Stop Bullying: A Randomized Intervention In Peru

Preliminary Results
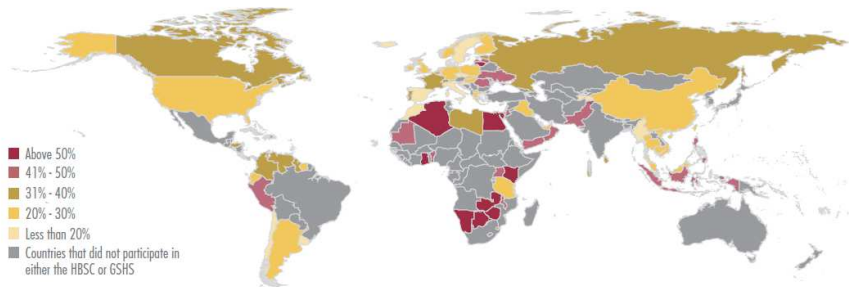
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Bullying is a problem worldwide, experienced by a large proportion of teens in many countries

Figure: Percentage of adolescents aged 13 to 15 years who reported being bullied at least once in the past couple of months, by country
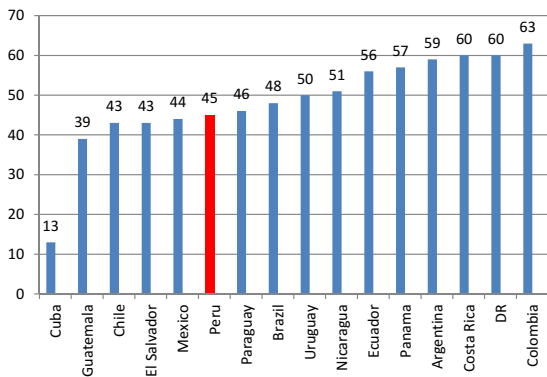

Source: Unicef. Hidden in plain sight: A statistical analysis of violence against children. eSocialSciences, 2015

- More than 1 in 3 students between the ages of 13 and 15 worldwide experience bullying on a regular basis

How does Peru compare?

Figure: Percentage of sixth-grade students who reported having suffered some type of bullying in the past month

Peru: Robbed (45%); Insulted or Threatened (34%); Physically bullied (19%)

Other sources suggest a much larger problem

- Peruvian National Survey on Social Relations (ENARES, 2015): 75.3 % of children and 75.7 % of adolescents have experienced psychological or physical violence at school at least once.

- Cardenas et al. (2011): 66.7 % of LGBT students have experienced homophobic bullying at school in Lima and Callao.

- PROMSEX (2016): 7 out of 10 students had felt insecure at school because of their sexual orientation and 3 out of 10 students had felt too insecure (1-5 times in the previous month) to attend school.

Our survey indicates that 71% of students experience bullying

During the last month, how many times have you been ... at school?

% Students: Once or more than once

- Teased — 35.6%
- Hit — 12.6%
- Broke something from your belongings — 20%
- Robbed — 31.8%
- Threatened — 15.3%
- Insulted — 41.8%
- Cyberbullied — 16.7%
- Made fun of you — 28.9%
- Any — 71.3%
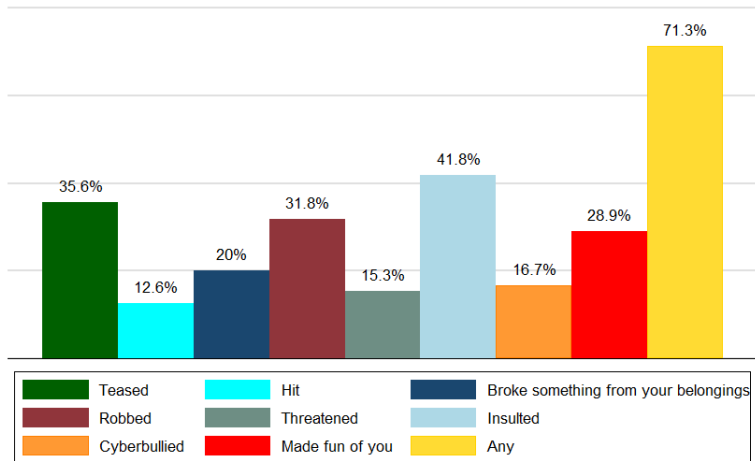
Physical appearance is the most common reason given by victims of bullying

