WORKING PAPER Nº IDB-WP-1702

Cognitive Behavioral Therapy for Gender-based Violence Prevention:

Evidence from a Randomized Trial in Mexico

Beatriz Magaloni-Kerpel
Sofía Marinkovic Dal Poggetto
Tommy E. Murphy
Florencia Pucci
Beatriz Serra Fernández

Inter-American Development Bank
Gender and Diversity Division

May 2025

Cognitive Behavioral Therapy for Gender-based Violence Prevention:

Evidence from a Randomized Trial in Mexico

Beatriz Magaloni-Kerpel*
Sofía Marinkovic Dal Poggetto**
Tommy E. Murphy**
Florencia Pucci***
Beatriz Serra Fernández****

* Stanford University
** Universidad de San Andrés and REDDES
*** University of Wisconsin-Madison & REDDES
**** REDDES

Inter-American Development Bank
Gender and Diversity Division

May 2025

Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

Cognitive behavioral therapy for gender-based violence prevention: evidence from a randomized trial in Mexico / Beatriz Magaloni-Kerpel, Sofía Marinkovic Dal Poggetto, Tommy E. Murphy, Florencia Pucci, Beatriz Serra Fernández.
p. cm. — (IDB Working Paper Series ; 1702)
Includes bibliographical references.
1. Gender-based violence-Mexico-Prevention. 2. Violence-Prevention-Mexico. 3. Cognitive therapy-Mexico. I. Magaloni, Beatriz. II. Marinkovic Dal Poggetto, Sofía. III. Murphy, Tommy E. IV. Pucci, Florencia. V. Serra Fernández, Beatriz. VI. Inter-American Development Bank. Gender and Diversity Division. VII. Series.
IDB-WP-1702

http://www.iadb.org

Abstract[*]

Cognitive behavioral therapy (CBT) has become a powerful and effective tool to deal with violence in many at-risk areas in the world. However, its use for gender-based violence (GBV) and dating violence, although promising, has been limited and used as a response service for survivors, rather than for prevention. To understand to what extent such interventions can help provide tools and skills to young people in their impressionable years to produce behavioral changes that prevent GBV, we carried out such an intervention among high school students in the municipality of Ecatepec in Mexico. We assessed the intervention with a randomized control trial. We introduce the novelty of collecting objective measures from automated neuropsychological tests to explore whether CBT might be functioning through the development of subjects' executive functions. Results from this intervention fail to show any clear change in self-reported violence. They do show, however, impacts on executive functions related to violence, such as emotional recognition and inhibitory control skills.

JEL classifications: J16, I31, Z18, H43
Keywords: Gender-based violence, Violence prevention, Cognitive-behavioral therapy (CBT), Executive functions, Mexico

[*] This project was conducted by the Mexican NGO Redes Sociales para el Desarrollo A.C. (REDDES) in collaboration with the Poverty, Governance, and Violence Laboratory (PovGov) at Stanford University. We are grateful for the funding provided by the Gender and Diversity Knowledge Initiative (GDLab) and the Citizen Security Division of the Inter-American Development Bank. We also deeply appreciate the valuable feedback from Andrés Moya and Amber Peterman, both advisers at GDLab. Our thanks extend to Araceli Sanz Martin at the Institute of Neuro-sciences at the University of Guadalajara for her guidance on neuropsychological tests, and to Eduardo Verduzco García Ruiz for his support in developing the interface to automate these tests on mobile devices. Additionally, we acknowledge the contribution of Enrique Ariza Moedano at the Centro Integral de Educación y Salud, who played a key role in implementing the intervention in Ecatepec de Morelos.

1. Introduction

Rates of gender-based violence (GBV) in Mexico are alarmingly high. According to INEGI (2021), in 2021 roughly 70 percent of women (15-year-old or older) had experienced a violent situation at least once in their lifetime. Although gender violence is observed in many public and private spheres, one of its most pervasive manifestations takes place in intimate partner relationships. The patterns of interaction that occur in these relationships are learned and consolidated from an early age in dating relationships. The National Survey on Dating Violence (ENVINOV 2008) shows that dating violence is a social problem in Mexico, indicating that 76 percent of young people of both sexes between the ages of 15 and 24 who are in a dating relationship have suffered emotional violence (insults, humiliation, threats), 15 percent have suffered physical violence, and 16.5 percent sexual violence. Several studies show that dating violence is bidirectional (Straus, 2004; O'Leary & Smith-Slep, 2003; Rey-Anacona, 2013), with men reporting greater victimization and women greater perpetration (Cortés-Ayala et al., 2015). However, the most severe physical aggressions are from men to women (O'Leary et al., 2008).

Therefore, it is of utmost importance to develop actions that can help prevent these harmful dynamics in relationships from the beginning during the dating period in adolescence. For this, it is necessary to recognize that behind violent actions in relationships, there are different drivers that somewhat operate interdependently at different levels. At an individual level, those drivers are lack of self-esteem, anxiety and depression, substance abuse and/or impulsivity, and lack of self-control and/or emotional regulation. At a community level, factors such as social isolation, lack of support, or weak law enforcement usually contribute. Finally, at a societal level, gender norms and roles may encourage male dominance and control over women. Because of this multifaceted nature of GBV, interventions that work at different levels are more likely to be effective.

Cognitive behavioral therapy (CBT) is one such intervention. It can promote understanding and regulation of emotions associated with situations where gender beliefs are involved. Furthermore, it encourages critical analysis of thought distortions associated with gender stereotypes and norms. It also trains people in the use of skills and tools for self-control and self-regulation, practicing alternative behaviors and violence-free relationships. There is now substantial evidence that CBT group-based interventions are effective in addressing violence, crime and recidivism reduction among young people at-risk (Heller et al. 2017; Blattman et al., 2017, 2022). Nevertheless,

CBT interventions aimed at addressing GBV have predominantly been reactive, focusing on survivors (Archer 2000; Babcock *et al*. 2004; Feder & Wilson 2008), and their effectiveness in low- and middle-income countries has been infrequently assessed (Gupta et al. 2017). In terms of their results, these studies fail to be entirely satisfactory in different dimensions, most notably, they rarely explore the mechanisms through which CBT contributes to prevent GBV. One plausible mechanism involves what are known in the literature as "executive functions" (Barkley 2012), those that are required to maintain an appropriate problem-solving set for attainment of a future goal. Some studies suggest, for example, that aggressive individuals lack elements of these functions, such as cognitive flexibility or inhibition (Burgess 2020).

This project assessed whether an intervention based on CBT is capable of changing gender attitudes and behaviors in teenagers in an area of Mexico with high prevalence of GBV. Briefly, we ask whether CBT can contribute to prevent GBV and whether the therapy might be affecting executive functions. Furthermore, our experimental design allows us to address if the intervention generates spillovers in subjects not directly treated, which would facilitate scalability.

2. Related Literature

2.1 CBT-based Interventions

CBT is a type of psychotherapy that focuses on the relationship between thoughts, emotions, and behaviors. It posits that our thoughts, beliefs, and attitudes influence how we feel and behave in certain situations. CBT considers the situations or events that trigger a person's emotional and behavioral responses. These can include external factors such as stressful events, social interactions, or life transitions and postulates that a person's thoughts and beliefs about a situation can influence their emotional and behavioral responses. If a man, for example, believes he should be more intelligent than any woman, because men are superior to women, in a situation where she performs better, he may feel threatened by the woman's intelligence, he may think he is incompetent or worthless, may feel anxious or depressed about it, or frustrated and angry, and can act violently against her.

CBT-based interventions have shown to be effective tools for violence reduction and prevention (Heller et al., 2017; Blattman et al., 2017, 2022). Although there have been many CBT group interventions, none has addressed GBV and dating violence prevention in older adolescent (high school) ages. Interventions have only been reactive for GBV (Murphy et al., 2020; Berg

Nesset et al., 2021; Romero-Martínez et al., 2016, 2021), although experts have pointed out its potential as a prevention tool (Crooks et al., 2007). This could be particularly important if carried out in adolescents or young adults if we consider the long tradition in social psychology (e.g., Mannheim, 1952; Krosnick & Awin, 1989) that suggests older adolescents and young adults (up to circa 25 years) are in their "impressionable years"; beliefs and attitudes in that age range are particularly malleable and hence can have long-term impacts.

2.2 The Executive Functions Connection

CBT programs like the one we implemented aim to influence and reduce violent behavior by the identification and challenging of negative sexist thoughts and beliefs, developing empathy and respect for others, working on emotional awareness and regulation, building communication and conflict resolution skills, and practicing non-violent behaviors, using anger management techniques, and coping skills to manage difficult emotions. Therefore, the mechanisms through which it is believed the intervention may be effective for violence prevention are through sexist beliefs changes (cognitive restructuring) and through the acquisition of several cognitive skills for behavior regulation.

It is well established that poor executive functions correlate with increased violence and aggression (Broomhall, 2005). There are a variety of definitions of executive functions, each highlighting different aspects of them (Barkley, 2012: 4), but most scholars would agree that they are neuropsychological functions involving the ability to maintain an appropriate problem-solving set for attainment of a future goal (Welsh & Pennington, 1988: 201-202), and include qualities such as working memory, processing speed, inhibition, and cognitive flexibility. The review by Burgess (2020) suggests that aggressive individuals lack cognitive flexibility and inhibition. Interventions involving skills training and behavior modification (i.e., practicing skills that help to delay gratification, improving verbal skills to deescalate situations, reasoning through future consequences, and inhibiting impulses) may be able to help those who are at a higher risk for future violence or aggression.

The question is whether it is possible to exercise an improvement in this type of skills and executive functions through a group intervention. There are already a few examples of interventions for violence reduction showing successful results in executive functions modification. For

example, the *Contexto* Program is a community-based intervention, run at the Universidad de Valencia, based on the ecological model framework that aims to reduce risk factors and increase protective factors for intimate partner violence offenders, promoting the change of beliefs and attitudes that maintain gender violence, offering alternatives to the men who participate in the program, with the aim that they can establish healthy couple relationships based on respect and free of violence. The evaluation of potential neuropsychological changes (emotional decoding, perspective taking, emotional empathy and cognitive flexibility) due to this program showed that increases were observed in cognitive empathy (emotional decoding and perspective taking) and in cognitive flexibility (Romero-Martínez et al., 2016). Further research (Romero-Martínez et al., 2021) pointed out that when the program was complemented with specific cognitive training the intimate partner violence (IPV) perpetrators improved their processing speed and cognitive flexibility, and that these participants presented lower risk of recidivism after the intervention. In addition, Ron-Grajales et al. (2021) showed that mindfulness meditation training improved inhibitory control and, therefore, may have a positive effect on mitigating violent behavior in young offenders.

An effective way to evaluate the impact of the intervention on gender and dating violence prevention can be through the assessment of changes in sexist beliefs, as well as through changes in executive functions related to the control of violent responses.

2.3 Interventions in Schools

There are several randomized control trials (RCTs) done in schools where CBT therapy is given as a treatment but only a few center their attention to GBV. Olatunbosun (2022) uses a CBT intervention to reduce bullying, that might include gender-related issues but not as a main result. Miller et al. (2011) and Van Starrenburg et al. (2017) use CBT therapy in schools as a preventive intervention for child anxiety. In a similar direction, Manassis et al. (2010), studies the impact of CBT therapy in schools for anxious or depressive symptoms. There are some RCTs that focus on gender attitudes, hence not directly on GBV (yet they could have an impact on the prevention of GBV), but they use treatments other than CBT. Dhar et al. (2022), for example, evaluates an intervention based on gender equality discussions in the classroom that aimed to reduce the support for societal norms that restrict women's and girls' opportunities, and found that the program made attitudes

more supportive of gender equality by 0.18 s.d. Few RCTs focus on the intersection of CBT interventions and violence outcomes. Heller et al. (2013) study on Chicago is one of those, but it does not specifically focus on GBV but on general violence (44 percent reduction in violent-crime arrests) and school dropout (improving of schooling outcomes of 0.14 s.d. during the program year and 0.19 s.d. during the follow-up year). Similarly, Dinarte-Díaz & Egana del Sol (2023) evaluate a CBT-inspired after school program to enhance impulse control and conflict management on participants' violent behaviors in El Salvador, reporting a 0.25 s.d. reduction in the internal locus of control test for the treated group, suggesting children feel more in control of their lives.

2.4 Latin America and the Caribbean

When it comes to Latin America and the Caribbean, there is little evidence of school-based interventions using CBT to prevent GBV. In Chile, Obach et al. (2011) use a quasi-experimental design to examine the impact of a workshop for male adolescents to prevent violence and gender violence. The main difference from our intervention is that, while we provide the workshop to all students, this intervention was just for boys. For Brazil, Pulerwitz et al. (2006) use a workshop as an intervention to promote gender-equitable norms in teenagers. However, it is done outside schools using a quasi-experimental design and emphasizes HIV/AIDS prevention. Finally, there are other studies related to school-based interventions using CBT that focus on broader outcomes, such as Gaete et al. (2016), which uses CBT interventions to prevent suicide in schools in Chile (with inconclusive evidence of intervention impact).

3. Empirical Strategy

3.1 The Intervention

This work assesses a CBT-based intervention with an RCT. It consists of a gender and dating violence prevention CBT group workshop in high schools in the Mexican municipality of Ecatepec, which has been on gender alert since 2005 because of the high number of sexual crimes. The municipality is positioned fourth out of 2,458 municipalities in Mexico in terms of number of cases of GBV, and in thirteenth place with respect to femicides. In addition, Ecatepec ranks as the first municipality in other crimes such as extortion, vehicle theft and injuries, and fourteenth in manslaughter, which highlights the severe problem of violence in this municipality (INEGI, 2022).

The intervention consists of fourteen 50-minutes sessions in classrooms. The main workshop is done in less than 12 sessions, where the first and the last sessions are used to collect baseline and final outcomes. Since it is done in regular classrooms of random schools in the municipality of Ecatepec, this intervention targets *potential* perpetrators and victims. It also introduces the novelty of using objective measures from automated neuropsychological tests to explore whether the mechanism through which CBT could be working is via the development of executive functions of the subjects.

3.1.1 Workshop Content

The workshop was based on the successful Youth Guidance program "Becoming a man." The Mexican NGO REDDES adapted and implemented the "Becoming a man" curriculum for several years in different at risk of violence context in Mexico. More than 2,000 adolescents and young people have taken part in different versions of this workshop in schools and communities' contexts since 2018 in Nuevo León, Tijuana, and Estado de México. In 2023, in collaboration with Stanford University, the program was adapted for GBV prevention specifically. With all the learning obtained from previous experiences, a final curriculum named "*SENTIR, PENSAR, ACTUAR*" was designed that tries to influence the risk factors at the personal level identified in gender violent behaviors.

3.1.2 Conceptual Framework of the Program Design

The theory of change underlying "*SENTIR, PENSAR, ACTUAR*" comes from the work from the work of Eli Finkel. According to Finkel's I^3 Theory (Finkel, 2008; Finkel & Eckhardt, 2013; Slotter & Finkel, 2011), behavior is influenced by the interaction of three key forces: Instigation, Impellance, and Inhibition. In the context of violent behavior, the likelihood of such behavior occurring is heightened when instigation (exposure to stimuli that trigger violent tendencies) combines with impellance (situational or stable factors that drive violent actions, such as emotions, thoughts, and beliefs that support aggressive behavior), and when there is a deficiency in inhibition (lack of self-control). Therefore, interventions aimed at preventing violence may be more effective if they target the reduction of instigation and impellance, while simultaneously enhancing inhibition.

The program evaluated is based upon successful experiences in reducing violence among young perpetrators. These experiences primarily use elements of cognitive-behavioral therapy:

mindfulness, development of critical thinking, analysis of behavior outcomes, emotional recognition and regulation, problem-solving, goal setting (see Table 1 for the main intervention components and the initial intermediate, and final outcomes).

Table 1. Program Conceptual Framework

Intervention Components	Initial Outcomes	Intermediate Outcomes	Final Outcomes
1. **Mindfulness**: Teaching individuals to be present and aware of their thoughts, emotions, and bodily sensations without judgment. 2. **Emotional Recognition and Regulation**: Helping individuals identify and understand their emotions and providing strategies to manage them effectively. 3. **Thoughts and Beliefs Critical Review:** Encouraging individuals to examine and challenge negative or harmful thoughts and beliefs related to gender roles, power dynamics, and violence. 4. **Problem-Solving Skills**: Equipping individuals with practical skills to identify problems, generate potential solutions, and make informed decisions. 5. **Goal Setting**: Assisting individuals in setting realistic and meaningful goals related to personal growth, relationships, and behavior change.	• Increased awareness and understanding of gender-based violence and its underlying causes. • Enhanced emotional regulation and coping skills, leading to decreased reactivity and impulsivity in emotional situations. • Improved ability to critically evaluate and challenge harmful gender norms and beliefs. • Strengthened problem-solving skills, enabling individuals to address conflicts and challenges constructively. • Establishment of clear and achievable personal goals related to violence prevention and healthy relationships.	• Greater self-efficacy and confidence in one's ability to prevent and respond to gender-based violence. • Enhanced interpersonal skills, including effective communication and conflict resolution. • Increased empathy and understanding towards others, particularly those who have experienced or perpetuated violence. • Adoption of non-violent attitudes and behaviors, contributing to a culture of respect and equality within communities.	• Reduction in incidents of gender-based violence, including intimate partner violence, sexual assault, and harassment. • Improved safety and well-being for individuals and communities, with fewer instances of trauma and harm. • Promotion of gender equity and social justice, fostering environments where all individuals are valued and treated with dignity. • Long-term prevention of gender-based violence through sustained changes in attitudes, behaviors, and social norms.

