-sex schools (women)	0.063	0.091	-0.028	0.756
% Co-educational schools	0.875	0.909	-0.034	0.744
# teachers at secondary level	51.313	44.227	7.085	0.579
# students per teacher (secondary)	16.387	15.451	0.936	0.559
# sections (secondary)	30.875	26.273	4.602	0.562
# students per sections	27.533	25.575	1.957	0.391
Tutoring committee (1=No; 2=Yes)	1.786	1.900	-0.114	0.370
% schools in the coast region	0.625	0.636	-0.011	0.945
% schools in the highlands region	0.375	0.318	0.057	0.724
% schools in the amazon region	0.000	0.045	-0.045	0.401

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively.

Table 2: Intervention

Component	Activities	Initiatives	Aimed at
1. Increasing awareness about the negative consequences of bullying	1.1 Workshops or discussions	Anti-bullying sessions	Students, teachers and administrative staff
	1.2 Development of visual displays or role plays (interactive activities)	<ul style="list-style-type: none"> <li>▪ Posters</li> <li>▪ Bulletin boards</li> <li>▪ Slogans</li> <li>▪ In-school parades</li> <li>▪ Role plays</li> </ul>	Students, teachers, and parents
	1.3 Development and delivery of informative material about school violence	Simple slides or presentations Informative brochures	Students, teachers, and parents
2. Increasing awareness about the SiseVe platform	2.1 Sign up schools with SiseVe	-	Students and teachers
	2.2 Training on how to use the SiseVe platform	-	Students, teachers, and parents
	2.3 Launch an awareness campaign about the SiseVe platform	-	Students, teachers, and parents

Notes: The objective of these activities is raise bullying awareness. The first activity includes sessions where school administrative staff, teachers, parents and students discuss the long-term effects of bullying. The second activity included initiatives that help students practice socioemotional skills such as empathy. The third activity raises bullying awareness trough the development of materials to learn about school violence and its negative effects.

Table 3: Final sample  
(Based on the baseline and follow-up surveys)

Group	Schools	Students
Treatment group	33	10,062
Control group	33	9,450
Total	66	19,512

Table 4: Summary Statistics

Variable	Mean	Standard deviation	Range [min. - max.]	
<b><i>Student level variables</i></b>				
Female	0.47	0.50	0	1
Age in years	13.15	0.98	11	19
More than 2 years older (age-for-grade)	0.04	0.19	0	1
Lives: Most of the time with the mother	0.88	0.33	0	1
Lives: Most of the time with the father	0.63	0.48	0	1
# Siblings	2.70	1.70	0	7
Mother tongue: Spanish	0.96	0.19	0	1
Reading in Spanish: very difficult	0.02	0.15	0	1
More than 3 siblings	0.28	0.45	0	1
Place of birth	0.73	0.44	0	1
Health status: bad	0.01	0.12	0	1
Special health need or disability	0.05	0.22	0	1
%With water supply at home	0.90	0.29	0	1
%With electricity supply at home	0.98	0.13	0	1
%With bathroom at home	0.95	0.22	0	1
%Dirt floor at home	0.13	0.33	0	1
% Uses internet	0.73	0.45	0	1
%With internet at home	0.45	0.50	0	1
Poverty proxy	0.23	0.42	0	1
% Lack of access to any basic service	0.15	0.35	0	1
Separated parents	0.41	0.49	0	1
%Violence at home	0.43	0.49	0	1
<b><i>School-level variables</i></b>				
Enrollment (log.)	6.98	0.66	4.16	7.96
School administration: public school with public administration	0.97	0.16	0	1
Language results: ECE evaluation	569.67	20.05	488.87	611.91
Math results: ECE evaluation	556.70	24.55	479.53	622.51
<b><i>Outcomes</i></b>				
Depression	8.60	4.05	0	29
Isolation	4.42	1.34	3	9
School climate	11.52	6.48	0	47
School climate (positive items)	13.65	3.70	0	20
Report of violence incidents	10.92	3.78	0	16
Learning Expectations	4.96	2.32	0	8
Violence at home	0.83	1.39	0	8
Violence perception	5.33	5.07	0	24
Victimization	2.75	3.25	0	22
Perpetration	1.13	1.67	0	12
Victimization and perpetration	3.80	4.38	0	34
Bystander behavior	2.18	1.47	0	8