Why do you get bullied in school? %
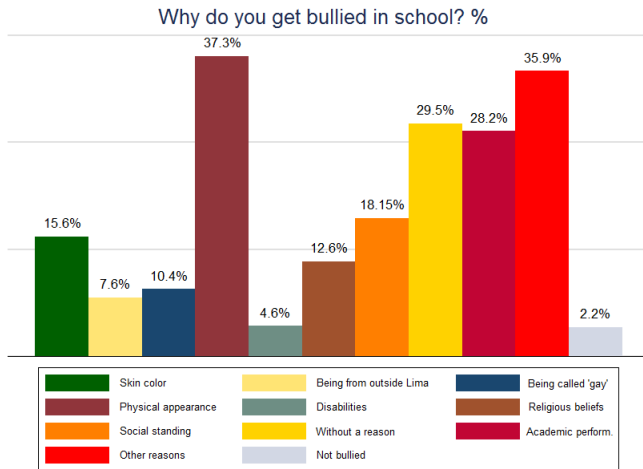
- Other studies have also found that looks and body shape are the most common reasons for bullying (Davis & Nixon, 2010).

Everyone loses with Bullying

Table: The Effects of Bullying

Victim	**Bully**	**Bystander / Witness**
- Loss of an interest in schoolwork - Poor attendance. - Lower grades. - Limited social contact with peers - Depression, irritability, unhappiness, outbursts of anger. - Report headaches, stomach pains, poor appetite, loss of sleep. - Physical harm. - Loss of personal property	- Lower grades - Anti-social behaviors, including use of drugs, alcohol and tobacco, and engaging in vandalism. - Be truant from school. - Drop out of school. - Oppositional behavior and defiance directed at adults, including adult authority figures. - More likely to be convicted of criminal behavior in a court of law.	- Feelings of anger and helplessness for not knowing what to do. - Nightmares about being the next target. - Guilt for not taking action. - Fear of certain areas in school.

Bullying can have long-lasting effects

- Sarzosa (2015): Being bullied at age 14 depletes non-cognitive skills by 14 % of a standard deviation.

  - This depletion in non-cognitive skills increases the probability of being bullied again at age 15 by 25%.

  - Therefore bullying triggers a self-reinforcing mechanism that opens an ever-growing skill gap that reaches about one standard deviation by age 16.

  - Effects are larger for individuals with initial low non-cognitive skills (who are also more likely to be bullied)

- Sarzosa and Urzúa (2015): being bullied at age 15 increases probability of feeling sick, depressed, stressed, and unsatisfied with life at age 18. It also reduces college enrollment and increases dislike of school.

- Inadequate skill accumulation during childhood can have irreversible consequences for adults in terms of schooling, earnings, and crime (Heckman and Rubinstein, 2001; Heckman et al., 2000; and others)

- Brown and Taylor (2008), Eriksen et al. (2014), Le et al. (2005), and Drydakis (2014) find that school violence has a negative impact on academic performance, productivity and labor market outcomes.

Our Contribution

- Experimental evidence is scarce in the literature regarding what works in reducing bullying/ school violence.

  - We find a promising intervention for improving the school climate and children satisfaction in schools.

- Looking ahead: the majority of studies regarding bullying are correlational (and in disciplines other than economics). We should be able to test the causal short-term and (hopefully) medium and long term effects of a reduction in bullying.

The rest of this presentation

The Intervention

33 Treatment Schools & 33 Control Schools Were Randomly Selected

Legend
- Treatment
- Control

Lima

Why Schools?

- The majority (80%) of bullying happens in the classroom/school (ENARES, 2015)

Sampling Criteria:

- Public Secondary School (1st & 2nd grade Secondary School)

- Located in Urban Areas.

- Equipped with computers with connection to Internet

- Not participating in other programs by MoE.