From the perspective of the I^3 theory, the program's tools and strategies target mainly impellance and inhibition forces. For example, mindfulness activities cultivate an objective, non-judgmental awareness of internal and external realities, while techniques for emotional regulation aim to enhance impulse control and inhibitory functions. These efforts address the inhibition force. Additionally, activities focused on critically examining sexist beliefs and violent behavior patterns, as well as those aimed at improving emotional recognition, can prevent the misinterpretation of external stimuli, directly influencing the impellance forces. Goal setting and conflict resolution strategies offer alternative responses to violence. By internalizing new behaviors during the workshop, participants develop adaptive ways of responding to stimuli, thereby challenging violent tendencies acquired since childhood. This process increases the likelihood of selecting non-violent responses.

The workshop does not directly impact the instigation force, since this refers to the situations that students encounter in their daily lives. However, the potential changes in their behavior resulting from the workshop may alter the dynamics of their interactions, thus potentially affecting the broader school and social environment in which they operate.

The strategies employed to impact violence are implemented throughout the workshop. From the first session, and repeatedly in each of the 12 sessions, mindfulness exercises are practiced, wherein participants also learn to reduce their stress levels. In session 1, students begin to recognize their automatic modes of behavior and the possibilities they have to choose in many situations where they previously thought there was no choice. Session 2 focuses on observing, defining without judgment, and emotionally distancing oneself from experiences. In session 3, attention is given to internal dialogue, teaching students to be less critical of themselves and more objective in self-assessment, fostering a positive self-esteem. Starting from session 4, emotional recognition is addressed, with games designed to help participants recognize emotions in others and in themselves, expand emotional vocabulary, associate emotions with common situations, and break down the components of emotions (thoughts, physical sensations, and behaviors). These elements are further explored in subsequent sessions. Session 5 emphasizes the consequences of actions on oneself and others, reviewing the sequence of situation-thought-emotion-behavior, which forms the core of cognitive-behavioral therapy. From session 6 onward, emotional regulation techniques are introduced. In session 7, conflict resolution stages are practiced, applied to commonly encountered challenging situations as well as situations involving violence in general

and GBV in particular. Sessions 8 and 9 delve deeply into gender inequality, stereotypes, and GBV. This is approached from a cognitive-behavioral therapy perspective, linking situations that trigger thoughts and beliefs that in turn generate feelings and emotions leading to sexist and/or violent behaviors. Sessions 10 and 11 focus on nonviolent and assertive communication, while session 12 prompts participants to reflect on themselves and integrate the learned skills into a goal-setting plan with future projection.

3.1.3 Population Selection

Due to the high rates of gender violence in the State of Mexico, and the municipality of Ecatepec de Morelos in particular, this RCT was carried out in public high schools in this municipality, to evaluate the preventive nature of this type of interventions. First-year high school students were chosen as the target population to influence students as young as possible at a vital moment where they begin to have social experiences in a more autonomous way so that prevention can be more effective, in addition to helping to create a more lasting climate of peaceful coexistence in schools. Of the 47 public high schools in the municipality, 27 were selected to obtain a certain homogeneity in the number of students that make up the group. During the last semester of the previous school year, from February to June 2023, REDDES visited some of the 27 selected schools randomly, establishing alliances to carry out the intervention. Once the number of schools necessary to carry out the designed study was achieved, no other school was visited. All seven schools that were contacted agreed to participate in the intervention.

3.1.4 Selection and Training of Facilitators

Due to the size of the intervention, it was necessary to expand REDDES's team of specialized psychologists to teach the workshops. To this end, a call was issued for psychologists with specific training in cognitive behavioral therapy and experience working in the field with adolescents and young people.. A team was formed of 14 psychologists who received 20 hours of theoretical and practical training spread over three weekends delivered by a group of expert psychologists in cognitive behavioral therapy, adolescents and young people, and community interventions.

3.1.5 Implementation and Monitoring of the Workshop

Once the schools had defined their schedules, the different workshop groups were distributed among the psychologists and, after taking the baseline evaluation, the workshop sessions began to be taught once a week in the tutoring hour of each group. An attendance record was kept, and after each session the psychologists complete a log. A team of experts supervised some sessions in person to evaluate the performance of the facilitators and point out areas for improvement. The team of facilitators met once a week with expert psychologists to review the contents of the sessions and discuss possible difficulties and challenges to be addressed as soon as possible.

3.2 Workshop Evaluation

To evaluate the workshop, a series of analytical instruments related to each of the risk factors that the workshop aims to influence have been selected. These instruments are of two types: **self-reported questionnaires** and more objective measures coming from **automated neuropsychological tests.** Both questionnaires and tests included in the evaluation were digitalized versions of the original. They were developed by Pulbox inside the Salesforce SaaS platform and were exposed using a public Experience Site, which allowed participants to use any device such as desktop, tablet or mobile for seamlessly completing each evaluation steps. The Salesforce platform also allows for registering each participant's information and to analyze the results using out of the box reports and dashboards, which allows filtering by different criteria like age, gender, school, and classroom.

Table 2. Analytical Instruments for Workshop Evaluation

Risk factor associated with violent behavior	Intervention component to address risk factor	Analytical Instrument for risk factor assessment		Description
		Self-reported questionnaire	Automated neuropsychological test	
Sexist Beliefs	Critical Review of Thoughts & Beliefs	Brief Ambivalent Sexist Inventory (BASI)		12 items with two subscales: ***Hostile Sexism (HS)***: 6 items (Cronbach's α = .85) subscale to measure traditional sexism oriented toward the perception of inferiority of the other sex. ***Benevolent Sexism (BS)***: 6 items (Cronbach's α = .73) subscale to assess sexist attitudes with a positive affective tone that allows men to behave pro-socially, although it helps justify and maintain gender inequality.
Impulsivity	Mindfulness	State Impulsivity Scale (SIS)		20 items (Cronbach's α = .884) that assess impulsive behaviors and tendencies across three subscales: *Motor Impulsivity or* ***Automatism***: measures impulsive actions and behaviors, such as acting without thinking, being restless, or having difficulty sitting still. ***Attentional*** *Impulsivity*: assesses difficulties in maintaining focus and attention, including distractibility and difficulties with concentration. *Non-planning Impulsivity or* ***Gratification***: evaluates impulsive decision-making and lack of future planning or consideration of consequences.
			Emotional Stop Signal Test (ESST)	Participants must rapidly indicate the sex (man or woman) of serially presented images (112 in total) of human faces showing different emotions on the same number of occasions (joy, fear, anger, or neutral) by keypress, except on trials with a visual stop-signal (red frame). It assesses inhibitory response capacity by establishing the respondent's ability to respond correctly to the stimulus and their ability to inhibit their response when necessary. It is assessed by the proportion of successful trials.
Lack of emotional recognition/empathy	Emotional recognition skills		Reading the Mind in the Eyes Test (RMET)	Participants must choose out of the seven words of the primary emotions (joy, fear, disgust, anger, sadness, surprise, neutral) the one that describes how the person in each of the 42 sequentially presented pictures of the region of the eyes - including eyebrows and part of the nose - of men, women, and children (sex equally represented) is feeling. Higher scores indicate better ability to read and interpret emotions and mental states from the eyes.

Table 2., continued

Risk factor associated with violent behavior	Intervention component to address risk factor	Analytical Instrument for risk factor assessment		Description
		Self-reported questionnaire	Automated neuropsychological test	
Lack of emotional regulation	Emotional regulation skills	Emotional Regulation Questionnaire (ERQ-CA-9)		9 items (Cronbach's α = .830), that assess two main strategies of emotional regulation separately: ***Cognitive Reappraisal***: This strategy involves changing one's interpretation or perspective of a situation to alter the emotional response. It includes techniques such as reframing, finding silver linings, or focusing on positive aspects of a situation. ***Expressive Suppression***: This strategy involves inhibiting or suppressing the outward expression of emotions. It may include efforts to hide or conceal emotions from others.
			Emotional Stop Signal Test (ESST)	Participants must rapidly indicate the sex (man or woman) of serially presented images (112 in total) of human faces showing different emotions on the same number of occasions (joy, fear, anger, or neutral) by keypress, except on trials with a visual stop-signal (red frame). It assesses emotional regulation capacity by comparing how the emotion shown in the test affects the respondent's ability to act correctly to the stimulus and their ability to inhibit their response when necessary.
Lack of cognitive flexibility/Problem-Solving	Problem-Solving Skills	Interpersonal Conflict Resolution Scale (ICRS)		22 items (Cronbach's α = .810) structured around three factors for conflict resolution: ***Collaborative means*:** the tendency to use cooperative and constructive strategies in resolving conflicts (negotiation, open communication, finding solutions that satisfy all parties involved, teamwork and mutual problem-solving) ***Passive means:*** the inclination to avoid conflict or to give in to the demands of others. ***Aggressive means:*** the use of confrontational or forceful strategies in dealing with conflict (threats, manipulation, or assertive behavior to dominate or win the conflict, often disregarding the perspectives or needs of others)
			Wisconsin Card Sorting Test (WCST)	Participants are asked to match cards based on different criteria (such as color, shape, or number), but the matching rule changes periodically without warning. The participant must use feedback to adjust their strategy and discover the new rule. The test measures skills like problem-solving, adaptability, and the ability to learn from mistakes.

Table 2., continued

Risk factor associated with violent behavior	Intervention component to address risk factor	Analytical Instrument for risk factor assessment		Description
		Self-reported questionnaire	Automated neuropsychological test	
		Scale of Risk of Violence Assessment for Adolescents (SRVAA)		25 items (Cronbach's α = .836) structured around six factors: ***Negative Self-concept:*** evaluates the adolescent's self-perception, including feelings of worthlessness, low self-esteem, and negative attitudes towards oneself. ***Lack of Self-control:*** measures the adolescent's difficulty in managing impulses and emotions. ***Traits of Self-harm:*** assesses tendencies toward self-destructive behaviors, such as self-injury or suicidal thoughts. ***Proactive Violence:*** measures calculated, goal-directed violent behavior. ***Verbal Violence:*** evaluates the use of aggressive language, threats, or insults as a form of violence. ***Reactive Violence:*** measures violent behavior that occurs in response to perceived threats or provocations.
		Social Desirability Index (SDI)		13 item short form of the Marlowe-Crowne Social Desirability Scale (Cronbach's α = .764)

Table 2 summarizes the analytical instruments used to measure the impact on each of the risk factors targeted by the components of the intervention. For a more detailed description of each instrument, see Annex 1. Annex 2 includes all the self-reported questionnaires with all their items and the Likert scale for each, both in Spanish, the language in which they were applied during the intervention, and in English.

In addition to the instruments used to evaluate the factors targeted by the intervention, two additional self-report questionnaires were administered to complete the assessment. These include the Scale of Risk of Violence Assessment for Adolescents (SRVAA), which aims to determine if the intervention can reduce violence risk, and a Social Desirability Index, which assesses the extent to which students' responses may be susceptible to bias originating from their beliefs about socially desirable answers. The SRVAA is based on WHO definitions of violence risk factors and includes six subscales: Negative Self-concept, Lack of Self-control, Traits of Self-harm, Proactive Violence, Verbal Violence, and Reactive Violence. It evaluates the frequency of these violent behaviors. All self-reported questionnaires, except the State Impulsivity Scale (SIS), have been validated on Mexican adolescent populations prior to this intervention. The SIS has been validated using a Spanish adolescent population.

3.3 Taking the Baseline and Endline

During the first three weeks of September 2023, a group of evaluators accessed each classroom of first-year students in all schools participating in the study at tutoring time and administered a baseline survey for all outcome variables. Through a battery of modems, a secure Internet network was shared with the students, to which they connected with their mobile phones. Once connected, access to the evaluation was shared with them through a QR code. Each subject introduced personal details, and then the data collection took place, which lasted between 20 to 30 minutes. Before carrying out the data collection, schools were provided with an informed consent form to send to parents. Parents were asked to return the signed sheet if they agreed for their children to participate in the evaluation. Only students for whom parental authorization was available were included in the data collection, yet the great majority of them received the authorization (86.1 percent).

For the endline data collection, we followed the same procedure as the baseline. However, the schools unexpectedly concluded the semester early, under the directive of educational authorities to offer additional support to struggling students. Consequently, it was not feasible to assess

all students who had initially provided informed consent. Only 55.4 percent of the students who took part in the baseline completed the endline data collection at the conclusion of the intervention.

3.4 Experimental Design

As previously mentioned, seven schools consented to participate in the experiment. Among these, five schools operate on both morning and afternoon shifts, while the remaining two schools have a single shift. Within each shift, the number of courses offered by the schools ranges from 3 to 8 (see Table 3 below). The workshops were conducted at the course level. However, to evaluate potential spillovers in information transmission among students, we chose the school-shift as the unit of randomization rather than the individual course. Consequently, our cluster sample size is N=12, representing the total number of school-shifts included in the study.

The randomization process was conducted in two steps:

Step 1: The initial phase involved assigning 4 out of the 12 school-shifts to the pure control group. None of the courses within these 4 school-shifts received the workshops during the intervention.

Step 2: For the 8 school-shifts not assigned to the pure control group, each course within these shifts was randomly assigned to either the treatment or control group. To ensure a balanced distribution of courses between the two groups, we used pre-determined block sizes for randomization. For instance, in school-shifts with 6 courses, 3 were randomly assigned to the treatment group and 3 to the control group. For school-shifts with an odd number of courses, the blocked randomization was balanced across both morning and afternoon shifts. For example, in School 3, the morning shift had 4 treated courses, while the afternoon shift had 3 treated courses.

This 2-step procedure left us with 8 school-shifts that contained both treated and untreated courses. The untreated courses within these 8 school-shifts formed the potentially contaminated control group. Due to the variation in the number of courses per school-shift, there was a risk of having unbalanced group sizes for the treatment, contaminated control, and pure control groups. It is important to note that the randomization resulted in 21 courses being assigned to the treatment group, 22 courses to the contaminated control group, and 20 courses to the pure control group.

3.5 Potential Spillovers

As mentioned earlier, the random assignment assumed that potential spillovers occur at the school-shift level. If this assumption holds, the true effectiveness of the CBT workshop is captured by the total effect of the treatment on both treated and non-treated individuals within shifts that have at least one treated course (Baird et al., 2018). This means we must consider both the direct effects on treated individuals and the indirect effects on non-treated individuals. We refer to this combined impact as the Total Causal Effect (TCE). Formally,

$$\text{TCE} = \text{Direct Effect of CBT workshop} + \text{Indirect Effect of CBT workshop}$$

If the treatment positively influences the outcomes of non-treated individuals in the same shift, comparing the average outcomes of the treated group to the contaminated control group will underestimate the TCE. To address this, we compare the average outcomes of the contaminated control group to the pure control group to isolate the Indirect Effect of the CBT workshop. Similarly, we compare the average outcomes of the treated group to the pure control group to measure the Direct Effect of the CBT workshop.

4. Results

4.1 Workshop Attendance

Attendance at the workshops was 77.5 percent of all sessions taught. Figure 1 shows the percentage of attendance at each of the workshop sessions for each of the eight treatment school-shifts. Although the workshop was compulsory and held during school hours, several factors affected attendance. Firstly, there was little control over attendance, especially in one shift-school. Secondly, the workshop ended close to the winter holidays, and schools decided to end their classes earlier than planned to provide extra instruction to students who had fallen behind. In the end, there were fewer students present in the last sessions of all groups as attendance was not mandatory. Additionally, two groups had only 11 sessions and another group only had 9 sessions out of 12. Finally, in one school, only a small number of students were able to participate in the endline data collection. Table 3 shows the number of students participating in the survey at the baseline and the endline, and the comparison of the number of students evaluated by treatment arm specified by sex are presented in Table 4.

Figure 1. Percentage of Attendance at Each of the Workshop Sessions for Each of the Eight Treatment School-shifts

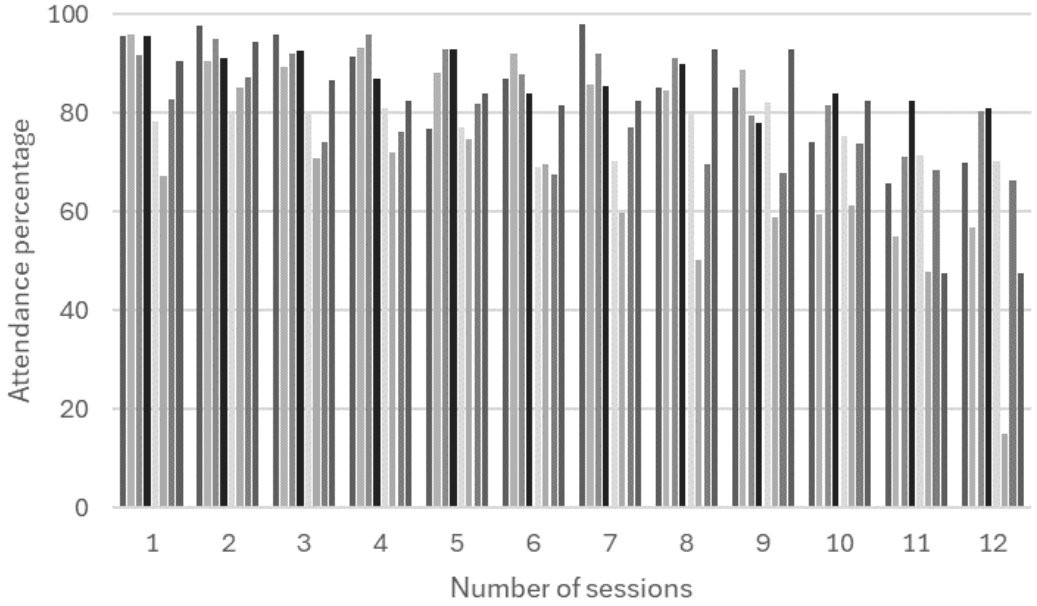


Table 3. Courses and Students Participating in the Study

School	Morning shift				Afternoon shift			
	(1) Courses	(2) Total students	(3) Students at baseline	(4) Students at endline	(5) Courses	(6) Total students	(7) Students at baseline	(8) Students at endline
1	0	0	0	0	6	286	212	35
2	5	244	229	93	5	246	192	94
3	7	295	253	166	7	364	298	157
4	5	174	161	101	5	215	190	139
5	8	286	248	146	0	0	0	0
6	3	100	97	63	3	73	69	45
7	5	115	104	75	4	86	85	70
Total		**1214**	**1092**	**644**		**1270**	**1046**	**540**

Table 4. Comparison of Students by Sex and Treatment Arm

Baseline. 2138						Endline: 1184 (55.4% of baseline)					
Pure control: 646		Contaminated control: 804		Treatment: 688 (32.6%)		Pure control: 422 (35.6%)		Contaminated control: 373 (31.5%)		Treatment: 389 (32.9%)	
Girls: 312 (48.3%)	Boys: 334 (51.7%)	Girls: 413 (51.4%)	Boys: 391 (48.6%)	Girls: 356 (51.7%)	Boys: 332 (48.3%)	Girls: 220 (52.1%)	Boys: 202 (47.9%)	Girls: 192 (51.5%)	Boys: 181 (48.5%)	Girls: 215 (55.3%)	Boys: 174 (44.7%)

4.2 Baseline Results

The number of students participating in baseline data collection at each school is included in columns 3 and 6 in Table 3. These students are those whose parents signed the informed consent sheet and who attended class on the day of the evaluation. The percentage of students participating corresponds to 87 percent of enrolled students. Table 5 shows results for all students, and Table 6 separates results for female and male students. Additional baseline information is included in Annex 5. A statistical difference in baseline between the control and treatment groups is only reported for two variables: "Score BASI" and "Score Passive Means." For "Score BASI" this applies to both males and females, while for "Score Passive Means," the difference is only recorded for males. In addition, for "Score Aggressive Means," there is a statistically significant difference for males. For the other variables in the baseline, there are no significant differences.