Table 5: Baseline Balance of Observable Characteristics

Characteristics	Treatment	Control	Difference	P-value
<b><i>Student level variables</i></b>				
Female	0.539 (0.005)	0.387 (0.005)	0.152 (0.082)	0.069*
Age in years	13.160 (0.010)	13.130 (0.010)	0.021 (0.046)	0.645
More than 2 years older (age-for-grade)	0.038 (0.002)	0.038 (0.002)	-0.001 (0.006)	0.922
Lives: Most of the time with the mother	0.874 (0.003)	0.881 (0.003)	-0.008 (0.010)	0.443
Lives: Most of the time with the father	0.619 (0.005)	0.648 (0.004)	-0.030 (0.020)	0.148
# Siblings	2.747 (0.017)	2.651 (0.017)	0.096 (0.095)	0.316
More than 3 siblings	0.297 (0.005)	0.263 (0.004)	0.034 (0.021)	0.118
Place of birth	0.718 (0.005)	0.742 (0.005)	-0.023 (0.022)	0.292
Health status	0.015 (0.001)	0.012 (0.001)	0.003 (0.002)	0.259
Special health need or disability	0.050 (0.002)	0.055 (0.002)	-0.004 (0.006)	0.471
% With water supply	0.889 (0.003)	0.921 (0.003)	-0.032 (0.017)	0.062*
% With electricity supply	0.981 (0.001)	0.986 (0.001)	-0.005 (0.003)	0.073*
% Has a bathroom at house	0.944 (0.002)	0.950 (0.002)	-0.006 (0.012)	0.602
% Dirt floor at home	0.146 (0.004)	0.108 (0.003)	0.038 (0.024)	0.120
% Use internet	0.721 (0.005)	0.732 (0.005)	-0.011 (0.034)	0.749
% With internet at home	0.431 (0.005)	0.462 (0.005)	-0.031 (0.044)	0.481
% Lack of access to any basic service or dirt floor	0.251 (0.004)	0.199 (0.004)	0.052 (0.028)	0.064*
Access to basic services	0.162 (0.004)	0.128 (0.003)	0.033 (0.021)	0.115
Separated parents	0.423 (0.005)	0.387 (0.005)	0.036 (0.022)	0.110
Violence at home	0.431 (0.005)	0.421 (0.005)	0.011 (0.013)	0.394
<b><i>School-level variables</i></b>				
Enrollment (log.)	6.989 (0.006)	6.971 (0.007)	0.018 (0.186)	0.922

Characteristics	Treatment	Control	Difference	P-value
Language results: ECE evaluation	565.800 (0.187)	573.800 (0.212)	-7.965 (4.847)	0.106
Math results: ECE evaluation	550.100 (0.207)	563.700 (0.270)	-13.610 (6.516)	0.041**
School administration (public with public administration)	0.980 (0.001)	0.967 (0.002)	0.013 (0.035)	0.705

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively. Clustered standard errors at region level are reported in parenthesis.