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

Characteristics between groups are relatively well-balanced

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	16.387	15.451	0.936	0.559
# sections	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	1.9	-0.114	0.37
% 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

Characteristics	Treatment	Control	Difference	P-value
Female	0.539	0.387	0.152	0.069*
Age in years	13.16	13.13	0.021	0.645
More than 2 years older (age-for-grade)	0.038	0.038	-0.001	0.922
Lives: Most of the time with the mother	0.874	0.881	-0.008	0.443
Lives: Most of the time with the father	0.619	0.648	-0.03	0.148
# Siblings	2.747	2.651	0.096	0.316
Bad Health status	0.015	0.012	0.003	0.259
Special health need or disability	0.05	0.055	-0.004	0.471
% With water supply	0.889	0.921	-0.032	0.062*
% With electricity supply	0.981	0.986	-0.005	0.073*
% Has a bathroom at house	0.944	0.95	-0.006	0.602
% Dirt floor at home	0.146	0.108	0.038	0.12
% Use internet	0.721	0.732	-0.011	0.749
% With internet at home	0.431	0.462	-0.031	0.481
% Lack of access to any basic service or dirt floor	0.251	0.199	0.052	0.064*
Access to basic services	0.162	0.128	0.033	0.115
Separated parents	0.423	0.387	0.036	0.11
Violence at home	0.431	0.421	0.011	0.394

The intervention package had two components

1. Activities to increase awareness about the negative consequences of bullying. Examples:

   - Information workshops about bullying
   - Interactive activities (classroom wall displays, crafting signs and role-playing games)
   - Development and delivery of informative material about school violence

2. Activities to increase awareness about the SiSeVe platform as an opportunity to speak out / act against school violence. Examples:

   - Training teachers, students, and parents on how to use the SiseVe platform
   - Launching an awareness campaign to increase students, teachers, and parents knowledge about SiseVe.

The SiSeVe Online Platform

- SiseVe is an online platform (Ministry of Education, MoE) that facilitates the report of school violence.

- Victims or witnesses of violence (students, friends, teachers, parents, friends) can confidentially 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 platform also includes relevant information on the resources available in the community to protect children and adolescents from any kind of violence.

SiSeVe Stats

The Intervention Objective

- Both components of the intervention aimed at encouraging students to "speak out" (reporting incidences) and "act out" (discouraging bullies, helping victims) against bullying.

- This is important because evidence indicates that:
  - 64% of children who were bullied did not report it (Petrosina, Guckenburg, DeVoe, & Hanson, 2010).
  - More than half of bullying situations (57%) stop when a peer intervenes on behalf of the student being bullied (Hawkins, Pepler, & Craig, 2001).

Intervention Timeline
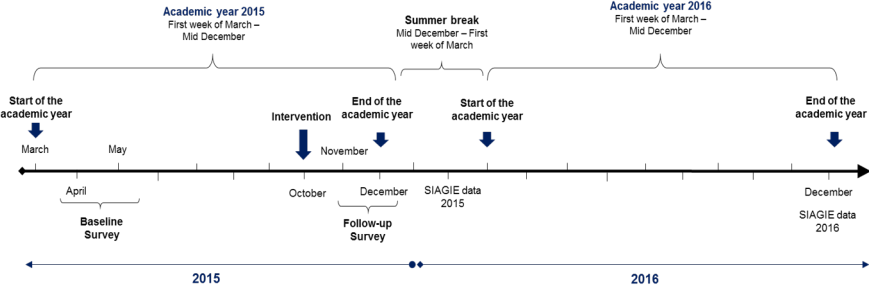
Data Sources

Student Surveys (Baseline & Endline)

- Collects basic student characteristics

  - Gender, age, mother tongue, disability, self-reported health status, household composition, and socioeconomic household characteristics.

- Collects detailed information that allowed us to create indexes measuring (question items based on prior studies) `More Details`

  - Depression
  - Loneliness
  - Bullying victimization and perpetration
  - Bystander behavior
  - Report / seeking help
  - General school climate perception
  - Attitudes toward violence
  - Violence at home
  - Learning expectations.

- Asks students to nominate three of their peers who were victims of bullying in the last month; and three of their peers who were bullies in the last month. `More Details`

Two Additional Administrative Data Sources

- Information on school enrollment (SIAGIE), for 2015 and 2016.