Table 5. Baseline Comparisons for All Relevant Variables: All Students

Variables	Treatment	Pure Control	Difference	p-value
Age	15.301	15.312	-0.011	0.921
Sex	0.515	0.488	0.027	0.306
% Right RMET	0.549	0.553	-0.004	0.606
% Right ESST	0.638	0.635	0.003	0.704
Count Correct Go	57.136	56.385	0.751	0.420
Count Correct Stop	14.669	15.500	-0.831	0.046
Score BASI	34.242	36.167	-1.925	0.001
Score SIS	20.275	20.140	0.135	0.823
Score Attentional	7.338	7.192	0.146	0.550
Score Automatism	6.132	6.192	-0.061	0.764
Score Gratification	6.805	6.755	0.050	0.833
Score Reevaluation	16.602	16.886	-0.283	0.282
Score Suppression	12.444	12.488	-0.044	0.831
Score SRVAA	34.292	34.057	0.235	0.563
Score Negative Self-concept	11.541	11.314	0.226	0.260
Score Lack of Self-control	5.011	5.057	-0.046	0.577
Score Traits of Self-harm	5.136	5.156	-0.020	0.811
Score Proactive Violence	4.753	4.771	-0.018	0.803
Score Verbal Violence	4.180	4.150	0.030	0.690
Score Reactive Violence	3.672	3.609	0.062	0.334
Score SDI	7.889	7.963	-0.074	0.551
Score ICRS	36.965	35.710	1.255	0.104
Score Aggressive Means	6.185	6.106	0.080	0.776
Score Collaborative Means	18.550	18.070	0.480	0.296
Score Passive Means	12.230	11.534	0.696	0.042

Table 6. Baseline Comparisons for All Relevant Variables by Gender

	Female students				Male students			
Variables	Treat-ment	Pure Control	Diff	p-value	Treat-ment	Pure Control	Diff	p-value
Age	15.239	15.249	-0.010	0.949	15.367	15.372	-0.006	0.972
% Right RMET	0.564	0.566	-0.002	0.877	0.533	0.541	-0.008	0.464
% Right ESST	0.634	0.619	0.015	0.172	0.643	0.651	-0.008	0.474
Count Correct Go	56.723	53.939	2.784	0.037	57.577	58.703	-1.126	0.382
Count Correct Stop	14.909	15.684	-0.775	0.174	14.412	15.326	-0.914	0.133
Score BASI	32.375	34.040	-1.665	0.029	36.227	38.190	-1.963	0.022
Score SIS	19.819	20.635	-0.816	0.344	20.763	19.658	1.105	0.194
Score Attentional	7.153	7.274	-0.122	0.728	7.537	7.113	0.424	0.215
Score Automatism	5.901	6.423	-0.522	0.066	6.379	5.969	0.410	0.155
Score Gratification	6.766	6.939	-0.173	0.608	6.847	6.577	0.271	0.421
Score Reevaluation	17.383	17.628	-0.245	0.481	15.765	16.179	-0.413	0.288
Score Suppression	12.975	13.059	-0.084	0.763	11.875	11.943	-0.069	0.816
Score SRVAA	34.998	35.111	-0.114	0.847	33.545	33.054	0.491	0.374
Score Negative Self-concept	12.575	12.380	0.196	0.511	10.445	10.301	0.144	0.560
Score Lack of Self-control	4.983	5.060	-0.077	0.507	5.041	5.054	-0.013	0.909
Score Traits of Self-harm	5.231	5.289	-0.059	0.623	5.036	5.029	0.007	0.948
Score Proactive Violence	4.534	4.663	-0.129	0.194	4.985	4.874	0.111	0.295
Score Verbal Violence	4.211	4.235	-0.024	0.826	4.147	4.069	0.078	0.456
Score Reactive Violence	3.464	3.485	-0.021	0.781	3.892	3.728	0.164	0.110
Score SDI	7.654	7.742	-0.088	0.611	8.138	8.172	-0.034	0.847
Score ICRS	37.364	36.563	0.801	0.456	36.533	34.887	1.645	0.140
Score Aggressive Means	5.882	6.380	-0.498	0.214	6.514	5.841	0.672	0.088
Score Collaborative Means	19.161	18.358	0.803	0.205	17.889	17.793	0.096	0.885
Score Passive Means	12.322	11.826	0.496	0.301	12.130	11.253	0.877	0.072

In addition to comparing the control and treatment groups, analyzes were conducted based on age and school shift. No significant differences were found in any of the measured variables concerning these factors. Differences were indeed observed, however, between boys and girls across several variables, as outlined below.

In the baseline assessments, our population's BASI questionnaire (sexist beliefs) responses indicate similar levels to those of other Latin American countries and align with the prevailing literature, which suggests that men typically exhibit significantly higher levels of both types of sexism compared to women (Rollero et al., 2014; Martínez-Baquero & Vallejo-Medina, 2024).

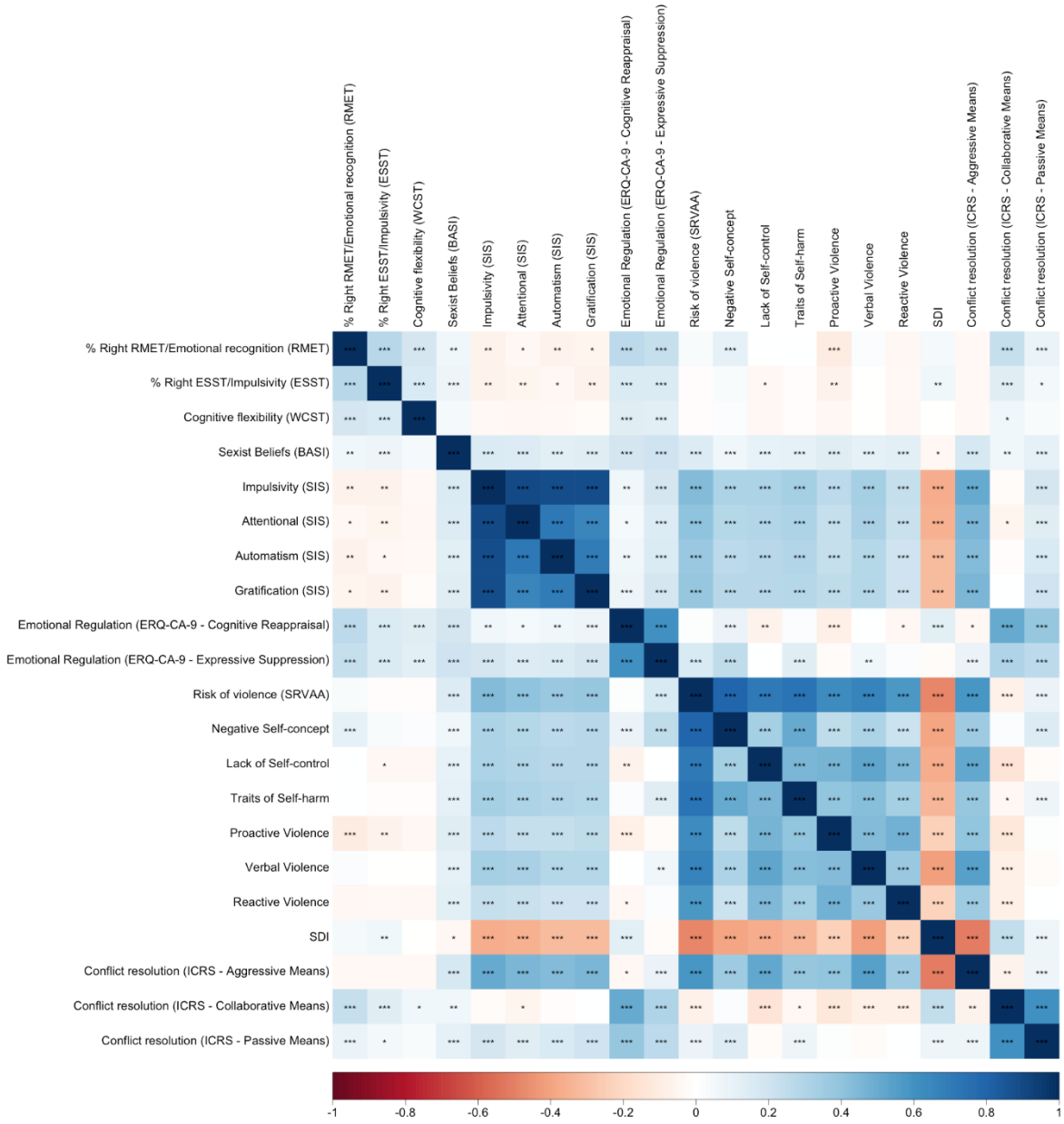
Regarding the SIS (impulsivity questionnaire), our population's scores surpass those of the population in which the scale was validated. Notably, there are no significant initial score differences between males and females across the total scale or its measured dimensions. Analysis of ERQ-CA-9 (emotional regulation questionnaire) baseline data reveals that male students tend to score higher in emotional regulation through expressive suppression, while female students score significantly higher in cognitive reappraisal, suggesting superior emotional regulation strategies among females, consistent with existing literature (Gross & John, 2003). Findings from the baseline ICRS (conflict resolution) assessment indicate no remarkable distinctions in the use of aggressive and passive methods for emotional regulation between boys and girls. However, girls tend to employ collaborative approaches to conflict resolution more frequently, aligning with prior research by Shute and Charlton (2006). Conversely, a study by Fariña et al. (2021) showed no significant gender variations in conflict resolution styles. Our population's scores on the violence risk scale are somewhat lower than those found in Muñoz's scale validation work among Mexican adolescents. Gender differentiation reveals significantly higher total scores among girls. Notably, girls score higher in negative self-concept and self-injury traits, while boys score higher in reactive and proactive violence. There were no significant differences by sex for the lack of self-control and verbal violence subscales.

The relationship between each of the evaluated variables and violent behaviors, based on findings from previous research, is described in the Introduction and in greater detail in Annex 1. But the data collected allows us to explore whether there is a relationship between the variables measured at baseline, particularly in relation to the risk of violence and its subscales. Table 7 presents Pearson correlation values between pairs of study variables, highlighting positive correlations in blue and negative correlations in orange, with more intense colors indicating stronger correlations. Naturally, the subscales show strong positive correlations with the total impulsivity (SIS) and violence (SVRAA) scales, as these are constructed by summing the scores of their respective subscales. But a notable finding is the negative correlation between self-reported variables associated with negative concepts (all subscales of violence risk assessment, impulsivity, and the use of aggressive means to resolve conflicts) and the Social Desirability Index. This suggests that participants tend to respond in a socially desirable manner, potentially underestimating the scores obtained in these variables. At the same time, the Social Desirability Index shows a positive correlation with cognitive reappraisal, indicating a possible overestimation in this dimension. These

results highlight the importance of including objective measures, such as neuropsychological tests for assessing executive functions, as these do not show a significant relationship with the Social Desirability Index because they assess participants' actual performance rather than subjective responses from self-report instruments.

The Table also shows a moderately high positive correlation between self-reported violence risk and impulsivity scales, and there is a weaker positive correlation between violence risk and impulsivity as measured by the ESST inhibitory control test, reinforcing the relationship between impulsiveness or lack of inhibitory control and violent behaviors. Similarly, the use of aggressive means to resolve conflicts shows a strong positive correlation with total violence risk and all its subscales, particularly with the lack of self-control and verbal violence subscales. Furthermore, total impulsivity (SIS) and all its subscales are significantly correlated with the use of aggressive means to resolve conflicts. Another notable finding is the strong correlation between negative self-concept and the risk of self-harm, as well as between lack of self-control and all forms of violence evaluated. Individuals with a greater ability to cognitively reappraise situations also appear to use collaborative methods for conflict resolution. Those who frequently use these collaborative methods also have significantly lower scores on the lack of self-control subscale and the proactive violence subscale of the SVRAA, as indicated by significant negative correlations.

Table 7. Pearson Correlation Values Between Pairs of Study Variables



Regarding neuropsychological tests of executive functions, a positive correlation is observed among the results of the three tests used (RMET for emotional recognition, ESST for inhibitory control, and WCST for cognitive flexibility). This is consistent with literature, as these functions typically develop together. Additionally, scores in emotional recognition (RMET) are positively related to the use of emotional regulation strategies (cognitive reappraisal and emotional suppression) and the use of collaborative means for conflict resolution, while showing a negative

correlation with proactive violence and the use of aggressive means. This suggests that the ability to recognize emotions in others—empathy—may reduce the risk of violent behaviors.

Moreover, inhibitory control measured by the ESST negatively correlates with violence risk, particularly with proactive and reactive violence. Cognitive flexibility also shows a negative relationship with reactive violence. Finally, the data in Table 7 reveal a moderate correlation between sexist beliefs and impulsivity, as well as between these beliefs and the use of aggressive methods for conflict resolution. There is also a moderate relationship between sexist beliefs and all types of violence evaluated, although no correlation is observed with negative self-concept. In conclusion, the analysis of relationships between the measured variables suggests they are potentially linked to violence and can serve as indirect estimators in prevention interventions.

4.3 Final Outcomes

The percentage of students participating in the endline survey corresponds to 55.4 percent of the baseline sample, as shown in Table 4. All models analyzed in this section are Differences-in-Differences models. This means that all explained variables are measured as the difference between the outcome after the intervention and the outcome before the intervention (baseline), between study groups. The only exception is the outcome for the WSCT, for which we only have values after the intervention.

4.3.1 A Note on Spillovers

In the previous section we defined the TCE as the sum of the Direct Effect of CBT workshop and the Indirect Effect of CBT workshop. It turns out that the results from the intervention yielded no statistically significant Indirect Effects. This means that, for all outcome variables, the CBT workshop had no differential effect when comparing pure control individuals and contaminated control individuals. In other words, there were no significant spillover effects (see Annex 3). For this reason, all the results presented in the following subsections correspond to Direct Effect, or the comparison of average outcomes **between treated individuals and pure control individuals.** A comparison of the distribution of the outcomes for the treatment and pure control groups is presented in Annex 4.

4.3.2 Main Regressions Results

In the following subsections, we show the differential effect of the treatment between the Treatment group and the Pure Control group for our 20 outcome variables. We are going to divide these variables into two groups: questionnaire outcomes and neuropsychological test outcomes. For each group of variables, each table represents a different econometric specification. The two specifications considered are the following:

(1) $Y_i = \beta_0 + \beta_1 Treatment + \beta_2 Female + u_i$ **(Model 1)**
(2) $Y_i = \gamma_0 + \gamma_1 Treatment + \gamma_2 Female + \gamma_3 Treatment * Female + v_i$ **(Model 2)**

Model 1 represents the main effects, and **Model 2** shows effects by gender. No additional control variables are included in these regressions to preserve the statistical power of our experiment. We believe their inclusion is unnecessary, as the baseline is balanced across all measured variables (Tables 5 and 6). All regression tables show p-values corresponding to SE clustered at the school-shift level corrected for a small number of clusters, and adjusted p-values for multiple hypothesis testing (MHT) for all the coefficients related to hypotheses being tested. It is important to note that the MHT correction was applied separately for the questionnaire outcomes and the neuropsychological test outcomes, treating them as two distinct families of outcomes. As a result, the adjustment was performed within each group independently.

4.3.3 Questionnaires Results

Tables 8 and 9 present the results from questionnaire-based outcomes including the main scale scores. None of the subscale scores show an effect from the intervention, so these results are omitted from these tables but are described in Annex 6. We did not find significant effects of the intervention in the average responses to these questionnaires, neither for female nor for male participants. except for the BASI (sexism questionnaire). The sexism questionnaire shows that both hostile sexism and ambivalent sexism increase with the intervention. Upon closer examination, both in the control group and the treatment group decrease over time, however, in the control group, the decrease is much more pronounced. We are trying to ascertain if there was any campaign in any of the control schools that could have influenced a change in their sexist beliefs.