Table 6: Baseline Balance of Outcomes of interest

Indices and Dropout	Treatment	Control	Difference	P-value
Depression	8.701 (0.046)	8.492 (0.045)	0.209 (0.152)	0.185
Isolation	4.438 (0.014)	4.403 (0.014)	0.035 (0.051)	0.496
School climate	11.52 (0.069)	11.52 (0.072)	0.000 (0.590)	0.999
School climate (positive items)	13.63 (0.038)	13.67 (0.040)	-0.040 (0.220)	0.842
Report of violence incidents	10.88 (0.039)	10.97 (0.040)	-0.090 (0.241)	0.709
Learning expectations	4.929 (0.024)	5.002 (0.024)	-0.073 (0.102)	0.475
Violence at home	0.858 (0.014)	0.805 (0.014)	0.053 (0.039)	0.150
Violence perception	5.344 (0.052)	5.313 (0.054)	0.031 (0.267)	0.907
Bullying victimization and perpetration	3.556 (0.045)	4.058 (0.049)	-0.502 (0.374)	0.181
Bystander behavior	2.191 (0.015)	2.172 (0.016)	0.019 (0.061)	0.757
School dropout	0.029 (0.002)	0.029 (0.002)	0.000 (0.006)	0.985

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively. Clustered standard errors at region level are reported in parenthesis.

Table 7: Effects of the intervention on constructed indexes

	Emotional Development		School environment		Students behavior at school			Learning Expectations	Bullying victimization	Bullying perpetration	Bullying victimization and perpetration	Violence at home
	Depression	Isolation	School climate	School climate (positive items)	In-school violence perception	Report of violence incidents	Bystander behavior					
Treatment	-0.19048*	-0.02230	-0.17859	0.20129	-0.03504	0.44877***	-0.12962**	0.07285	-0.05593	-0.05028	-0.11671	-0.01989
	(0.11366)	(0.03582)	(0.38731)	(0.14707)	(0.24244)	(0.11554)	(0.05291)	(0.08216)	(0.12759)	(0.07410)	(0.20110)	(0.04180)
<i>N</i>	30,680	34,272	32,068	33,704	33,526	34,094	33,663	34,799	32,942	33,802	31,870	34,747
Fixed Effects: level	Students	Students	Students	Students	Students	Students	Students	Students	Students	Students	Students	Students
Sample weights	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively. Clustered standard errors at school level are reported in parenthesis. The regressions include the personal characteristics (sex, age in years, an indicator for those more than 2 years older than the normative age-for-grade., health perception), an indicator for the lack of access of any basic services or no flooring material, an indicator for region of birth, an indicator for separated parents, an indicator for having more than 3 siblings, grade, school characteristics (administration, enrollment (log.), performance in the ECE evaluation), an indicator for violence at home, the human development index at district level, and the baseline index.

Table 8: Effects of anti-bullying intervention on school dropout  
(Reference period: 2015-2016)

	School Dropout
Treatment	-0.00781** (0.00387)
<i>N</i>	16,300
FE level	Regions (17)

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively. Clustered standard errors at school level are reported in parenthesis. The regressions include the personal characteristics (sex, age in years, an indicator for those more than 2 years older than the normative age-for-grade., health perception), an indicator for the lack of access of any basic services or no flooring material, an indicator for region of birth, an indicator for separated parents, an indicator for having more than 3 siblings, grade, school characteristics (administration, enrollment (log.), performance in the ECE evaluation), an indicator for violence at home, and the human development index at district level.