    - We used it to measure school dropouts (defined as not being enrolled in any educational institution)

- Number on reports entered on SiSeVe, aggregated at the school-level

All outcomes are well-balance between groups

Outcomes	Treatment	Control	Difference	P-value
Depression	8.701	8.492	0.209	0.185
Isolation	4.438	4.403	0.035	0.496
School climate	11.52	11.52	0.000	0.999
Report of violence incidents	10.88	10.97	-0.090	0.709
Learning expectations	4.929	5.002	-0.073	0.475
Violence at home	0.858	0.805	0.053	0.150
Attitudes toward violence	5.344	5.313	0.031	0.907
Bullying victimization	2.588	2.917	-0.329	0.195
Bullying perpetration	1.055	1.217	-0.162	0.201
Bystander behavior	2.191	2.172	0.019	0.757
School dropout	0.029	0.029	0.000	0.985

Preliminary Findings

Effect on Constructed Indexes

We estimate the following regression:

$$Y_{ijt} = \alpha_0 + \alpha_1 T_j + \alpha_2 Time_t + \alpha_3 T_j * Time_t + \alpha_4 X_i + \alpha_5 Z_j + \varphi_i + \varepsilon_{ijt}$$

Where:

- i indexes students, j indexes schools, and t indexes time.

- Y_{ijt} are the constructed indexes

- T_j equals 1 if the student is at a treated school and equals 0 otherwise

- $Time_t$ equals 0 for the baseline (prior to the intervention) and 1 for follow-up (after the intervention)

- X_i and Z_j are controls at the student and at the school level, respectively.

- φ_i are student-level fixed effects

- ε_{ijt} is the estimation error (standard errors are clustered at the school level)

We find strong effects on increasing the willingness to reporting/look for help and on reducing bystander behavior

Index	Effect (α_3)	Size effect ($\frac{\alpha_3}{\sigma}$)	N
Report/seeking help	0.449***	0.119	34,094
	(0.116)		
Bystander behavior	-0.130**	-0.088	33,663
	(0.053)		
School climate	-0.179	-0.028	32,068
	(0.387)		
Attitudes towards violence	-0.035	-0.007	33,526
	(0.242)		

- Regarding the attitudes towards violence index, we find a 4 percentage points significant increase in the probability that students agree with other students reporting violent incidents to teachers.

We find an effect on the depression index

Index	Effect (α_3)	Size effect ($\frac{\alpha_3}{\sigma}$)	N
Depression Index	-0.190*	-0.047	30,680
	(0.114)		
P(Depression Index>10)	-0.022*	-1.688	30,680
	(0.013)		
Loneliness Index	-0.022	-0.017	34,272
	(0.034)		
P(Loneliness Index=9)	-0.000	-0.056	34,272
	(0.002)		

- 28% of students had Depression Index >10, which is symptomatic of potential clinical depression
  - Looking at individual items, we found a 5 percentage-points statistically-significant reduction in probability of reporting "*I felt scared*" (mean value 39%).
- 1% of students had Loneliness Index=9, i.e. severe loneliness.

Improvements on other outcomes, but not statistically significant

Index	Effect (α_3)	Size effect ($\frac{\alpha_3}{\sigma}$)	N
Bullying victimization	-0.056 (0.128)	-0.438	32,942
Bullying perpetration	-0.050 (0.074)	-0.679	33,802
Learning expectations	0.073 (0.082)	0.031	34,799
Violence at home	-0.020 (0.042)	-0.014	34,747

Following a similar approach, we also looked at changes in peer nomination outcomes

	Bully		Victim	
	Peer Nomination Index	Any Peer Nomination	Peer Nomination Index	Any Peer Nomination
Treatment Effect	-0.186** (0.103)	-0.004* (0.008)	-0.032 (0.018)	-0.009 (0.006)
N	38,570	38,570	38,570	38,570

Administrative data supports findings in self-reported outcomes

Figure: Number of reports in the SiSeVe System
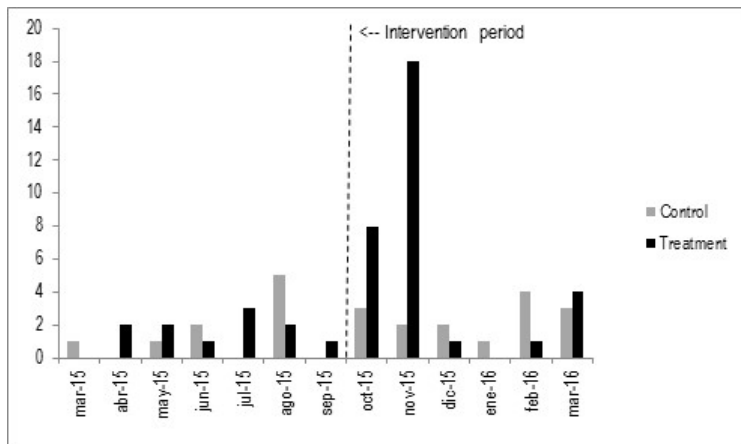
We also estimate the effect of the intervention on school dropout