Table 8. Questionnaires Results: Main Effects (Model 1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)
Treatment	2.838*	0.622	0.993	0.577	0.217	0.121	-0.591	0.556
p-value	(0.012)	(0.545)	(0.098)	(0.043)	(0.624)	(0.893)	(0.223)	(0.427)
Adjusted p-value for MHT	[0.094]	[0.713]	[0.263]	[0.174]	[0.713]	[0.894]	[0.446]	[0.684]
Female	-0.555	1.148	0.172	0.029	0.052	0.401	0.005	-0.614
p-value	(0.458)	(0.128)	(0.679)	(0.916)	(0.892)	(0.500)	(0.994)	(0.433)
Constant	-2.774**	0.131	-1.748***	-0.981**	0.305	-1.719**	-0.530	1.933***
p-value	(0.015)	(0.875)	(0.006)	(0.012)	(0.502)	(0.029)	(0.147)	(0.007)
N	851	710	797	797	762	762	762	926

In parenthesis, p-values corresponding to clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values, only for hypotheses being tested.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Table 9. Questionnaires Results: Effects by Gender (Model 2)

	(1)	(2)	(6)	(7)	(8)	(9)	(10)	(11)
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)
Treatment	3.366	0.284	0.680	0.163	0.225	-0.820	-0.790	0.863
p-value	(0.034)	(0.713)	(0.410)	(0.660)	(0.698)	(0.401)	(0.311)	(0.473)
Adjusted p-value for MHT	[0.537]	[0.834]	[0.834]	[0.834]	[0.834]	[0.834]	[0.834]	[0.834]
Female	-0.077	0.841	-0.113	-0.349	0.060	-0.461	-0.178	-0.339
p-value	(0.958)	(0.209)	(0.781)	(0.232)	(0.918)	(0.348)	(0.855)	(0.800)
Female*Treatment	-0.985	0.628	0.585	0.774	-0.015	1.728	0.367	-0.570
p-value	(0.544)	(0.666)	(0.507)	(0.146)	(0.986)	(0.116)	(0.786)	(0.730)
Adjusted p-value for MHT	[0.834]	[0.834]	[0.834]	[0.777]	[0.986]	[0.777]	[0.839]	[0.834]
Constant	-3.024*	0.294	-1.597**	-0.780**	0.301	-1.256	-0.432	1.789**
p-value	(0.069)	(0.659)	(0.015)	(0.043)	(0.570)	(0.118)	(0.364)	(0.050)
N	851	710	797	797	762	762	762	926

In parenthesis, p-values corresponding to clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

4.3.4 Neuropsychological Tests Results

Tables 10 and 11 present the results for the Automated Neuropsychological Tests. As stated in Section 3, an improvement in the performance on any of these tests is implied by the achievement of a higher score and coefficients in this table should be interpreted as percentage points. The findings indicate that engagement in the workshop has a positive effect on the emotional recognition abilities among participants.

Table 10. Neuropsychological Tests Results: Main Effects (Model 1)

	(1) Emotional recognition (RMET)	(2) Impulsivity (ESST)	(3) Cognitive flexibility (WCST)
Treatment	0.040*	0.014	0.008
p-value	(0.022)	(0.214)	(0.616)
Adjusted p-value for MHT	[0.068]	[0.321]	[0.617]
Female	0.015	0.002	0.003
p-value	(0.188)	(0.799)	(0.784)
Constant	-0.063***	-0.010	0.586***
p-value	(0.002)	(0.189)	(0.000)
N	816	844	927

In parenthesis, p-values corresponding to clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Table 11. Neuropsychological Tests Results: Effects by Gender (Model 2)

	(1) Emotional recognition (RMET)	(2) Impulsivity (ESST)	(3) Cognitive flexibility (WCST)
Treatment	0.022	-0.005	-0.006
p-value	(0.207)	(0.706)	(0.776)
Adjusted p-value for MHT	[0.415]	[0.928]	[0.928]
Female	-0.001	-0.015	-0.011
p-value	(0.928)	(0.286)	(0.559)
Female*Treatment	0.033	0.036	0.028
p-value	(0.128)	(0.041)	(0.174)
Adjusted p-value for MHT	[0.386]	[0.165]	[0.415]
Constant	-0.055**	-0.001	0.593***
p-value	(0.007)	(0.875)	(0.000)
N	816	844	927

In parenthesis, p-values corresponding to clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values.<.05; *** if Anderson's q-values<.01

4.3.5 A Comment on Robustness Checks

To ensure the robustness of our findings, we investigate whether social desirability bias may have influenced the treatment effects by incorporating interactions with a social desirability index (SDI). We estimate both the main model and a fully interacted model with SDI, testing for any significant impact on the treatment effects. As the results show no significant coefficients for these interactions, the complete tables are provided in Annex 7 for reference. This approach allows us to address the potential concern of social desirability bias without detracting from the main findings.

4.3.6 Statistical Analysis Using a Less Restrictive Approach

This section presents a less restrictive statistical analysis to further explore the potential effects of our intervention. Initially, our experimental design randomized at the school shift level while also implementing classroom-level randomization. Within treated school shifts, only a subset of classrooms was randomly assigned to the intervention group. However, since no spillover effects were detected in the control classrooms within treated school shifts, these classrooms are included in the analysis, increasing the number of observations. Furthermore, the study population consists of first-semester high school students who recently transitioned from various middle schools. Given that no significant baseline differences were found in the measured variables across different school shifts, a less restrictive analytical approach is justified. In this analysis, standard errors are clustered at the classroom level, under the assumption that observations within a classroom are correlated, while those across different school shifts are not necessarily so. Accordingly, the following section presents statistical results using the classroom as the unit of randomization, with all classrooms that did not receive the workshop grouped into the control group. This approach assumes that all school shifts are equivalent and clusters errors at the classroom level. Tables 12 and 13 provide questionnaire results, while Tables 14 and 15 present the results of the neuropsychological tests under these revised specifications.

In this more comprehensive analysis, we have observed statistical improvements in both emotional recognition, as assessed by the RMET neuropsychological test, and inhibitory control, as measured by the ESST. Additionally, students who participated in violence prevention workshops showed enhanced use of emotional regulation strategies, according to the ERQ-CA-9 questionnaire, compared to those who did not attend these workshops.

These results suggest that the workshop activities positively influence key variables associated with violent behaviors. Consequently, these workshops may represent an effective, practical, and easily implementable strategy for preventing gender-based and dating violence within this population.

Table 12. Questionnaires Results: Main Effects (Model 1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)
Treatment	2.065*	0.716	1.046*	0.672*	0.169	0.591	-0.549	0.515
p-value	(0.011)	(0.444)	(0.021)	(0.029)	(0.723)	(0.365)	(0.228)	(0.472)
Adjusted p-value for MHT	[0.077]	[0.540]	[0.077]	[0.077]	[0.724]	[0.540]	[0.457]	[0.540]
Female	-0.340	0.798	0.515	0.107	-0.095	0.546	0.140	-0.177
p-value	(0.619)	(0.343)	(0.204)	(0.712)	(0.793)	(0.363)	(0.737)	(0.730)
Constant	-2.120***	0.227	-1.986***	-1.117***	0.435	-2.270***	-0.646**	1.732***
p-value	(0.000)	(0.725)	(0.000)	(0.000)	(0.201)	(0.000)	(0.040)	(0.002)
N	2.065*	0.716	1.046*	0.672*	0.169	0.591	-0.549	0.515

In parenthesis, p-values corresponding to clustered SE at the classroom level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Table 13. Questionnaires Results: Effects by Gender (Model 2)

	(1)	(2)	(6)	(7)	(8)	(9)	(10)	(11)
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)
Treatment	2.648	0.169	1.081	0.416	0.053	-0.005	-0.590	1.105
p-value	(0.026)	(0.859)	(0.106)	(0.378)	(0.930)	(0.995)	(0.423)	(0.268)
Adjusted p-value for MHT	[0.424]	[0.996]	[0.825]	[0.825]	[0.996]	[0.996]	[0.825]	[0.825]
Female	0.020	0.452	0.536	-0.055	-0.169	0.170	0.114	0.179
p-value	(0.980)	(0.695)	(0.271)	(0.876)	(0.686)	(0.815)	(0.803)	(0.789)
Female*Treatment	-1.082	1.017	-0.065	0.481	0.214	1.097	0.075	-1.087
p-value	(0.481)	(0.515)	(0.942)	(0.435)	(0.797)	(0.396)	(0.939)	(0.298)
Adjusted p-value for MHT	[0.825]	[0.825]	[0.996]	[0.825]	[0.996]	[0.825]	[0.996]	[0.825]
Constant	-2.306***	0.410	-1.997***	-1.033***	0.474	-2.071***	-0.632**	1.547***
p-value	(0.000)	(0.573)	(0.000)	(0.001)	(0.188)	(0.000)	(0.050)	(0.009)
N	2.648	0.169	1.081	0.416	0.053	-0.005	-0.590	1.105

In parenthesis, p-values corresponding to clustered SE at the classroom level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Table 14. Neuropsychological Tests Results: Main Effects (Model 1)

	(1) Emotional recognition (RMET)	(2) Impulsivity (ESST)	(3) Cognitive flexibility (WCST)
Treatment	0.046**	0.017*	0.015
p-value	(0.004)	(0.066)	(0.167)
Adjusted p-value for MHT	[0.014]	[0.099]	[0.167]
Female	0.009	-0.009	0.006
p-value	(0.268)	(0.210)	(0.385)
Constant	-0.066***	-0.006	0.578***
p-value	(0.000)	(0.338)	(0.000)
N	0.046**	0.017*	0.015

In parenthesis, p-values corresponding to clustered SE at the classroom level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Table 15. Neuropsychological Tests Results: Effects by Gender (Model 2)

	(1) Emotional recognition (RMET)	(2) Impulsivity (ESST)	(3) Cognitive flexibility (WCST)
Treatment	0.027	-0.007	0.006
p-value	(0.194)	(0.542)	(0.680)
Adjusted p-value for MHT	[0.305]	[0.650]	[0.680]
Female	-0.002	-0.024***	0.000
p-value	(0.793)	(0.008)	(0.981)
Female*Treatment	0.034	0.045***	0.017
p-value	(0.065)	(0.001)	(0.203)
Adjusted p-value for MHT	[0.195]	[0.008]	[0.305]
Constant	-0.060***	0.001	0.581***
p-value	(0.000)	(0.824)	(0.000)
N	0.027	-0.007	0.006

In parenthesis, p-values corresponding to clustered SE at the classroom level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

4.3.7 Possible Impact of the Intervention on Grades

To evaluate the potential impact of the intervention on student academic performance, we requested the grades for each subject taken by students in both the control and treatment groups from the schools at the end of the semester. It was not possible to obtain differential grade data, meaning we could not compare individual differences before and after the intervention, which would have provided greater statistical power. This is because there are no prior grades available for these groups, as they are first-semester high school students. After analyzing the grades, we did not detect any significant differences between the control and treatment groups, nor were there any differences in performance between male and female students.

4.4 Discussion

4.4.1 Analysis of the Results: Impact of the CBT-Based Intervention

The findings of this research suggest cognitive-behavioral therapy (CBT)-based intervention can potentially improve emotional recognition, inhibitory control, and emotional regulation among high school students. While other assessed dimensions—such as gender beliefs, risk of violence, and cognitive flexibility—did not show statistically significant improvements, the coefficients obtained bear the expected signs and consistent magnitudes. This consistency suggests a possible positive directional effect that could become more apparent with a larger sample size.

It is important to highlight that progress was observed in two of the three dimensions of executive functions assessed through neuropsychological tests, which rely on objective measures of student performance rather than subjective self-reports. Because of this, there are reasons to believe that interventions of this sort have the potential to generate objective improvements in critical dimensions associated with violent behaviors such as inhibitory control, impulsivity, and emotional recognition. As there is a close relationship between executive functions and violent behaviors, an improvement in students'' self-control capacity could translate into a significant reduction in such behaviors. The significant improvement in emotional recognition is a key advancement, given that this skill is essential for fostering empathy and emotional awareness. Emotional recognition allows students to better identify and understand the emotions of others, which, in turn, contributes to greater empathy, social understanding, and potentially more positive interpersonal relationships. Similarly, the reported improvement in emotional regulation, measured through questionnaires, indicates that students perceive greater control and management of their emotions after participating in the workshop. This aspect is fundamental, as appropriate emotional regulation is a determining factor in preventing aggressive and violent behaviors.

In summary, these results are encouraging, as they suggest that the CBT-based intervention has a positive impact on the development of essential skills related to self-control, empathy, and emotional regulation. These skills are not only linked to a reduction in violent behaviors but also promote a healthier and more constructive social environment.

5. Some Lessons from the Intervention, beyond Impacts

5.1 Workshop Attendance

Perhaps the biggest difficulty encountered was ineffective communication with schools, which resulted in incomplete interventions or problems collecting information. As pointed out earlier, the intervention consisted of 12 50-minute sessions, with the possibility of four additional sessions if time allowed during the term. The original plan was for all groups in all schools to have time for 14-16 sessions. However, due to various school-related circumstances, such as holidays falling on specific days of the week, school activities leading to class suspensions, and unforeseen school closures, the number of weeks was reduced. Sometimes, for example, schools did not notify if classes were cancelled. Two groups did have sufficient time for additional sessions, but they were not conducted to maintain intervention homogeneity.

5.2 Positive Feedback from Facilitators and Students

This large-scale experience of conducting the workshop in several educational institutions simultaneously with more than 900 children allowed us to test the program. One important aspect is the feedback we received from those who took part in the experience.

On the one hand, we have the impression of **facilitators**. First, they all agreed that the workshop was good (60 percent) or very good (40 percent) and felt it had a positive impact on the students as well as having a theoretical and methodological framework, with a structured session design, addressing the topics with diverse activities, and being based on evidence-based therapies. Second, even though the groups consisted of 30 to 50 students, an atmosphere of trust and a safe space was created in all workshops. Facilitators were able to verify that the content and examples resonated with their experience, so that at the end of the implementation, significant changes in the dynamics of the groups were perceived on a general level and, in some cases, it was possible to see how the content was materialized in actions. Third, most of the students were engaged during the sessions and, as the sessions progressed, facilitators noticed changes such as a higher level of understanding in their discourse regarding the importance of paying attention to the present moment, emotional identification/regulation, social issues related to gender, and visualizing the consequences of their actions in the long run. In addition, students who were interested in the workshop mentioned they shared it with their family. Fourth, facilitators agreed that there was good organization and support and that the weekly sessions with the whole team of facilitators were

useful to review together the content of each session and to share the difficulties and incidences they encountered.

In addition, feedback from **students** was also quite encouraging. In the last session of the intervention, a link to a satisfaction survey about the workshop was shared with the participants in a Google Form. A total of 383 responses were recorded, and 87 percent of the participants who responded considered that the workshop they had just received was excellent (47 percent) or good (40 percent), while 11 percent thought it was mediocre and 2 percent considered it poor. Ninety-three percent completely agreed (31 percent) or agreed (62 percent) that the workshop met their expectations, and the remaining 7 percent considered that it did not meet their expectations. Eighty-eight percent responded that they were very likely (34 percent) or likely (54 percent) to put into practice what they had learned in the workshop. Ninety percent of those surveyed considered that the workshop activities were fun and engaging. Ninety-six percent found the content of the workshop easy to understand and felt comfortable, and approximately the same percentage considered that they were able to reflect on what they had seen in the workshop through the experiences of their daily lives, and that it helped them. For the participants, the main lessons obtained in the workshop were related to the knowledge, control, and regulation of their emotions, to their ability to realize what is happening to them and to their problem-solving abilities. Finally, 93 percent of those surveyed would recommend the workshop. These responses are positive feedback from students, but because nearly 50 percent of the students did not complete the feedback survey, it is necessary to consider that participation in the survey is endogenous and responses may be biased.

5.3 Lessons and Challenges

This first experience in schools has allowed us to understand many important elements in the implementation of the workshop. One is that the intervention can be developed on a large scale and implemented (with appropriate adaptations) in very different contexts throughout the country. This was in part possible because data collection was performed using a platform that could be used on any device such as desktop, tablet or mobile to seamlessly complete each evaluation step was easy and worked very well, and that it has been possible to carry out neuropsychological tests in the field, outside the laboratory environment.

We were also able to identify, however, a series of challenges. First, the experience in the schools allowed us to identify some ways to improve the **way the workshops were conducted**. On the one hand, some activities seem to be too theoretical and became a bit boring for the students, so it might be useful in the future to give sessions a more practical approach, using examples relevant to the students' social context. In addition, some games or more interactive activities can be added to the sessions to better capture students' attention. On the other hand, the workshop covered a lot of topics in a very short time. Facilitators felt that there were too many activities planned for one session that could not be carried out due to lack of time. It might be desirable to define which contents should be prioritized and which are less important. The lack of time made it impossible to review and share the content of previous sessions. For all these reasons, some topics should be shortened or more sessions should be added to the intervention.

Second, there were **problems regarding student participation and managing student activities**. Two main problems were mentioned by the facilitators. First, since attendance was mandatory, some students refused to participate in the activities, which had a negative impact on the course atmosphere. Second, having such large groups was detrimental to participation and freedom of expression. In particular, the large number of students in the classroom made the mindfulness exercises difficult. Although having courses of 30 or 50 students facilitates workshops and reduces the cost of conducting them, it seems to be very costly in terms of classroom experience. Perhaps it would be convenient to reduce the number of students in order to have more personalized attention, to motivate those who are not so interested in the program, and to have more enriching discussions.

Lastly, there were **problems coordinating with schools**. We consider that there was a lack of coordination and communication with the schools to mark times and places, as well as a formal presentation of the facilitators with the counsellors in front of the group. This lack of a formal presentation by an educational authority may have diminished the importance of the workshop, and the lack of communication with the school counsellors reduced the support from the academic and administrative staff of the schools.