Table 9: Heterogeneity analysis on self-reported wellbeing outcomes

Total Effect	Emotional Development		School environment		Students behavior at school			Learning Expectations	Bullying victimization	Bullying perpetration	Bullying victimization and perpetration	Violence at home
	Depression	Isolation	School climate	School climate (positive items)	In-school violence perception	Report of violence incidents	Bystander behavior					
Treatment x Men	-0.26621* (0.14717)	-0.03261 (0.04190)	0.14637 (0.48409)	-0.03622 (0.17857)	-0.04329 (0.31366)	0.31664** (0.15061)	-0.12629** (0.05982)	0.08781 (0.10219)	-0.01433 (0.18313)	0.00264 (0.08818)	-0.02445 (0.27391)	-0.04077 (0.04791)
Treatment x Women	-0.14269 (0.16072)	-0.0324 (0.04463)	-0.63597 (0.39714)	0.50012*** (0.17417)	-0.09856 (0.27633)	0.48249*** (0.14729)	-0.11275 (0.0685)	0.03656 (0.09559)	-0.14949 (0.11035)	-0.12218 (0.08019)	-0.26203 (0.17986)	-0.02387 (0.0548)
Treatment x No Poverty	-0.20229 (0.130787)	-0.02337 (0.03543)	-0.07922 (0.39689)	0.12973 (0.15319)	0.03737 (0.26053)	0.39951*** (0.11013)	-0.12073** (0.05482)	0.08325 (0.08894)	-0.06351 (0.11839)	-0.05111 (0.07718)	-0.12836 (0.19481)	-0.01773 (0.04209)
Treatment x Poverty	-0.10436 (0.19221)	-0.01854 (0.0612)	-0.38234 (0.44004)	0.40331** (0.2015)	-0.32118 (0.24697)	0.39956 (0.24362)	-0.16134* (0.08989)	0.03868 (0.10717)	-0.03047 (0.20145)	-0.05779 (0.08254)	-0.04855 (0.2864)	-0.00923 (0.0632)
Treatment x No violence at home	-0.34868*** (0.10625)	-0.05011 (0.04144)	-0.23101 (0.37619)	0.23889 (0.18021)	-0.18962 (0.23523)	0.50355*** (0.15773)	-0.18253*** (0.05102)	0.14172 (0.08976)	-0.14053 (0.10334)	-0.09730 (0.06930)	-0.20604 (0.16476)	-0.03997 (0.03711)
Treatment x Violence at home	0.05500 (0.17987)	0.01818 (0.04962)	-0.03423 (0.45402)	0.13999 (0.16558)	0.16482 (0.28538)	0.28581** (0.11693)	-0.05672 (0.06747)	-0.00347 (0.09497)	0.07637 (0.18137)	0.00720 (0.09246)	0.02365 (0.27949)	0.03711 (0.07197)
N	31,742	35,462	33,177	34,867	34,685	35,273	34,844	36,005	34,050	34,969	32,934	35,944
FE level	Students	Students	Students	Students	Students	Students	Students	Students	Students	Students	Students	Students

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively. Clustered standard errors at school level are reported in parenthesis. The regressions include the personal characteristics (sex, age in years, an indicator for those more than 2 years older than the normative age-for-grade., health perception), an indicator for the lack of access of any basic services or no flooring material, an indicator for region of birth, an indicator for separated parents, an indicator for having more than 3 siblings, grade, school characteristics (administration, enrollment (log.), performance in the ECE evaluation), an indicator for violence at home, and the human development index at district level.

Table 10: Heterogeneity analysis on school dropout

<b>Total Effect</b>	<b>School Dropout</b>
Treatment x Men	-0.00672 (0.00493)
Treatment x Women	-0.00902** (0.00391)
Treatment x No Poverty	-0.00640 (0.00395)
Treatment x Poverty	-0.01274 (0.00811)
Treatment x No violence at home	-0.00672 (0.00451)
Treatment x Violence at home	-0.00935* (0.00512)
<i>N</i>	16,300
FE level	Regions (17)

Notes: \*\*\*, \*\* and \* indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively. Clustered standard errors at school level are reported in parenthesis. The regressions include the personal characteristics (sex, age in years, an indicator for those more than 2 years older than the normative age-for-grade., health perception), an indicator for the lack of access of any basic services or no flooring material, an indicator for region of birth, an indicator for separated parents, an indicator for having more than 3 siblings, grade, school characteristics (administration, enrollment (log.), performance in the ECE evaluation), an indicator for violence at home, and the human development index at district level.