We estimate the following regression:

$$D_{ij} = \beta_0 + \beta_1 T_j + \beta_2 X_i + \beta_3 Z_j + \gamma_j + \varepsilon_{ij}$$

- i indexes students, j indexes schools.

- D_{ij} is an indicator variable that equals one if the students drops out from school in 2016 and equals zero otherwise.

- γ_j are FE at the region (departamento) level.

- The other variables are defined as before.

- Standard errors are clustered at the school level.

We found that the intervention reduced dropout rates

	Effect (β_1)	Size effect ($\frac{\beta_1}{\sigma}$)	N
Treatment	-0.008**	-0.046	16,300
	(0.004)		

- Note: Mean dropout rate in the sample: 2.9%

Heterogeneity analysis: We found important differences by whether students are exposed to violence at home

Index	Gender		Poor?		Violence at home?	
	Men	Women	No	Yes	No	Yes
Depression	-0.266*	-0.143	-0.202	-0.104	-0.349***	0.055
	(0.147)	(0.161)	(0.131)	(0.192)	(0.106)	(0.180)
Isolation	-0.033	-0.032	-0.023	-0.019	-0.050	0.018
	(0.042)	(0.045)	(0.035)	(0.061)	(0.041)	(0.050)
School climate	0.146	-0.636	-0.079	-0.382	-0.231	-0.034
	(0.484)	(0.397)	(0.397)	(0.440)	(0.376)	(0.454)
Attitudes towards violence	-0.043	-0.099	0.037	-0.321	-0.190	0.165
	(0.314)	(0.276)	(0.261)	(0.247)	(0.235)	(0.285)
Report of violence incidents	0.317**	0.482***	0.400***	0.400	0.504***	0.286**
	(0.151)	(0.147)	(0.110)	(0.244)	(0.158)	(0.117)
Bystander behavior	-0.126**	-0.113	-0.121**	-0.161*	-0.183***	-0.057
	(0.060)	(0.069)	(0.055)	(0.090)	(0.051)	(0.067)

Heterogeneity analysis: We found important differences by whether students are exposed to violence at home

Index	Gender		Poor?		Violence at home?	
	Men	Women	No	Yes	No	Yes
Learning Expectations	0.088	0.037	0.083	0.039	0.142	-0.003
	(0.102)	(0.096)	(0.089)	(0.107)	(0.090)	(0.095)
Bullying victimization	-0.014	-0.149	-0.064	-0.030	-0.141	0.076
	(0.183)	(0.110)	(0.118)	(0.201)	(0.103)	(0.181)
Bullying perpetration	0.003	-0.122	-0.051	-0.058	-0.097	0.007
	(0.088)	(0.080)	(0.077)	(0.083)	(0.069)	(0.092)
Violence at home	-0.041	-0.024	-0.018	-0.009	-0.040	0.037
	(0.048)	(0.055)	(0.042)	(0.063)	(0.037)	(0.072)
Dropout	-0.007	-0.009**	-0.006	-0.013	-0.007	-0.009*
	(0.005)	(0.004)	(0.004)	(0.008)	(0.005)	(0.005)

Summary

- Using an experimental design, we evaluate the effects of an anti-bullying intervention, which combines information about an online tool to report cases of bullying and activities to increase awareness about the negative consequences of bullying

  ▸ Outcomes analyzed: emotional well-being, perception about the school environment, attitude towards violence and school dropout.

- Our preliminary results are encouraging. The intervention had a statistically significant impact in

  ▸ Reducing students support for bullying
  ▸ Their willingness to report violent incidents,
  ▸ Reducing depression (at 10% significance level).
  ▸ Reducing dropout in the next school year

- Thus, the intervention design is a promising model for improving school climate and student outcomes.