5.4 Some Ideas for Improvement

From the experience studied, there are at least five modifications that can easily be made to improve the intervention:

1. There should be a meeting between the school and the psychologists before the intervention starts, so that everyone is aware of the intervention, and it can be done in the best possible way. This is very easy to do and would greatly improve the development of the activities.
2. It would be good to have a set of examples that are familiar to the students. For example, students could be provided with a list with examples given by students in other workshops to the facilitators. Those examples, which tend to be more related to their context and concerns, could then be used in class.
3. Facilitators could improving complementary materials for students, including online materials to support the lessons of the workshop, and allowing the practice of the program tools and skills could increase the effectiveness of the intervention.
4. A key problem in the intervention was time. In the future, the program should either be run throughout the year or have longer sessions (90-120 minutes each).
5. For scalability, the cost per student might be reduced if the same group of expert psychologists can train and supervise teachers at schools, reaching a much larger number of students, and training can be optimized by developing a fully detailed training manual.

In conclusion, this study suggests cognitive behavioral therapy (CBT)-based intervention has potential in fostering emotional recognition, a critical skill for enhancing empathy and emotional awareness among high school students. The intervention showed clear and statistically significant improvement in emotional recognition. For other outcomes, such as gender beliefs, risk of violence, inhibitory control, emotional regulation, and cognitive flexibility, there was not statistical significance, but the consistency in the directional effects across these outcomes suggests that perhaps this boils down to a problem of sample size. The challenges faced in implementing the intervention, particularly in communication with schools and time constraints, offer valuable lessons for future iterations. Refining the approach by incorporating more interactive activities, extending session durations, and improving coordination with schools could enhance both the experience and outcomes for participants. Despite these mixed results, the improvement in emotional recognition signals that such interventions hold promise in contributing to gender-based violence

prevention efforts by building foundational emotional skills critical to positive social interactions. On the other hand, having developed the tool to measure executive functions in the field opens many possibilities for analysis in the future.

References

Akhtar, N., Bradley EJ. (1991); Social information processing deficits of aggressive children: Present findings and implications for social skills training. *Clin Psychol Rev* 11:621–644.

Archer, J. (2000); "Sex Differences in Aggression between Heterosexual Partners: A Meta-analytic Review," *Psychological Bulletin*, 126(5): 651.

Ayalew, S., S. Manian, & K. Sheth (2021); "Discrimination from Below: Experimental Evidence from Ethiopia," *Journal of Development Economics*, 151: 102653.

Babcock, J. C., D. M. Costa, C. E. Green, & C. I. Eckhardt (2004); "What Situations Induce Intimate Partner Violence? A Reliability and Validity Study of the Proximal Antecedents to Violent Episodes (PAVE) Scale," *Journal of Family Psychology*, 18(3): 433.

Babcock, J.C.; Green, C.E.; Webb, S.A. (2008); Decoding deficits of different types of batterers during presentation of facial affect slides. *J. Fam. Viol*., 23, 295–302.

Baird, S., J. A. Bohren, C. McIntosh, & B. Özler (2018); "Optimal design of experiments in the presence of interference," *Review of Economics and Statistics*, 100(5): 844-860.

Bareket, O., & Fiske, S. T. (2023); A systematic review of the ambivalent sexism literature: Hostile sexism protects men's power; benevolent sexism guards traditional gender roles. *Psychological bulletin*.

Barkley, R. A. (2012); *Executive Functions: What They Are, How They Work, and Why They Evolve* (Guilford Press, New York)

Berg Nesset, M., J.B. Bjørngaard, R. Whittington, & T. Palmstierna (2021); "Does cognitive behavioral therapy or mindfulness-based therapy improve mental health and emotion regulation among men who perpetrate intimate partner violence? A randomized controlled trial," *International Journal of Nursing Studies*, Volume 113, 103795

Birkley, E. L., & Eckhardt, C. I. (2019); Effects of instigation, anger, and emotion regulation on intimate partner aggression: Examination of "perfect storm" theory. *Psychology of violence*, 9(2), 186.

Blattman, C., J. C. Jamison, & M. Sheridan (2017); "Reducing Crime and Violence: Experimental Evidence from Cognitive Behavioral Therapy in Liberia," *American Economic Review*, 107(4): 1165-1206.

Blattman, C., S. Chaskel, J.C. Jamison, & M. Sheridan (2022); "Cognitive Behavior Therapy Reduces Crime and Violence over 10 Years: Experimental Evidence," *National Bureau of Economic Research Working Paper Series,* 30049

Broomhall, L. (2005); "Acquired Sociopathy: A Neuropsychological Study of Executive Dysfunction in Violent Offenders," *Psychiatry, Psychology and Law*, 12:2, 367-387.

Burgess, J. (2020); "A brief review of the relationship of executive function assessment and violence," *Aggression and Violent Behavior*, Vol. 54, 101414, ISSN 1359-1789, https://doi.org/10.1016/j.avb.2020.101414.

Cortés-Ayala, L., Flores Galaz, M., Bringas Molleda, C., Rodríguez-Franco, L., López-Cepero Borrego, J., & Rodríguez Díaz, F. J. (2015); "Relación de maltrato en el noviazgo de jóvenes mexicanos: análisis diferencial por sexo y nivel de estudios," *Terapia psicológica*, 33(1), 5-12.

Crooks, C., G. Goodall, R. Hughes, P. Jaffe, & L. Baker (2007); "Engaging Men and Boys in Preventing Violence Against Women Applying a Cognitive–Behavioral Model" *Violence against Women*, 13(3): 217–239.

Crowne, D. P., & D. Marlowe (1960); "A new scale of social desirability independent of psychopathology," *Journal of Consulting Psychology*, 24(4):349.

Delavande, A., & B. Zafar (2019); "Gender Discrimination and Social Identity: Evidence from Urban Pakistan," *Economic Development and Cultural Change*, 68(1): 1-40.

Dhar, D., T. Jain, & S. Jayachandran (2022); "Reshaping Adolescents' Gender Attitudes: Evidence from a School-Based Experiment in India," *American Economic Review*, 112 (3): 899-927.

Dinarte-Diaz, L., & P. Egana-delSol (2023); "Preventing Violence in the Most Violent Contexts: Behavioral and Neurophysiological Evidence from El Salvador," *Journal of the European Economic Association*, jvad068, https://doi.org/10.1093/jeea/jvad068

Dodaj, A., Sesar, K., & Šimić, N. (2020); Impulsivity and empathy in dating violence among a sample of college females. *Behavioral Sciences*, 10(7), 117.

Dodge KA, Laird R, Lochman JE, Zelli A. (2002); Multidimensional latent-construct analysis of children's social information processing patterns: Correlations with aggressive behavior problems. *Psychol Assess* 14:60–73.

Ellsberg, M., D.J. Arango, M. Morton, *et al.* (2014); "Prevention of violence against women and girls: what does the evidence say?," *Lancet*. 2015;385:1555–66.

ENVINOV (2008); *Encuesta Nacional sobre Violencia en el Noviazgo*. México: IMJ, INEGI.

Feder, L., D. B. Wilson, & S. Austin, S. (2008); "Court-mandated Interventions for Individuals Convicted of Domestic Violence," *Campbell Systematic Reviews*, 4(1): 1-46.

Fehon, D. C., Grilo, C. M., & Lipschitz, D. S. (2005); A comparison of adolescent inpatients with and without a history of violence perpetration: Impulsivity, PTSD, and violence risk. *The Journal of nervous and mental disease*, 193(6), 405-411.

Finkel, E. J. (2008); Intimate partner violence perpetration: Insights from the science of self-regulation. *Social relationships: Cognitive, affective, and motivational processes*, 271-288.

Finkel, E. J., & Eckhardt, C. I. (2013); Intimate partner violence. *The Oxford handbook of close relationships*, 452-474.

Gaete, J., V. Martinez, R. Fritsch, G. Rojas, A. A. Montgomery, & R. Araya (2016); "Indicated school-based intervention to improve depressive symptoms among at risk Chilean adolescents: a randomized controlled trial," *BMC psychiatry*, 16, 276. https://doi.org/10.1186/s12888-016-0985-4

Ghosh, S., & Halder, S. (2020); Emotional Regulation and Cognitive Flexibility in Young Adults. *Journal of Psychosocial Research*, 15(2).

Glick P, Fiske ST, Mladinic A, Saiz JL, Abrams D, Masser B, et al. (2000); Beyond prejudice as simple antipathy: hostile and benevolent sexism across cultures. *JPSP*, 79(5), 763–775.

Glick P, Fiske ST. (1996); The ambivalent sexism inventory: differentiating hostile and benevolent sexism**.** *JPSP*, 70, 491–512.

Gong, J., Wang, M. C., Zhang, X., Zeng, H., & Yang, W. (2022); The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA): Factor structure and measurement invariance in a Chinese student samples. *Journal of Personality Assessment*, 104(6), 774-783.

Grant, D. A., & E. A. Berg (1993); "Wisconsin card sorting test," *Journal of Experimental Psychology*.

Grossman, P. J., C. Eckel, M. Komai, & W. Zhan (2019); "It Pays to Be a Man: Rewards for Leaders in a Coordination Game," *Journal of Economic Behavior & Organization*, 161: 197-21

Guillen, P., & D. Ji (2011); "Trust, Discrimination and Acculturation: Experimental Evidence on Asian International and Australian Domestic University Students," *Journal of Socio-Economics*, 40(5): 594-608.

Gullone, E., & Taffe, J. (2012); The emotion regulation questionnaire for children and adolescents (ERQ–CA): a psychometric evaluation. *Psychological assessment*, 24(2), 409.

Gupta, J., K. L. Falb, O. Ponta, *et al.* (2017); "A Nurse-delivered, Clinic-based Intervention to Address Intimate Partner Violence among Low-income Women in Mexico City: Findings from a Cluster Randomized Controlled Trial," *BMC medicine*, 15(1): 1-12.

Heller, S. B., A. K. Shah, J. Guryan, J. Ludwig, S. Mullainathan, & H. A. Pollack (2017); "Thinking, Fast and Slow? Some Field Experiments to Reduce Crime and Dropout in Chicago," *Quarterly Journal of Economics*, 132(1): 1-54.

Heller, S. *et al*. (2013); "Preventing Youth Violence and Dropout: A Randomized Field Experiment," *National Bureau of Economic Research Working Papers*, No. 19014

Heursen, L., E. Ranehill, & R. A. Weber (2020); "Are Women Less Effective Leaders than Men? Evidence from Experiments using Coordination Games," *University of Zurich, Department of Economics, Working Paper*, 368.

Hoaken, P. N., Allaby, D. B., & Earle, J. (2007); Executive cognitive functioning and the recognition of facial expressions of emotion in incarcerated violent offenders, non-violent offenders, and controls. *Aggressive Behavior: Official Journal of the International Society for Research on Aggression*, 33(5), 412-421.

Ibabe, I., A. Arnoso, & E. Elgorriaga (2016); "Ambivalent Sexism Inventory: Adaptation to Basque Population and Sexism as a Risk Factor of Dating Violence," *Span J Psychol.*, Nov 15;19: E78. doi: 10.1017/sjp.2016.80. PMID: 27842623.

INEGI (2021); Encuesta Nacional sobre la Dinámica de las Relaciones en los Hogares (ENDIREH).

Iribarren, M. M., M. Jiménez-Giménez, J.M. García-de Cecilia, & G. Rubio-Valladolid (2011); **"**Validación y propiedades psicométricas de la Escala de Impulsividad Estado (EIE)," *Actas Españolas de Psiquiatría*, 39(1), 49-60.

Juarros-Basterretxea, J., Ocampo, N. Y., Rojas-Solis, J. L., Rodríguez-Díaz, F. J., & García-Cueto, E. (2023); "Revisiting the Ambivalent Sexism Inventory's Adolescent and Brief

Versions: problems, solutions, and considerations". *Anales de Psicología/Annals of Psychology*, 39(2), 304-313.

Kazemi, N., Nemati, L., Yadegari, S. L., & Abdous, F. (2023); Predicting social cognition based on self-differentiation and cognitive flexibility in students. *Social Psychology Research*, 12(48), 103-116.

Krosnick, J. A., & D. F. Alwin (1989); "Aging and Susceptibility to Attitude Change," *Journal of Personality and Social Psychology*, 57: 416-425.

Kurt, A. A., & Gündüz, B. (2020); The investigation of relationship between irrational relationship beliefs, cognitive flexibility and differentiation of self in young adults. *Cukurova University Faculty of Education Journal*, 49(1), 28-44.

Laca, F. A., Alzate, R., Sánchez, M., Verdugo, J. C., & Guzmán, J. (2006); Communication and conflict in young Mexican students: messages and attitudes. *Conflict Resolution Quarterly*, 24(1), 31-54.

Lawrence, K., Campbell, R., & Skuse, D. (2015); Age, gender, and puberty influence the development of facial emotion recognition. *Frontiers in psychology*, 6, 145042.

Leone, R. M., Crane, C. A., Parrott, D. J., & Eckhardt, C. I. (2016); Problematic drinking, impulsivity, and physical IPV perpetration: A dyadic analysis. *Psychology of Addictive Behaviors*, 30(3), 356.

León-Ramírez, B., Ferrando, P.J. (2013); Assessing sexism in a sample of Mexican students: A validity analysis based on the Ambivalent Sexism Inventory. *Anuario de Psicología*, 43(3), 335-347.

Logan, G. D., & W. B. Cowan (1984); "On the ability to inhibit thought and action: A theory of an act of control," *Psychological Review*, 91(3), 295–327.

Madrona-Bonastre, R., Sanz-Barbero, B., Pérez-Martínez, V., Abiétar, D. G., Sánchez-Martínez, F., Forcadell-Díez, L., ... & Vives-Cases, C. (2023); Sexismo y violencia de pareja en adolescentes. *Gaceta Sanitaria*, 37.

Maldonado, R. C., DiLillo, D., & Hoffman, L. (2015); Can college students use emotion regulation strategies to alter intimate partner aggression-risk behaviors? An examination using I^3 theory. *Psychology of Violence*, 5(1), 46.

Manassis, K., P. Wilansky-Traynor, N. Farzan, V. Kleiman, K. Parker, & M. Sanford (2010); "The feelings club: randomized controlled evaluation of school-based CBT for anxious or

depressive symptoms," *Depression and anxiety*, 27(10), 945–952. https://doi.org/10.1002/da.20724

Mannheim, K. (1952); "The Problem of Generations," in Kecskemeti, P. (ed.); *Essays on the Sociology of Knowledge* (Routledge)

Martínez-Baquero, L. C., & Vallejo-Medina, P. (2024); Evaluation of ambivalent sexism in Colombia and validation of the ASI and AMI brief scales. *Plos one*, 19(2), e0297981.

Miller, L. D., A. Laye-Gindhu, Y. Liu, J. S. March, D. S. Thordarson, & E. J. Garland (2011); "Evaluation of a preventive intervention for child anxiety in two randomized attention-control school trials," *Behavior research and therapy*, 49(5), 315–323. https://doi.org/10.1016/j.brat.2011.02.006

Muñoz, R. G. (2019); "Validación psicométrica de la Escala de Valoración de Riesgo de Violencia en Adolescentes," *Archivos de criminología, seguridad privada y criminalística*, (22), 107-121.

Murphy, C. M., C. I. Eckhardt, J. M. Clifford, A. D. LaMotte, & L. A. Meis (2020); "Individual Versus Group Cognitive-Behavioral Therapy for Partner-Violent Men: A Preliminary Randomized Trial," *Journal of Interpersonal Violence*, 35(15–16), 2846–2868.

Neilson, E. C., Gulati, N. K., Stappenbeck, C. A., George, W. H., & Davis, K. C. (2023); Emotion Regulation and Intimate Partner Violence Perpetration in Undergraduate Samples: A Review of the Literature. *Trauma, Violence, & Abuse*, 24(2), 576-596.

Ng, Z. J., Huebner, E. S., Maydeu-Olivares, A., & Hills, K. J. (2019); Confirmatory factor analytic structure and measurement invariance of the Emotion Regulation Questionnaire for Children and Adolescents in a longitudinal sample of adolescents. *Journal of Psychoeducational Assessment*, 37(2), 139-153.

Obach, A., M. Sadler, & F. Aguayo (2011); *Involucrando Hombres Jóvenes en el fin de la Violencia de Género. Intervención Multipaís con Evaluación de Impacto. Caso Chileno*. Santiago de Chile: CulturaSalud/EME.

Olatunbosun, I. (2022); **"**School-Type and Gender Influence on the Efficacy of Cognitive Behavior Therapy on Reducing Bullying Among Secondary School Students in Rivers State," *EAS Journal of Psychology and Behavioral Sciences*. 4. 76-82. 10.36349/eas-jpbs.2022.v04i02.006.

O'Leary, K. D., & A. M. Smith-Slep. (2003); "A dyadic longitudinal model of adolescent dating aggression," *Journal of Clinical Child and Adolescent Psychology*, 32, 314-327.

O'Leary, K. D., Slep, A. M., Avery-Leaf, S., and Cascardi, M. (2008); "Gender differences in dating aggressions and victimization among multiethnic high school students," *Journal of Adolescent Health*, 42, 473-479.

Overall, N. C., Chang, V. T., Cross, E. J., Low, R. S. T., & Henderson, A. M. E. (2021); Sexist attitudes predict family-based aggression during a COVID-19 lockdown. *Journal of Family Psychology*, 35(8), 1043–1052.

Persson, S., & Dhingra, K. (2021); Moderating Factors in culpability ratings and rape proclivity in stranger and acquaintance rape: Validation of rape vignettes in a community sample. *Journal of Interpersonal Violence*, 37(13–14), NP11358–NP11385.

Pulerwitz, J., G. Barker, M. Segundo, & M. Nascimento (2006); "Promoting more gender-equitable norms and behaviors among young men as an HIV/AIDS prevention strategy," *Horizons Final Report*. Washington, DC: Population Council.

Rey-Anacona, C. A. (2013); "Prevalencia y tipos de maltrato en el noviazgo en adolescentes y adultos jóvenes," *Terapia Psicológica*, 31, 143-154.

Rivera, F. F., M. N. Pérez, M. D. S. Martínez, & R. A. Fernández (2021); "Diseño y validación de la Escala de Medios de Resolución de Conflictos Interpersonales (MERCI) para adolescentes," *Bordón: Revista de pedagogía*, 73(4), 11-26.