## Annex 1: Activities

First component: Increasing awareness about the negative consequences of bullying

### Activity 1: Bullying discussions



### Activity 2: Classroom Wall Displays and Signs (interactive activities)





### Activity 3: Informative material

Second component: Increasing awareness about the SiseVe platform



## Annex 2: Construction of scales

All indexes were constructed by adding scores of a specific set of questions or statements. Each response to every statement has a specific punctuation. It is important to notice that every index is defined as negative or positive, therefore, all statements that conform each index must have the same direction (negative or positive). If any statement has a different direction, the punctuation is changed so it can be interpreted correctly. The questionnaire (baseline and follow-up surveys) is based on tests developed by Bradley et al. (2010), Hughes et al. (2004), CUBE (“Cuestionario de Bienestar Escolar” instrument for *Escuela Amiga*), Espelage and Holt (2001), Williams and Guerra (2007), and Cornell (2013). The questionnaire collected self-reported students information of statements related to emotional development, school environment, bullying behavior, students or peers behavior, violence at home, and learning expectations.

- **Depression:** The depression index is the sum of ratings of 10 items of depressive symptoms. The responses scale range from 0 (hardly ever or never) to 3 (often or almost every time). The depression index is based on the Center for Epidemiologic Depression Scale (CES-D), specifically on the short version of the CED-D scale (Andersen et al., 1994). The scale included questions about feelings of helplessness, feelings of hopelessness, loss of interest in activities, and happiness. The total score ranges from 0 to 30. Higher scores are indicative of more severe depression.
- **Isolation:** The isolation index is based on the short form for the full 20-item Revised UCLA Loneliness Scale (Hughes et al., 2004). This short scale is comprised of three questions: “How often do you feel left out / feel isolated from others / that you lack companionship?” with response ranges of 1 (hardly ever or never) to 3 (often or almost every time). The loneliness scale deliberately does not include the term “lonely” as it has been shown to be subject to significant response bias and under-reporting (Luo et al. 2012). The total score of the scale is calculated by finding the sum of the three items, so it ranges from 3 to 9. Higher scores indicate higher levels of isolation.
- **School climate:** The school climate index provides a measure of student’s school climate perception. The scale contains statements about school environment, the relationship between students and teachers, violence around school area, and school safety. Students were asked if they agree or not with 13 different statements with responses ranges 0 (Disagree) to 4 (Agree strongly). The total score is the sum of the 13 items, so it ranges from 0 to 52. Higher scores indicate of a worse school climate perception.
- **Report of violence episodes (Seeking for help):** The report of violence episodes scale measures student’s likelihood to seek help from someone at school and student’s likelihood to report bullying episodes to school authorities and teachers. Students were asked if they agree or not with 4 different statements. The responses scale range from 0 (Disagree) to 4 (Agree strongly), and the total score range from 0 to 16. Higher scores are indicative of higher willingness to report bullying episodes.
- **Learning expectations:** The learning expectations index is comprised of 2 questions: “Do you think that your learning process will improve if there were less school violence incidents at school / if teachers can help prevent in-school violence?” The responses scale range from 0 (Disagree) to 4 (Agree strongly), and the total score is the sum of the 2 item, so it ranges from 0 to 8. Higher scores are indicative of a better understanding of school violence consequences on school performance.

- **Violence at home:** The violence at home scale identifies students who had witnessed domestic violence or had been victims of domestic violence. The scale included questions about violence experiences at home such as verbal or physical aggressions. Students were asked if they agree or not with 4 different statements. The responses scale range from 0 (Disagree) to 4 (Agree strongly). The total score is calculated by finding the sum of the four items, so it ranges from 0 to 16. Higher scores indicate higher levels of domestic violence.

- **In-school violence perception:** The school violence perception scale provides a measure of student's perception about in-school violence episodes such as verbal abuse, physical harassment, cyberbullying, and treats. Students were asked if they agree or not with 6 different statements. These statements included questions about the presence of different types of bullying at school and how their peers behave when witnessing different acts of bullying. The responses scale range from 0 (Disagree) to 4 (Agree strongly), and the total score range from 0 to 24. Higher scores indicate of a worse school violence perception.