Next Steps (we welcome your suggestions!)

- We want to analyze more the heterogeneity in effects, specially identifying students who are more "at risk" (low grades, violence at home, etc).

- We haven't analyzed much the peer nomination data.

- We are planning to investigate the effect on other "hard" outcomes:

  - 2015 and 2016 Grades

  - 2016 ECE

  - 2015 and 2016 School attendance and absence

  - 2017 enrollment

- We want to do a follow up experiment with more treatment arms that allows to identify the effects of each treatment component separately, and also study other outcomes (e.g. non-cognitive skills).

Thank you

SiSeVe Statistics

Total de Casos Reportados 11,298

Privado (1,490) / Pública (9,808): 13 % / 87 %

Adultos a Escolares (4,602) / Entre Escolares (6,696): 41 % / 59 %

Hombres (5,845) / Mujeres (5,453): 48 % / 52 %

Inicial (710) / Primaria (4,168) / Secundaria (6,415) / No precisa (5): 0 % / 6 % / 37 % / 57 %
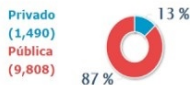
Tipos de Violencia

Verbal	5,594	Física 6,250
Psicológica	4,238	Con armas 91
Por internet/Celular	437	Sexual 1,435
Hurto	228	

Un caso puede registrar varios tipos de violencia.

SiSeVe Statistics

Amazonas
Privada 0
Pública 195
Total 195

Loreto
Privada 12
Pública 156
Total 168

Tumbes
Privada 9
Pública 67
Total 76

San Martín
Privada 3
Pública 308
Total 311

Piura
Privada 67
Pública 761
Total 828

Ucayali
Privada 12
Pública 183
Total 195

Lambayeque
Privada 65
Pública 290
Total 355

Huanuco
Privada 10
Pública 336
Total 346

Cajamarca
Privada 11
Pública 244
Total 255

La Libertad
Privada 38
Pública 424
Total 462

Junín
Privada 74
Pública 544
Total 618

Ancash
Privada 34
Pública 439
Total 473

Cerro de Pasco
Privada 11
Pública 82
Total 93

Cusco
Privada 35
Pública 333
Total 368

Madre de Dios
Privada 5
Pública 58
Total 63

Lima Provincias
Privada 19
Pública 267
Total 286

Puno
Privada 36
Pública 356
Total 392

Huancavelica
Privada 1
Pública 178
Total 179

Ica
Privada 33
Pública 170
Total 203

Apurímac
Privada 1
Pública 102
Total 103

Lima Metropilitana
Privada 821
Pública 3298
Total 4119

Ayacucho
Privada
Pública 231
Total 231

Callao
Privada 72
Pública 196
Total 268

Arequipa
Privada 84
Pública 362
Total 446

Moquegua
Privada 3
Pública 49
Total 52

Tacna
Privada 27
Pública 179
Total 206

Indexes are calculated by adding scores in each item

Indicators	Questions or statements	Scale
Depression	1. I have been bothered by things that didn't use to	0-3
	2. I have trouble concentrating on a specific subject	0-3
	3. I felt depressed	0-3
	4. Everything takes a lot of effort	0-3
	5. I felt optimist about the future	0-3
	6. I felt scare	0-3
	7. I couldn't sleep well	0-3
	8. I was happy	0-3
	9. I felt lonely	0-3
	10. I didn't feel like doing anything	0-3
Loneliness	1. How frequent did you feel left out	1-3
	2. How frequent did you feel isolated from others	1-3
	3. How frequent did you feel that you lack companionship?	1-3

- Depression Index > 10 is symptomatic of depression;
- Loneliness index = 9 is symptomatic of severe loneliness.