Rollero, C., Peter, G., & Tartaglia, S. (2014); Psychometric properties of short versions of the ambivalent sexism inventory and ambivalence toward men inventory. TPM. *Testing, Psychometrics, Methodology in Applied Psychology*, 21(2), 149-159.

Romero-Martínez, Á., F. Santirso, M. Lila, *et al*. (2022); "Cognitive Flexibility and Reaction Time Improvements After Cognitive Training Designed for Men Perpetrators of Intimate Partner Violence: Results of a Pilot Randomized Controlled Trial," *J Fam Viol* 37, 461-473.

Romero-Martínez, Á., Lila, M., & Moya-Albiol, L. (2019). The importance of impulsivity and attention switching deficits in perpetrators convicted for intimate partner violence. *Aggressive behavior*, 45(2), 129-138.

Romero-Martínez, Á., M. Lila, M. Martínez, V. Pedrón-Rico, & L. Moya-Albiol (2016); "Improvements in Empathy and Cognitive Flexibility after Court-Mandated Intervention

Program in Intimate Partner Violence Perpetrators: The Role of Alcohol Abuse," *Int J Environ Res Public Health*, Mar 31;13(4):394. doi: 10.3390/ijerph13040394. PMID: 27043602; PMCID: PMC4847056.

Romero-Sánchez, M., Carretero-Dios, H., Megías, J. L., Moya, M., & Ford, T. E. (2017); Sexist humor and rape proclivity: The moderating role of joke teller gender and severity of sexual assault. *Violence Against Women*, 23(8), 951–972.

Romero-Sánchez, M., Megías, J. L., & Carretero-Dios, H. (2021); Sexist humor and sexual aggression against women: When sexist men act according to their own values or social pressures. *Journal of Interpersonal Violence*, 36(21–22), NP11322–NP11348.

Ron-Grajales, A., A, Sanz-Martin, R. D. Castañeda-Torres, *et al*. (2021); "Effect of Mindfulness Training on Inhibitory Control in Young Offenders," *Mindfulness* 12, 1822–1838.

Russell, B. L., & Oswald, D. L. (2016); When sexism cuts both ways: Predictors of tolerance of sexual harassment of men. *Men and Masculinities*, 19(5), 524–544.

Sánchez-Hernández, M. D., Herrera, M. C., & Expósito, F. (2020); Controlling behaviors in couple relationships in the digital age: Acceptability of gender violence, sexism, and myths about romantic love. *Intervención Psicosocial*, 29(2), 67–81.

Seo, E., S. J. Koo, Y. J. Kim, J. E. Min, H. Y. Park, M. Bang, ... & S. K. An (2020); "Reading the mind in the eyes test: Relationship with neurocognition and facial emotion recognition in non-clinical youths," *Psychiatry Investigation*, 17(8), 835.

Shorey, R. C., Brasfield, H., Febres, J., & Stuart, G. L. (2011); The association between impulsivity, trait anger, and the perpetration of intimate partner and general violence among women arrested for domestic violence. *Journal of Interpersonal Violence*, 26(13), 2681-2697.

Shute, R. y Charlton, K. (2006); Anger or compromise? Adolescents' conflict resolution strategies in relation to gender and type of peer relationship. *International Journal of Adolescence and Youth*, 13(1-2), 55-69

Slonim, R., & P. Guillen (2010); "Gender Selection Discrimination: Evidence from a Trust Game," *Journal of Economic Behavior & Organization*, 76(2): 385-405.

Slotter, E. B., & Finkel, E. J. (2011); I^3 theory: Instigating, impelling, and inhibiting factors in aggression.

Stith, S. M., D. B. Smith, C. E. Penn, D. B. Ward, & D. Tritt (2004); "Intimate Partner Physical Abuse Perpetration and Victimization Risk Factors: A Meta-analytic Review," *Aggression and Violent Behavior*, 10(1): 65-98.

Straus, M. (2004); "Prevalence of violence against dating partners by male and female university students worldwide," *Violence Against Women*, 10, 790-811.

Valencia, P. D., & A. De la Rosa-Gómez (2022); "Psychometric analysis of a simplified version of the Emotion Regulation Questionnaire in Mexican adults: The ERQ-CA-9," *Interacciones*, e292-e292.

Van Starrenburg, M. L., R. C. Kuijpers, M. Kleinjan, G. J. Hutschemaekers, & R. C. Engels (2017); "Effectiveness of a Cognitive Behavioral Therapy-Based Indicated Prevention Program for Children with Elevated Anxiety Levels: a Randomized Controlled Trial," *Prevention science: the official journal of the Society for Prevention Research*, 18(1), 31–39. https://doi.org/10.1007/s11121-016-0725-5

Vila-Ballo, A., Cunillera, T., Rostan, C., Hdez-Lafuente, P., Fuentemilla, L., & Rodriguez-Fornells, A. (2015); Neurophysiological correlates of cognitive flexibility and feedback processing in violent juvenile offenders. *Brain Research*, 1610, 98-109.

Welsh, M.C. & B.F. Pennington (1988); "Assessing frontal lobe functioning in children: Views from developmental psychology," *Developmental Neuropsychology*, 4:3, 199-230.

Annex 1. Violence-related Factors and Technical Description of Measured Variables

Violence-related Factors

Gender beliefs. Among the factors that are strongly associated with GBV is sexism, or gender beliefs and stereotypes (Bareket & Fiske, 2023; Madrona-Bonastre et al., 2023). This relationship has appeared with different forms of violence: physical, psychological, sexual violence, sexual harassment (Persson & Dhingra, 2021; Romero-Sánchez et al., 2017, 2021; Sánchez-Hernández et al., 2020; Overall et al., 2021; Russell & Oswald, 2016). Moreover, sexism is related to the difficulty of recognition of violence both for victims and perpetrators. Sexism can be related to GBV also indirectly, such as the influence on stereotypes that affect roles that place men in a position of power over women. Nonetheless, there are some studies that demonstrate that this factor only accounts for a small variance of violence (Ibabe et al., 2016). We have chosen the BASI questionnaire to evaluate possible changes in sexist beliefs due to our intervention, because it can be used effectively within the Mexican context (Cortés-Ayala et al., 2015; see also Rollero et al., 2014; Martínez-Baquero & Vallejo-Medina, 2024). It is a shortened version of the ASI questionnaire, which is the most widely used tool for assessing sexism (Bareket & Fiske, 2023; León-Ramírez & Ferrando, 2013). It has accepted theoretical foundation (theory of ambivalent sexism) and a broad range of empirical evidence of its strong cross-cultural validity, with a consistent factor structure, good reliability, and predictive validity (Glick et al., 2000; see also Fiske & North, 2014; Glick et al., 2004). It has also been validated in the Mexican adolescent population. Glick and Fiske's (Glick & Fiske, 1996) theory of ambivalent sexism considers sexism as a prejudice marked by deep ambivalence and multidimensionality, denoting a mixture of hostile and benevolent attitudes. Hostile Sexism (HS) is traditional sexism oriented toward the perception of inferiority of the other sex. Benevolent Sexism (BS) presents sexist attitudes with a positive affective tone that allows men to behave pro-socially. However, it helps justify and maintain gender inequality (Glick et al., 2000). The BASI questionnaire can assess both forms of sexism. Some studies demonstrates that HS is related to a perception of the world as a competitive place and to a personality disposition high in tough-mindedness, and BS is related to a perception of the world as a dangerous and threatening place and to a personality disposition towards social conformity.

Impulsivity. There is a considerable literature documenting a relationship between impulsivity and violence, both for male and female (Fehon et al., 2005; Burgess, 2020; Leone et al., 2016; Shorey et al., 2011; Dodaj et al., 2020). The link between impulsivity and violent behavior may stem from individuals with high impulsivity levels engaging in impulsive actions as a means to alleviate negative emotions, often without considering the repercussions of their actions. Impulsivity is particularly concerning because individuals prone to impulsivity tend to resort to readily available coping mechanisms for immediate relief from distressing situations, disregarding potential long-term negative consequences. Additionally, various studies have indicated that impulsivity and inattentive symptoms may impair fundamental processes such as emotional decoding and set-shifting abilities, which are crucial for emotional and behavioral regulation (Romero-Martínez et al., 2019). To assess the potential impact of the workshop on participants' impulsivity, two instruments have been used: the Emotional Stop Signal Test (ESST) and the State Impulsivity Scale (SIS). The ESST is a neuropsychological task designed to assess the ability to inhibit emotional responses. The SIS is an impulsive behavior assessment instrument validated in the Spanish population.

Emotional recognition/Empathy. Studies have suggested that misinterpretation of social cues can lead to inappropriate social responses, such as reacting aggressively or violently to ambiguous social situations (Akhtar & Bradley, 1991; Dodge et al., 2002). Particularly, research indicates that difficulties in interpreting facial expressions of emotion are associated with violent behavior (Hoaken et al., 2007; Babcock et al., 2008). Moreover, deficits in emotional decoding are common in a considerable number of IPV perpetrators (Babcock et al., 2008, Romero-Martinez et al., 2016). There are some examples in the literature that shows that IPV intervention programs for IPV perpetrators can improve emotional decoding abilities (Romero-Martinez et al., 2016). Our program aims to enhance these abilities, and to evaluate the potential impact, we use a specially developed Reading the Mind in the Eyes Test (RMET).

Emotional regulation. Deficits in emotion regulation are also an important factor associated with GBV (Neilson et al., 2023). Emotion regulation is multidimensional and includes one's awareness of emotion (an ability to attend to and acknowledge emotions), understanding and clarity of what emotion one is feeling, and acceptance of emotions (the ability to experience emotions without a

secondary negative emotional response to the emotions (Gratz & Roemer, 2004). Emotion regulation also includes one's ability to act according to one's goals (e.g., goal-directed behavior), rather than acting impulsively, when experiencing an emotion (Gratz & Roemer, 2004). The three facets of emotion regulation that are most consistently associated with IPV perpetration are impulse control, goal directed behavior, and access to emotion regulation strategies. The ER facet of impulse control refers to one's ability to control one's behavior when emotionally distressed. Some studies have shown the possibility of reducing violent behavior through training in emotional regulation techniques (Maldonado et al., 2015; Birkley & Eckhardt, 2019). To measure the potential impact of our intervention on the emotional regulation ability of our participants, we have used the Emotional Regulation Questionnaire ERQ-CA-9 and the Emotional Stop Signal Test (ESST), which is also used to measure inhibitory control capacity.

Cognitive flexibility/Solving Problems. Cognitive flexibility refers to the ability to adapt and switch between different cognitive strategies or mental sets in response to changing environmental demands. While cognitive flexibility itself is not directly associated with violence, it can influence various factors that contribute to violent behavior (Vila-Ballo et al., 2015):

- *Problem-solving and Conflict Resolution*: Individuals with greater cognitive flexibility may be better equipped to navigate and resolve conflicts peacefully, as they can consider multiple perspectives and generate alternative solutions. Conversely, individuals with limited cognitive flexibility may struggle to adapt their thinking and may resort to aggressive or violent responses when faced with challenges or conflicts (Rivera et al., 2021).
- *Emotional Regulation*: Cognitive flexibility is closely linked to emotional regulation, as it allows individuals to shift attention away from distressing stimuli and adopt more adaptive coping strategies. Poor cognitive flexibility may contribute to difficulties in regulating emotions, increasing the likelihood of impulsive or aggressive behavior in response to emotional arousal (Ghosh & Halder, 2020).
- *Attribution Bias*: Cognitive inflexibility can lead to rigid thinking patterns and biased interpretations of social cues. For example, individuals with limited cognitive flexibility may be more prone to negative attribution biases, perceiving

ambiguous or neutral interactions as threatening or hostile. This can contribute to a heightened sensitivity to perceived threats and a propensity for reactive aggression (Kurt & Gündüz, 2020).

- *Social Information Processing*: Cognitive flexibility plays a crucial role in processing and interpreting social information, such as facial expressions, gestures, and verbal cues. Difficulties in accurately perceiving and interpreting social cues may lead to miscommunication, social misunderstandings, and interpersonal conflicts, which can escalate into violent behavior in some cases (Kazemi et al., 2023).

There are some experiences that have shown an improvement in cognitive flexibility in perpetrators of intimate violence who have participated in recidivism prevention programs (Romero-Martínez et al., 2016, 2022). Our program addresses various aspects of cognitive flexibility, and to assess the potential impact on this factor, two instruments are proposed: a neuropsychological test to evaluate cognitive flexibility (WCST) and a questionnaire to assess conflict resolution style (ICRS).

Assessment of risk of violence. Being able to assess the direct impact that the proposed intervention has on reducing violence in the population served is a major challenge. It is very difficult to have a reliable record of violent behaviors before and after the intervention or in control and treatment groups. Schools keep records of incidents among their students, but they lack the necessary systematicity to consider them reliable data for statistical comparison. For this reason, the Adolescent Violence Risk Assessment Scale (SVRAA) has been chosen.

Technical Description of the Analytical Instruments: Self-reported Questionnaires

Impulsivity (SIS) (Iribarren et al., 2011). This is a psychological assessment tool designed to measure impulsivity as a state or temporary characteristic, rather than a stable trait. It consists of 20 items (Cronbach's α = .884) that assess impulsive behaviors and tendencies across three subscales:

- *Motor Impulsivity or Automatism*: Which measures impulsive actions and behaviors, such as acting without thinking, being restless, or having difficulty sitting still.
- *Attentional Impulsivity*: Which assesses difficulties in maintaining focus and attention, including distractibility and difficulties with concentration.
- *Non-planning Impulsivity or Gratification*: Which evaluates impulsive decision-making and lack of future planning or consideration of consequences.

Scale of Violence Risk Assessment in Adolescents (SVRAA) (Muñoz, 2019). This has proven to be an effective tool to identify subjects who are at risk of exercising violence. It is a scale composed by 25 items (Cronbach's α = .836), which is grouped into six factors that refer to a negative self-concept, proactive or instrumental violence, lack of self-control, reactive violence, verbal violence and traits of self-harm, that intends to predict the behavior by recognizing the risk of violence (Muñoz, 2019).

Interpersonal Conflict Resolution Scale (ICRS) (Rivera et al., 2021). This is a tool designed to assess conflict resolution skills among adolescents. It aims to measure how adolescents handle and resolve interpersonal conflicts in various contexts, such as peer interactions, family dynamics, and romantic relationships. The scale is based on the principles of cognitive-behavioral therapy and focuses on identifying constructive conflict resolution strategies while also recognizing maladaptive patterns. It provides a total score representing overall conflict resolution competency, as well as scores for individual subscales corresponding to three different means for conflict resolution: aggressive means, collaborative means, and passive means. The use of collaborative means is associated with good mental health, secure attachment and with the extraversion, agreeableness, and responsibility personality traits, while aggressive means are linked to socio-emotional deficiencies and low personal adjustment, and passive means are associated with clinical symptoms, avoidant attachment, and social and cognitive incompetence (Rivera et al., 2021). In practical terms, it is a scale composed of 22 items (Cronbach's α = .810), which is structured around three factors: collaborative, passive and aggressive means for conflict resolution, factors that are related to violent behavior.

Sexist beliefs (BASI) (Juarros-Basterretxea et al., 2023). The BASI is the brief version of the ASI (Glick & Fiske, 1996) and is composed of 12 items for measuring hostile (6 items) and benevolent sexism (6 items).

Emotional regulation (ERQ-CA-9) (Valencia, & De la Rosa-Gómez, 2022). This is the most widely used measure of cognitive reappraisal and expressive suppression, two core emotion regulation (Gullone & Taffe, 2012). We have used a simplified version of the ERQ, initially designed for children and adolescents for this intervention, that has demonstrated adequate fit as well as good reliability (Valencia & De la Rosa-Gómez, 2022). The findings in previous literature (Ng et al., 2019) show that comparisons made on the latent ER constructs are valid across time, providing support for the use of the ERQ-CA in assessing meaningful change in cognitive reappraisal and expressive suppression with respect to ER interventions for adolescents. It is a scale designed to evaluate how individuals manage their emotions in different situations and consists of 9 items (Cronbach's α = .830), that assess two main strategies of emotional regulation separately (Gross & John, 2003):

- *Cognitive Reappraisal*: This strategy involves changing one's interpretation or perspective of a situation to alter the emotional response. It includes techniques such as reframing, finding silver linings, or focusing on positive aspects of a situation.
- *Expressive Suppression*: This strategy involves inhibiting or suppressing the outward expression of emotions. It may include efforts to hide or conceal emotions from others.

Social Desirability Index (Crowne & Marlowe, 1960). It consists of a set of 13 items that assess behaviors, attitudes, or personality traits that are socially desirable or socially undesirable. It is widely used to assess and control for response bias in self-report research.

Technical Description of the Analytical Instruments: Automated Neuropsychological Tests

Emotional Stop Signal Test (ESST). The ESST can assess emotional regulation capacity by comparing how the emotion shown in the test (joy, anger, fear or neutral) affects the respondent's ability to act correctly to the stimulus and their ability to inhibit their response when necessary.

The initial hypothesis is that when emotional regulation is poorer, more errors are made in response to difficult emotions (anger, fear) than to a neutral or joyful image. The ESST is a modified version of the original stop-signal task developed by Logan & Cowan (1984) created specifically for this intervention. It instructs participants to rapidly indicate the sex (man or woman) of serially presented images (112 in total) of human faces showing different emotions on the same number of occasions (joy, fear, anger, sadness or neutral) by keypress, except on trials with a visual stop-signal (red frame), when participants are asked to inhibit their emotional reaction and accompanying behavioral response. If participants are unable to inhibit an emotional response on a stop or "no-go" trial, the staircase tracking algorithm decreases the stop signal delay (SSD) on the subsequent stop trial, thereby increasing time for stimulus evaluation, response selection, and motor preparation (and vice versa). Test-retest reliability (0.73) of the ESST was satisfactory. It was calculated in a pilot group of students from high schools in Ecatepec (ages 14 to 16) convened at an educational support center, the *Centro Integral de Educación y Salud*, CIES, which carried out the tests on two consecutive Saturdays (August 26, 2023 and September 2, 2023). The ESST is used to assess inhibitory control by counting the number of errors in the go trial, the number of errors in the stop signal, the average response times of both and the FSSRT, and to evaluate emotional regulation from the comparison of the response times and errors for the go trials and for the stop signals of each of the seven emotions represented in the images.