- **Bullying victimization and bullying perpetration:** The bullying victimization scale included 11 items related to direct experiences of school violence acts such as verbal intimidation, physical assault, threats of physical assault, and cyberbullying. The responses scale range from 0 (never) to 2 (2 more than once), and the total score range from 0 to 22. Higher victimization scores are indicative of more severe victimization.

The bullying perpetration scale included 6 items assessing self-reported perpetration. The questions are related to different types of bullying such as verbal aggression, physical assault, threats of physical assault, and cyberbullying. The responses scale range from 0 (never) to 2 (2 more than once), and the total score range from 0 to 12. Higher perpetration scores are indicative of more severe bullying perpetration.

- **Bystander behavior:** The bystander behavior index measured student's behavior when witnessing different acts of bullying. Witnesses of bullying at school can reinforce bullying by encouraging the actions of the bully or can discourage it by helping the victim. The total score is the sum of the four items, and each item ranges from 0 (never) to 2 (2 more than once). The total score ranges from 0 to 8. Higher scores indicate higher levels of bullying reinforcement.

### SiseVe Questionnaire

Indicators	Statements
Depression	<ol style="list-style-type: none"> <li>1. I have been bothered by things that didn't use to</li> <li>2. I have trouble concentrating on a specific subject</li> <li>3. I felt depressed</li> <li>4. Everything takes a lot of effort</li> <li>5. I felt optimistic about the future</li> <li>6. I felt scared</li> <li>7. I couldn't sleep well</li> <li>8. I was happy</li> <li>9. I felt lonely</li> <li>10. I didn't feel like doing anything</li> </ol>
Isolation	<ol style="list-style-type: none"> <li>1. How frequently did you feel left out</li> <li>2. How frequently did you feel isolated from others</li> <li>3. How frequently did you feel that you lack companionship?</li> </ol>
School climate	<ol style="list-style-type: none"> <li>1. In my school teachers and students respect each other</li> <li>2. I enjoy being at school</li> <li>3. Students at school get involved in fights</li> <li>4. Students at school stole things from other students</li> <li>5. In my school, students treat other students</li> <li>6. Students at school carry weapons</li> <li>7. In my school, adults get involved when they witness violence acts</li> <li>8. My teachers treat me with respect</li> <li>9. Even when breaking the rules, students are treated fairly</li> <li>10. I didn't go to school because I was afraid of being hurt at school</li> <li>11. Walking to school or home, I feel afraid that someone would hurt me</li> <li>12. Students are members of gangs</li> <li>13. Crime and violence are affecting my school</li> </ol>
School climate (positive items)	<ol style="list-style-type: none"> <li>1. In my school teachers and students respect each other</li> <li>2. I enjoy being at school</li> <li>3. In my school, adults get involved when they witness violence acts</li> <li>4. My teachers treat me with respect</li> <li>5. Even when breaking the rules, students are treated fairly</li> </ol>
Report of violence incidents (Seeking help index)	<ol style="list-style-type: none"> <li>1. There are people at school who I can talk to when I have problems</li> <li>2. If I tell a teacher that other students are bothering me, he would help me</li> <li>3. If any student say something about hurting another student, I would tell a teacher</li> <li>4. If any student brings a gun to school, I would tell a teacher</li> </ol>
Learning expectations	<ol style="list-style-type: none"> <li>1. Do you think that your learning process will improve if ...there were less school violence incidents at school</li> <li>2. Do you think that your learning process will improve if ...teachers can help prevent in-school violence</li> </ol>
Violence at home	<ol style="list-style-type: none"> <li>1. Sometimes your mom (or dad) had been hit by you dad (or mom) or her/his partner</li> <li>2. Sometimes your parents beat you or your siblings</li> <li>3. Your parents tend to insult you or your sibling or they tell you things that make you feel bad</li> <li>4. There is always someone at home that is fighting to another member of your family</li> </ol>
In-school Violence perception	<ol style="list-style-type: none"> <li>1. Do you agree with ... Students bother other students in front of everybody</li> <li>2. Do you agree with ... Students bother other students through social media</li> <li>3. Do you agree with ... Students hit, push or kick other students</li> <li>4. Do you agree with ... Students enjoy watching how other students hit their peers</li> <li>5. Do you agree with ... Students do nothing when they witness in-school violence</li> <li>6. Do you agree with ... Students report violence acts to teachers</li> </ol>