Indicators	Questions or statements	Scale
	1. In my school teachers and students respect each other	0-4
	2. I enjoy being at school	0-4
	3. Students at school get involved in fights	0-4
	4. Students at school stole things from other students	0-4
	5. In my school, students treat other students	0-4
	6. Students at school carry weapons	0-4
School climate	7. In my school, adults get involved when they witness violence acts	0-4
	8. My teachers treat me with respect	0-4
	9. Even when breaking the rules, students are treated fairly	0-4
	10. I didn't go to school because I was afraid of being hurt at school	0-4
	11. Walking to school or home, I feel afraid that someone would hurt me	0-4
	12. Students are members of gangs	0-4
	13. Crime and violence are affecting my school	0-4

Indicators	Questions or statements	Scale
Report/ Seeking help	1. There are people at school who I can talk to when I have problems	0-4
	2. If I tell a teacher that other students are bothering me, he would help me	0-4
	3. If any student say something about hurting another student, I would tell a teacher	0-4
	4. If any student bring a gun to school, I would tell a teacher	0-4
Attitude Towards Violence	1. Do you agree with . . . Students bother other students in front of everybody	0-4
	2. Do you agree with . . . Students bother other students through social media	0-4
	3. Do you agree with . . . Students hit, push or kick other students	0-4
	4. Do you agree with . . . Students enjoy watching how other students hit their peers	0-4
	5. Do you agree with . . . Students do nothing when they witness in-school violence	0-4
	6. Do you agree with . . . Students report violence acts to teachers	0-4

Indicators	Questions or statements	Scale
Bullying victimization	1. One or more students beaten you at school without any reason	0-2
	2. One or more students bit you , punch you or kick you at school	0-2
	3. Someone broke your things on purpose	0-2
	4. Someone stole your things on purpose	0-2
	5. One or more students threatened with beating you	0-2
	6. One or more students insulted you (verbal aggression)	0-2
	7. Someone made fun of you though social media	0-2
	8. One or more students made fun of you at school	0-2
	9. A teacher hit you using an object	0-2
	10. A teacher threatened to hurt or hit you	0-2
	11. A teacher insulted you at school	0-2
Bullying perpetration	1. I threatened another student	0-2
	2. I made fun of another students through social media	0-2
	3. I insulted another student	0-2
	4. I started a fight with another student	0-2
	5. A teacher hit another student using an object	0-2
	6. A teacher insulted another student	0-2

Indicators	Questions or statements	Scale
Bystander behavior	1. I celebrated when someone was being beaten by other students	0-2
	2. I celebrated when someone was being push by other students	0-2
	3. I tried to help a student that was being bullied	0-2
	4. I told an adult that a student was being bullied at school	0-2
Learning expectations	1. Do you think that your learning process will improve if . . . there were less school violence incidents at school	0-4
	2. Do you think that your learning process will improve if . . . teachers can help prevent in-school violence	0-4
Violence at home	1. Sometimes your mom (or dad) had been hit by you dad (or mom) or her/his partner	0-4
	2. Sometimes your parents beat you or your siblings	0-4
	3. Your parents tend to insult you or your sibling or they tell you things that make you feel bad	0-4
	4. There is always someone at home that is fighting to other member of your family	0-4

Indexes Reliability

Index	# questions	Cronbach's Alpha	Reliability
Depression	10	0.84	High
Loneliness	3	0.72	Acceptable
School climate	13	0.81	High
Report/Seeking Help	4	0.68	Acceptable
Learning expectations	2	0.57	Poor
Violence at home	4	0.75	Acceptable
Attitudes towards violence	6	0.83	High
Bullying victimization and perpetration	17	0.96	High
Bystander behavior	4	0.84	High

Peer Nomination: Victims of Bullying

Nombre de Estudiante	Estudiante 1	Estudiante 2	Estudiante 3
Lo jalonearon o empujaron solo para molestarlo			
Uno o varios estudiantes le dieron puñetazos o patadas			
Uno o varios estudiantes le rompieron alguna pertenencia			
Uno o varios estudiantes robaron algunas de sus cosas			
Uno o varios amenazaron con lastimarlo o pegarle			
Uno o varios estudiantes le insultaron o pusieron apodos			
Uno o varios estudiantes se burlaron de él por medio electrónico (correo electrónico, mensaje de texto, Facebook, etc.)			

Peer Nomination: Bullies

Nombre de Estudiante	Estudiante 1	Estudiante 2	Estudiante 3
Es cruel con otros estudiantes			
Suele jalonear o empujar a otros estudiantes			
Suele pelearse con otros estudiantes			
Rompe las pertenencias de otros compañeros			
Roba pertenencias de sus compañeros			
Insulta o pone apodos a sus compañeros			
Se burla de sus compañeros por medio electrónico			