Reading the Mind in the Eyes Test (RMET). This is internationally used to assess emotional perception (Seo et al., 2020). The Eye test used in this evaluation was also specifically created using 42 pictures of the region of the eyes—including eyebrows and part of the nose—of men, women, and children (sex equally represented) expressing the seven primary emotions (joy, fear, disgust, anger, sadness, surprise, neutral). The participant must choose out of the seven words of the emotions the one that describes how the person in the photo is feeling. The percentage of correct answers is used as an estimation of the recognition ability. Test-retest reliability (0.90) of the Eye Test was satisfactory. It was also calculated in the pilot group of students convened at CIES.

Wisconsin Card Sorting Test (WCST). This test is a psychological assessment tool widely used in clinical and neuropsychological evaluations to measure cognitive flexibility, executive function, and problem-solving abilities. This test was originally developed by David A. Grant and Esta A.

Berg in 1948. Its automation enhances the reliability and efficiency of the test. The automated WCST version developed specifically for this intervention involves the display of a set of virtual cards. The rules are explained to the participant and a brief practice session to ensure they understand the task is provided. Then, the participant is presented with a series of cards and is asked to match each card to one of four reference cards at the top of the screen. They must decide which reference card to match the test card, based on a hidden sorting rule, which can be based on color, shape, or number. The sorting rule changes periodically, but participants are not explicitly told when it changes. After each card is selected, the software provides immediate feedback, indicating whether the participant's choice was correct or incorrect. Correct responses earn points, while incorrect responses result in reduced points. The sorting rule must be inferred by the participant through feedback and trial-and-error. The sorting rule changes after a set number of consecutive correct responses or after a predetermined number of trials, and the participant must adapt to the new rule. The test continues until a pre-specified number of 128 trials is completed. The goal is to adapt to the changing rules and maximize the number of correct card placements. Key metrics include the number of completed categories (successful adaptations to rule changes), total errors, perseverative errors (repeating the same incorrect rule), and non-perseverative errors (inaccuracies that do not involve repeating a prior rule). These metrics offer insights into cognitive flexibility, attention to feedback, and the ability to modify strategies based on changing criteria. Because of the feedback about the correctness of the chosen response, learning of the task occurs, therefore, this test is not suitable to be administered more than once. Hence, this test is only administered in the final evaluation of the intervention.

Annex 2. Questions Included in the Self-reported Questionnaires

BRIEF AMBIBALENT SEXISM INVENTORY (BASI)

1. Las mujeres intentan ganar poder controlando a los hombres/Women try to gain power by controlling men.
2. Cuando las mujeres son vencidas por los hombres en una competencia justa, generalmente ellas se quejan de haber sido discriminadas/ When women are defeated by men in a fair competition, they generally complain of having been discriminated against.
3. Una vez que una mujer logra que un hombre se comprometa con ella, por lo general intenta controlarle estrechamente/Once a woman gets a man to commit to her, she generally tries to control him closely.
4. Las mujeres exageran los problemas que tienen en el trabajo/Women exaggerate the problems they have at work.
5. Las mujeres feministas están haciendo demandas completamente irracionales a los hombres/ Feminist women are making completely irrational demands on men.
6. Existen muchas mujeres que, para burlarse de los hombres, primero se insinúan sexualmente a ellos y luego rechazan los avances de estos/There are many women who, to mock men, first sexually entice them and then reject their advances.
7. Todo hombre debe tener una mujer a quien amar/Every man should have a woman to love.
8. El hombre está incompleto sin la mujer/A man is incomplete without a woman.
9. Los hombres deberían estar dispuestos a sacrificar su propio bienestar con el fin de proveer seguridad económica a las mujeres/Men should be willing to sacrifice their own well-being in order to provide economic security for women.
10. Las mujeres deben ser queridas y protegidas por los hombres/Women should be cherished and protected by men.
11. Las mujeres, en comparación con los hombres, tienden a tener una mayor sensibilidad moral/ Women, compared to men, tend to have a greater moral sensitivity.
12. Muchas mujeres se caracterizan por una pureza que pocos hombres poseen/Many women are characterized by a purity that few men possess.

SCALE:
Totalmente en desacuerdo/Totally disagree: 1
Bastante en desacuerdo/Strongly disagree: 2
Un poco en desacuerdo/A little disagree: 3
Un poco de acuerdo/A little agree: 4
Bastante de acuerdo/Quite agree: 5
Totalmente de acuerdo/Totally agree: 6

EMOTIONAL REGULATION QUESTIONNAIRE FOR CHILDREN AND ADOLESCENTS (ERQ-CA-9)

1. No hablo de mis emociones con los demás/I don't talk about my emotions with others.
2. Cuando no quiero sentirme tan mal (p. ej., triste, enfadado), pienso en algo diferente/When I don't want to feel so bad (e.g. sad, angry), I think about something different.
3. Cuando estoy feliz intento que no se me note/ When I'm happy I try not to let it show.
4. Cuando algo me preocupa, me esfuerzo en pensar en eso de una manera que me ayude a sentirme mejor/When something worries me, I try to think about it in a way that helps me feel better.
5. Manejo mis emociones no mostrándolas a los demás/I manage my emotions by not showing them to others.
6. Cuando quiero que algo me haga sentir mejor, cambio mi manera de pensar sobre eso/When I want something to make me feel better, I change the way I think about it.
7. Controlo mis emociones cambiando la manera de pensar sobre la situación en la que estoy/ I control my emotions by changing the way I think about the situation I am in.
8. Cuando me siento mal, intento que no se me note/When I feel bad, I try not to let it show.
9. Cuando no quiero sentirme tan mal con algo, cambio mi manera de pensar sobre eso/When I don't want to feel so bad about something, I change the way I think about it.

SCALE
1 = Muy en desacuerdo/ Strongly disagree
2 = En desacuerdo/Disagree
3 = Ni de acuerdo ni en desacuerdo/Neither agree nor disagree
4 = De acuerdo/Agree
5 = Muy de acuerdo/Strongly agree

Supresión/Suppression: 1, 3, 5, 8
Reevaluación/re-evaluation: 2, 4, 6, 7, 9

INTERPERSONAL CONFLICT RESOLUTION SCALE (ICRS)/ ESCALA DE MEDIOS DE RESOLUCIÓN DE CONFLICTOS INTERPERSONALES (MERCI)

1. Amenazo a la otra persona/I threaten the other person
2. Insulto a la otra persona/I insult to the other person
3. Me enfado y llego a perder el control/I get angry and lose control
4. Ataco verbalmente a la otra persona/I verbally attack the other person
5. Digo cosas de las que luego me arrepiento/I say things I later regret
6. Hablo de forma agresiva/I speak aggressively
7. Culpo al otro del problema/I blame the other person for the problem
8. Expreso mi opinión y le pregunto por la suya/I express my opinion and ask you for yours.
9. Negocio con él/ella de qué manera podemos resolver el problema/I negotiate with him/her how we can resolve the problem.
10. Analizo el problema de forma positiva/I analyze the problem in a positive way

11. Colaboro con la otra persona para buscar soluciones/I collaborate with the other person to find solutions
12. Propongo soluciones beneficiosas para ambos/I propose beneficial solutions for both
13. Intento ponerme en el lugar del otro para entender su punto de vista/I try to put myself in the other person's shoes to understand their point of view
14. Intento que dialoguemos con claridad/ I try to talk clearly
15. Intento resolver nuestras diferencias lo antes posible/I try to resolve our differences as soon as possible
16. Cedo para evitar el conflicto/I give in to avoid conflict
17. Si creo que el punto de vista de la otra persona es muy importante para ella, trato de cumplir sus deseos/If I think the other person's point of view is very important to them, I try to honor their wishes
18. Cuando hay situaciones tensas, prefiero no meterme/When there are tense situations, I prefer not to get involved
19. Si creo que la otra persona sería infeliz si perdiese, la dejo ganar/If I think the other person would be unhappy if they lost, I let them win
20. Doy prioridad a lo que desean los demás/I prioritize what others want
21. Siempre cedo para no herir los sentimientos de la otra persona/ I always give in so as not to hurt the other person's feelings
22. Intento que sus amigos me respalden/I try to get his friends to support me

SCALE:
No me ocurre nunca o no lo hago: 0
Me ocurre o lo hago raras veces: 1
Me ocurre o lo hago algunas veces: 2
Me ocurre o lo hago a menudo: 3
Me ocurre o lo hago con mucha frecuencia: 4

AGR1 1. Amenazo a la otra persona
AGR2 2. Insulto a la otra persona
AGR3 3. Me enfado y llego a perder el control
AGR4 4. Ataco verbalmente a la otra persona
AGR5 5. Digo cosas de las que luego me arrepiento
AGR6 6. Hablo de forma agresiva
AGR7 7. Culpo al otro del problema

COL1 8. Expreso mi opinión y le pregunto por la suya
COL2 9. Negocio con él/ella de qué manera podemos resolver el problema
COL3 10. Analizo el problema de forma positiva
COL4 11. Colaboro con la otra persona para buscar soluciones
COL5 12. Propongo soluciones beneficiosas para ambos
COL6 13. Intento ponerme en el lugar del otro para entender su punto de vista
COL7 14. Intento que dialoguemos con claridad
COL8 15. Intento resolver nuestras diferencias lo antes posible

PAS1 16. Cedo para evitar el conflicto

PAS2 17. Si creo que el punto de vista de la otra persona es muy importante para ella, trato de cumplir sus deseos
PAS3 18. Cuando hay situaciones tensas, prefiero no meterme
PAS4 19. Si creo que la otra persona sería infeliz si perdiese, la dejo ganar
PAS5 20. Doy prioridad a lo que desean los demás
PAS6 21. Siempre cedo para no herir los sentimientos de la otra persona
PAS7 22. Intento que sus amigos me respalden

Puntuación directa/Direct score: interpretación/interpretation
Medios agresivos/Aggressive means
≥ 0 y < 7: es improbable el recurso a medios agresivos en el afrontamiento del conflicto/resorting to aggressive means in confronting the conflict is unlikely
≥ 7 y < 14: es probable el recurso a medios agresivos en el afrontamiento del conflicto/resorting to aggressive means in coping with the conflict is likely
> 14 y < 21: probabilidad moderadamente alta de recurso a medios agresivos en el afrontamiento del conflicto/ moderately high probability of resorting to aggressive means in coping with the conflict
≥ 21: probabilidad muy elevada de recurso a medios agresivos en el afrontamiento del conflicto/ very high probability of resorting to aggressive means in coping with the conflict
Medios colaborativos/collaborative means
≥ 0 y < 8: es improbable el recurso a medios colaborativos en el afrontamiento del conflicto/ resorting to collaborative means in confronting the conflict is unlikely
≥ 8 y < 16: es probable el recurso a medios colaborativos en el afrontamiento del conflicto/ resort to collaborative means is likely to confront the conflict
> 16 y < 24: probabilidad moderadamente alta de recurso a medios colaborativos en el afrontamiento del conflicto/moderately high probability of resorting to collaborative means in coping with conflict
≥ 24: probabilidad muy elevada de recurso a medios colaborativos en el afrontamiento del conflicto/very high probability of resorting to collaborative means in coping with the conflict
Medios pasivos/passive means
≥ 0 y < 7: es improbable el recurso a medios pasivos en el afrontamiento del conflicto/ resorting to passive means in coping with conflict is unlikely
≥ 7 y < 14: es probable el recurso a medios pasivos en el afrontamiento del conflicto/resorting to passive means in coping with the conflict is likely
> 14 y < 21: probabilidad moderadamente alta de recurso a medios pasivos en el afrontamiento del conflicto/moderately high probability of resorting to passive means in coping with conflict
≥ 21: probabilidad muy elevada de recurso a medios pasivos en el afrontamiento del conflicto/ very high probability of resorting to passive means in coping with the conflict

STATE IMPULSIVITY SCALE (SIS)/ ESCALA DE IMPULSIVIDAD DE ESTADO

1. Busco actividades en las que obtengo un placer rápido, aunque sé que me pueden ocasionar algún problema o daño físico/I look for activities in which I get quick pleasure, even though I know they may cause me some problems or physical harm

2. Suelo caer en tentaciones que me dificultan cumplir con un compromiso/I tend to fall into temptations that make it difficult for me to keep a commitment
3. Busco conseguir beneficios inmediatos, en vez de esperar algo mejor más tarde/ I seek immediate benefits, rather than hoping for something better later
4. Continúo haciendo determinadas actividades placenteras a pesar de que los demás me advierten que me perjudican/I continue doing certain pleasurable activities even though others warn me that they harm me
5. Cuando traigo ganas de hacer algo o se me antoja algo, surge un impulso en mí que quiere hacerlo sin poder esperar/When I feel like doing something or I crave something, an impulse arises in me that wants to do it without being able to wait
6. Obtengo más placer dejándome llevar que controlando mis acciones/I get more pleasure from letting myself go than from controlling my actions
7. Me cuesta controlar mis reacciones cuando no consigo lo que deseo/I find it difficult to control my reactions when I don't get what I want
8. Me cuesta parar de hacer algo, aunque vea que me estoy equivocando/It's hard for me to stop doing something, even if I see that I'm making a mistake
9. Tengo reacciones automáticas que no puedo evitar/I have automatic reactions that I can't avoid
10. Si hago algo y no obtengo los resultados que espero, me cuesta trabajo cambiar de estrategia/ If I do something and I don't get the results I expect, it's hard for me to change my strategy
11. Siempre actúo de la misma forma (soy como soy) aunque no sea el momento o el sitio apropiado/I always act the same way (I am who I am) even if it is not the right time or place
12. No pongo freno a mis reacciones por más que alguien me diga que pare/I don't stop my reactions no matter how much someone tells me to stop
13. Repito muchas veces la misma forma de actuar, aunque no consiga lo que busco/I repeat the same way of acting many times, even if I don't get what I'm looking for
14. Suelo equivocarme porque reacciono tan rápido que no presto suficiente atención a los detalles/I usually make mistakes because I react so quickly that I don't pay enough attention to the details
15. Ante un imprevisto, actúo sin pensar en las consecuencias/When faced with an unforeseen event, I act without thinking about the consequences
16. Me suelo equivocar por andar de apresurado (no esperar el tiempo adecuado)/I usually make mistakes by rushing (not waiting for the right time)
17. Hay ocasiones en las que dejo de prestar atención a las consecuencias de mis actos/There are times when I stop paying attention to the consequences of my actions
18. Respondo antes de que hayan terminado de formular una pregunta/I answer before they have finished asking a question
19. En algunas situaciones, no espero lo suficiente y actúo antes de tiempo/In some situations, I do not wait long enough and act prematurely
20. Actúo sin pensar que otras personas podrían enojarse por lo que hago/I act without thinking that other people might be angry about what I do

SCALE:
Casi nunca/Almost never = 0
Algunas veces/Sometimes = 1
Bastantes veces/Quite a few times = 2
Casi siempre/Almost always = 3

Los primeros 7 ítems del test corresponden a la dimensión de Gratificación
Las preguntas 8 a la 13 a la dimensión Automatismo
Y las preguntas 14 a 20 conforman la dimensión Atencional/
The first 7 items of the test correspond to the Gratification dimension
Questions 8 to 13 to the Automation dimension
And questions 14 to 20 make up the Attentional dimension

El punto de corte para la puntuación total (la suma de todos los ítems) se sitúa en:
> de 19. Puntuaciones iguales o menores a 19 estarían indicando niveles bajos de impulsividad.
The cut-off point for the total score (the sum of all items) is located at:
> 19. Scores equal to or less than 19 would indicate low levels of impulsiveness.