Indicators	Statements
Bullying victimization	<ol style="list-style-type: none"> <li>1. One or more students beaten you at school without any reason</li> <li>2. One or more students bit you, punch you or kick you at school</li> <li>3. Someone broke your things on purpose</li> <li>4. Someone stole your things on purpose</li> <li>5. One or more students threatened with beating you</li> <li>6. One or more students insulted you (verbal aggression)</li> <li>7. Someone made fun of you though social media</li> <li>8. One or more students made fun of you at school</li> <li>9. A teacher hit you using an object</li> <li>10. A teacher threatened to hurt or hit you</li> <li>11. A teacher insulted you at school</li> </ol>
Bullying perpetration	<ol style="list-style-type: none"> <li>1. I threatened another student</li> <li>2. I made fun of another student through social media</li> <li>3. I insulted another student</li> <li>4. I started a fight with another student</li> <li>5. A teacher hit another student using an object</li> <li>6. A teacher insulted another student</li> </ol>
Bystander behavior	<ol style="list-style-type: none"> <li>1. I celebrated when someone was being beaten by other students</li> <li>2. I celebrated when someone was being pushed by other students</li> <li>3. I tried to help a student that was being bullied</li> <li>4. I told an adult that a student was being bullied at school</li> </ol>

### Annex 3: Cronbach's Alpha reliability

Scale	# questions	Cronbach's Alpha	Reliability
Depression	10	0.84	High
Isolation	3	0.72	Acceptable
School climate	13	0.81	High
Report of violence incidents	4	0.68	Acceptable
Learning expectations	2	0.57	Poor
Violence at home	4	0.75	Acceptable
In-school violence perception	6	0.83	High
Bullying victimization and perpetration	17	0.96	High
Bystander behavior	4	0.84	High

Note: Poor reliability ( $\alpha < 0.6$ ), acceptable reliability ( $0.6 \leq \alpha < 0.8$ ), good or high reliability ( $\alpha \geq 0.8$ ).

#### Annex 4: List of Intervention Initiatives

- Anti-bullying workshops/sessions for students
- Anti-bullying workshops/sessions for teachers
- Anti-bullying workshops/sessions for parents
- Anti-bullying workshops/sessions for school authorities and APAFA
- Development of posters
- Development of bulletin boards
- Development of slogans
- In-school parades
- Create role plays
- Anti-bullying Singing Competition
- Anti-bullying Dancing Competition
- Anti-bullying Drawing Competition
- Anti-bullying day/week/festival
- Anti-bullying Poster/Bulletin Board Competition
- Create school violence slides or presentations
- Create bullying informative brochures
- Create anti-bullying banners
- Create a student respectful policy at school
- Create a school code of conduct
- Student's Competition about the SiseVe platform
- Parent's role plays
- Create school policies: friendly school breaks,
- Anti-bullying Marathon
- Anti-bullying Talent Shows/Competition
- Anti-bullying musical
- Anti-bullying Hip-Hop Competition
- Sign up schools with SiseVe
- Launch a reminder campaign (SiseVe platform)
- Diffusion campaign about bullying aimed at parents
- Training sessions on how to use the SiseVe platform
- Anti-bullying stickers and pins
- Anti-bullying Pantomime Competition
- Anti-bullying Poetry Competition
- School exhibition of anti-bullying posters, slogans and bulletin boards
- Create an anti-bullying song
- Parent's Competition about the SiseVe platform
- Anti-bullying Slogan Competition