SCALE OF RISK OF VIOLENCE ASSESSMENT SCALE (SRVAA)/
ESCALA DE VALORACIÓN DEL RIESGO DE VIOLENCIA EN ADOLESCENTES (EVRVA)

1. Me he reprochado porque no soy como los demás jóvenes/I have reproached myself because I am not like other young people
2. Me avergüenzo porque siento que mis hermanos son mejores/I am ashamed because I feel that my brothers or sisters are better
3. Sería fácil humillarme por mi baja autoestima/It would be easy to humiliate myself for my low self-esteem
4. Dudo de mis capacidades por la desconfianza de mi familia/I doubt my abilities because of my family's distrust
5. Me he reprimido por mi mal manejo de la frustración/I have repressed myself because of my poor handling of frustration
6. He despreciado los cuidados de mis padres por ser tan estrictos conmigo/I have despised my parents' care for being so strict with me
7. Quisiera irme de casa de mis padres porque no me permiten tomar mis decisiones/I would like to leave my parents' house because they don't allow me to make my own decisions
8. Realizaría bromas pesadas a los demás para pasar el rato porque la escuela me fastidia/I would play practical jokes on others to pass the time because school bothers me
9. Uso de la tecnología para molestar a mis amigos/I use technology to annoy my friends
10. Grafitearía paredes de mi colonia para expresar mi pertenencia hacia ella/I would graffiti the walls of my neighborhood to express my belonging to it
11. Podría lesionar mi cuerpo para no ir a clase/I could injure my body to not go to class
12. Amenazo a los demás cuando estoy molesto/I threaten others when I am upset
13. Destruí pertenencias ajenas por no controlar mis emociones/I destroyed other people's belongings for not controlling my emotions
14. Intimido a los otros porque cambio de humor bruscamente/I bully others because I suddenly change my mood
15. Cometí actos violentos a los que me rodean por la influencia de los medios de comunicación/I committed violent acts to those around me due to the influence of the media
16. Sería capaz de robar a alguien por el bienestar familiar/I would be capable of robbing someone for the sake of family well-being

17. Vendería droga ilegal a otros para solucionar los problemas económicos de mi familia/I would sell illegal drugs to others to solve my family's financial problems
18. Me gustaría tener un arma para poder defenderme de los demás/I would like to have a weapon so I can defend myself from others
19. Callo a los demás porque creo tener la razón todo el tiempo/I keep quiet about others because I think I'm right all the time
20. Hice comentarios hirientes a otros por caerme mal/I made hurtful comments to others because I didn't like them
21. Uso malas palabras contra los que me rodean porque me viene de familia/I use bad words against those around me because it runs in my family
22. Sería menos agresivo con mis palabras hacia los demás si mi familia me cuidara mejor/I would be less aggressive with my words toward others if my family took better care of me
23. He sufrido accidentes a propósito para llamar la atención de mis padres/I have had accidents on purpose to get my parents' attention
24. Podría difamarme con tal de conseguir lo que quiero/I could slander myself to get what I want
25. Me castigo físicamente cuando las cosas no suceden como quiero/I physically punish myself when things don't happen the way I want

SCALE:
1 = Nunca/Never
2 = Raramente/Rarely
3 = Frecuentemente/Frequently
4 =Siempre/Always

Puntuación total/Total score: se suman todos los valores/all values are added
Puntuaciones parciales por Factores de Violencia (Suma parcial de cada factor)/Partial scores for Violence Factors (Partial sum of each factor)
Autoconcepto negativo/Negative self-concept: Preguntas/Questions 1-7
Violencia proactiva/Proactive violence: Preguntas/Questions 8-11
Carencia de autocontrol/Lack of self-control: Preguntas/Questions 12-15
Violencia reactiva/Reactive violence: Preguntas/Questions 16-18
Violencia verbal/Verbal violence: Preguntas/Questions 19-21
Rasgos de autolesión/Self-harm traits: Preguntas/Questions 22-25

Puntuación mínima/Minimum score: 25
Puntuación máxima/Maximum score: 100

SOCIAL DESIRABILITY INDEX / ÍNDICE DE DESEABILIDAD SOCIAL

1. A veces se me hace difícil ponerme a trabajar sin que me pidan que lo haga (Revertido)/Sometimes it is difficult for me to get to work without being asked to do so (Reversed)
    - Sí/Yes
    - No/No

2. A veces me siento frustrado(a) o triste porque las cosas no salen como yo quiero (Revertido)/Sometimes I feel frustrated or sad because things don't go the way I want (Reversed)
    - Sí
    - No
3. En algunas ocasiones, he dejado de intentar hacer algo porque he pensado que soy poco capaz de hacerlo (Revertido)/On some occasions, I have stopped trying to do something because I have thought that I am not capable of doing it (Reversed)
    - Sí
    - No
4. En ocasiones quiero llevarle la contraria a la gente con autoridad, aunque sepa que tienen razón (Revertido)/Sometimes I want to contradict people in authority, even if I know they are right (Reversed)
    - Sí
    - No
5. Sin importar con quien esté hablando, siempre escucho con atención/No matter who I am talking to, I always listen carefully
    - Sí
    - No
6. Ha habido ocasiones en que me he aprovechado de alguna persona (Revertido)/There have been times when I have taken advantage of someone (Reversed)
    - Sí
    - No
7. Siempre estoy dispuesto/a a aceptar cuando cometo un error/I am always willing to accept when I make a mistake
    - Sí
    - No
8. En ocasiones trato de desquitarme o vengarme en lugar de perdonar u olvidar (Revertido)/Sometimes I try to get even or take revenge instead of forgiving or forgetting (Reverted)
    - Sí
    - No
9. Siempre soy amable, aun con la gente que no es tan agradable/I am always nice, even to people who are not so nice
    - Sí
    - No
10. Nunca me molesto cuando la gente tiene ideas que son muy distintas a las mías/I never get upset when people have ideas that are very different from mine
    - Sí
    - No
11. A veces he sentido muchos celos de la buena suerte de otras personas (Revertido)/I have sometimes felt very jealous of other people's good luck (Reversed)
    - Sí
    - No
12. Algunas veces me irrito porque la gente me pida favores (Revertido)/Sometimes I get irritated because people ask me for favors (Reversed)

- Sí
- No

13. De forma consciente he dicho cosas que han herido los sentimientos de otra persona (Revertido)/I have knowingly said things that have hurt another person's feelings (Reversed)
    - Sí
    - No

El resultado es la suma de todas las respuestas positivas/The result is the sum of all positive responses.

Annex 3. Addressing Spillovers

Here we show the differential effect of the treatment between the Pure Control group and the Contaminated Control group for our 20 outcome variables, in Tables A1 and A2. Each table contains one of the two different econometric specifications. The specifications are:

(1) $Y_i = \beta_0 + \beta_1 ContControl + u_i$
(2) $Y_i = \delta_0 + \delta_1 ContControl + \delta_2 ContControl * Female + \delta_3 Female + s_i$

We see no significant differential effects for 18 of our variables. A priori, we cannot be sure if these results are driven by the lack of power to detect spillovers or the inexistence of spillovers.

Table A3.1. Model: Differential Effect of the Treatment between the Pure Control Group and the Contaminated Control (main effect)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Questionnaires results																	**Neuropsychological tests results**		
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Impulsivity (SIS - Attentional)	Impulsivity (SIS - Automatism)	Impulsivity (SIS - Gratification)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)	Assessment of risk of violence (SVRAA - Negative self-assessment)	Assessment of risk of violence (SVRAA - Lack of self-control)	Assessment of risk of violence (SVRAA - Self-harm)	Assessment of risk of violence (SVRAA - Proactive Violence)	Assessment of risk of violence (SVRAA - Reactive Violence)	Assessment of risk of violence (SVRAA - Verbal Violence)	Impulsivity (ESST)	Emotional recognition (RMET)	Cognitive flexibility (WCST)
Contaminated Control	1.628**	-0.197	0.0313	-0.137	-0.0914	-0.132	-0.206	0.107	-1.006*	-0.0934	0.0591	0.102	-0.0678	0.0145	0.112	-0.0691	-0.0318	-0.00514	-0.0121	-0.0140
	(0.702)	(0.912)	(0.376)	(0.252)	(0.441)	(0.326)	(0.293)	(0.549)	(0.553)	(0.301)	(0.812)	(0.193)	(0.189)	(0.180)	(0.165)	(0.136)	(0.134)	(0.00926)	(0.0241)	(0.0146)
Constant	-3.064***	0.740	-0.0249	0.362*	0.403	-1.657***	-0.966***	0.333	-1.504***	-0.528***	1.611***	-0.00840	0.338**	0.233**	0.420***	0.405***	0.223***	-0.00850	-0.0554***	0.587***
	(0.344)	(0.780)	(0.285)	(0.197)	(0.360)	(0.224)	(0.191)	(0.326)	(0.304)	(0.103)	(0.285)	(0.0731)	(0.112)	(0.103)	(0.0907)	(0.0769)	(0.0437)	(0.00525)	(0.00611)	(0.00927)
Observations	826	673	673	673	673	763	763	724	724	724	916	916	916	916	916	916	916	814	786	903
R-squared	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.003

SE clustered by school-shift
*p<.05; **p<.01; ***p<.001

Table A3.2. Model 2: Differential Effect of the Treatment between the Pure Control Group and the Contaminated Control (effect by gender)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
	Questionnaires results																	**Neuropsychological tests results**		
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Impulsivity (SIS - Attentional)	Impulsivity (SIS - Automatism)	Impulsivity (SIS - Gratification)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)	Assessment of risk of violence (SVRAA - Negative self-assessment)	Assessment of risk of violence (SVRAA - Lack of self-control)	Assessment of risk of violence (SVRAA - Self-harm)	Assessment of risk of violence (SVRAA - Proactive Violence)	Assessment of risk of violence (SVRAA - Reactive Violence)	Assessment of risk of violence (SVRAA - Verbal Violence)	Impulsivity (ESST)	Emotional recognition (RMET)	Cognitive flexibility (WCST)
Contaminated Control	1.500	0.250	0.608	0.0887	-0.446	-0.837	-0.528	0.357	-1.689	-0.416	-0.501	0.289	-0.178	-0.131	-0.137	-0.246*	-0.0973	0.00452	-0.0105	-0.0264
	-1.179	-1.376	(0.496)	(0.370)	(0.686)	(0.576)	(0.454)	(0.747)	(0.969)	(0.682)	-1.136	(0.372)	(0.234)	(0.217)	(0.139)	(0.129)	(0.242)	(0.0103)	(0.0288)	(0.0196)
ContControl*Female	0.249	-0.843	-1.089	-0.427	0.673	1.386	0.619	-0.478	1.295	0.612	1.077	-0.358	0.212	0.278	0.479*	0.340	0.126	-0.0184	-0.00312	0.0240
	-1.503	-2.067	(0.861)	(0.652)	(0.808)	(0.879)	(0.557)	(0.813)	-1.179	-1.043	-1.399	(0.465)	(0.234)	(0.226)	(0.265)	(0.255)	(0.328)	(0.0145)	(0.0169)	(0.0210)
Female	-0.0768	0.841	0.663*	0.106	0.0728	-0.113	-0.349	0.0598	-0.461	-0.178	-0.339	0.338	-0.145	-0.228	-0.199	-0.101	-0.00379	-0.0151	-0.00112	-0.0108
	-1.194	(0.477)	(0.327)	(0.234)	(0.328)	(0.326)	(0.204)	(0.453)	(0.352)	(0.784)	-1.068	(0.264)	(0.160)	(0.197)	(0.203)	(0.175)	(0.272)	(0.0106)	(0.00936)	(0.0139)
Constant	-3.024***	0.294	-0.376*	0.306**	0.365	-1.597***	-0.780***	0.301	-1.256**	-0.432	1.789***	-0.185	0.414***	0.352**	0.524***	0.458***	0.225	-0.000647	-0.0548***	0.593***
	(0.921)	(0.526)	(0.172)	(0.105)	(0.411)	(0.239)	(0.188)	(0.426)	(0.465)	(0.361)	(0.442)	(0.182)	(0.105)	(0.127)	(0.0358)	(0.0592)	(0.139)	(0.00340)	(0.00619)	(0.0151)
Observations	826	673	673	673	673	763	763	724	724	724	916	916	916	916	916	916	916	814	786	903
R-squared	0.005	0.001	0.003	0.001	0.002	0.006	0.002	0.001	0.005	0.001	0.001	0.001	0.001	0.002	0.005	0.003	0.001	0.009	0.001	0.005

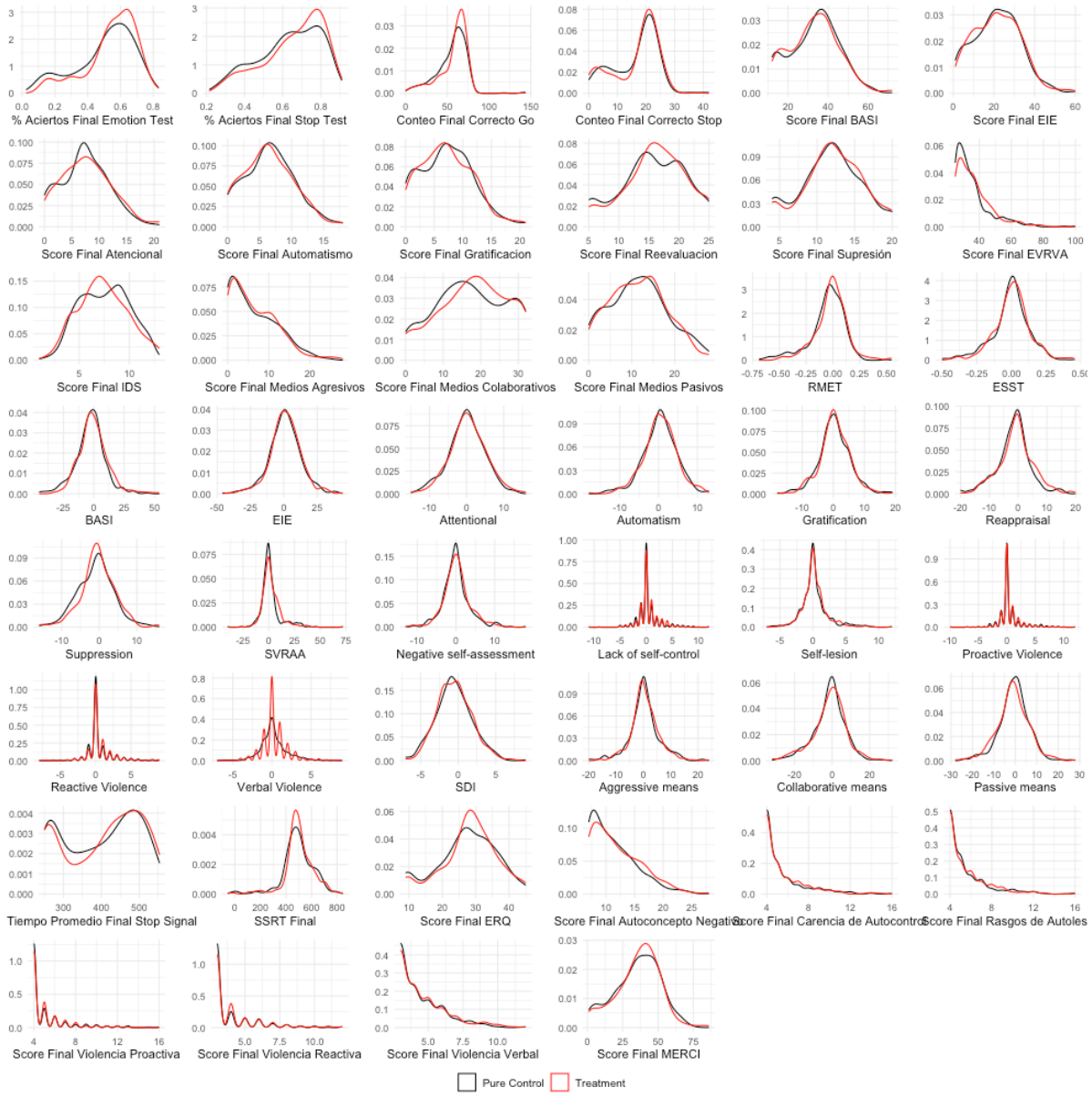
SE clustered by school-shift

*p<.05; **p<.01; ***p<.001

Annex 4. Descriptive Analysis of Our Results

In this section we compare the distribution of outcomes for the Treatment and Pure Control groups.

Table A4.1. Comparing Treatment and Control



Annex 5. Additional Baseline Information

Table A5.1 shows the descriptive statistics of the results obtained for each of the analytical instruments used (both self-reported questionnaires and neuropsychological tests).

Table A5.1. Descriptive Statistics of Baseline Results

TEST OR SCALE	SUBSCALE	Mean value	Standard Deviation	Asymmetry	Kurtosis
BASI	TOTAL	1.83	1.03	-0.52	0.16
	Hostile Sexism	1.98	1.16	-0.035	-035
	Benevolent Sexism	1.70	1.17	-0.35	-0.08
SIS	TOTAL	20.11	11.30	0.49	0.023
	Attentional	7.23	4.52	0.51	0.044
	Automatism	6.11	3.77	0.48	-063
	Gratification	6.76	4.43	0.55	-0.19
ERQ-CA-9					
	Cognitive reappraisal	3.21	1.18	-0.95	0.68
	Expressive suppression	3.16	0.95	-0.27	-0.27
ICRS					
	Aggressive means	0.82	0.75	1.03	0.68
	Collaborative means	2.20	1.17	-0.33	-0.82
	Passive means	1.61	0.96	0.11	-0.60
SVRAA	TOTAL	1.37	0.32	1.31	3.66
	Negative self-concept	1.64	0.56	0.95	0.63
	Lack of self-control	1.26	0.41	2.21	6.65
	Traits of self-harm	1.29	0.40	1.72	3.94
	Proactive or instrumental violence	1.19	0.34	2.65	10.2
	Reactive violence	1.22	0.43	2.71	9.25
	Verbal violence	1.32	0.49	1.66	3.90
ESST	% Correct Trials	65	15	-0.58	-0.34
	Total Correct Go Trials	56	17	-0.88	2.44
	Total Correct Stop Trials	16	7.7	-0.52	-0.89
RMET	% Correct Trials	59	14	-0.90	0.80
WCST	% Correct Trials	58	13	-0.28	-0.20
	Perseverative errors	10.3	6.65	1.50	2.57
	Non-perseverative errors	15.1	4.01	-0.04	-0.41

In the baseline assessments, our population's BASI questionnaire responses indicate similar levels to those of other Latin American countries and align with the prevailing literature, which suggests that men typically exhibit significantly higher levels of both types of sexism compared to women (Rollero et al., 2014; Martínez-Baquero & Vallejo-Medina, 2024). Regarding the SIS, our population's scores surpass those of the population in which the scale was validated. Notably, there are no significant initial score differences between males and females across the total scale or its measured dimensions. Analysis of ERQ-CA-9 z baseline data reveal that male students tend to score higher in emotional regulation through expressive suppression, while female students score significantly higher in cognitive reappraisal, suggesting superior emotional regulation strategies among females, consistent with existing literature (Gross & John, 2003). Findings from the baseline ICRS assessment indicate no remarkable distinctions in the use of aggressive and passive methods for emotional regulation between boys and girls. However, girls tend to employ collaborative approaches to conflict resolution more frequently, aligning with prior research by Shute and Charlton (2006). Conversely, a study by Fariña et al. (2021) showed no significant gender variations in conflict resolution styles. Our population's scores on the violence risk scale are somewhat lower than those found in Muñoz's scale validation work among Mexican adolescents. Gender differentiation reveals significantly higher total scores among girls. Notably, girls score higher in negative self-concept and self-injury traits, while boys score higher in reactive and proactive violence. There were no significant differences by sex for the lack of self-control and verbal violence subscales.

Analysis of baseline ESST results reveals no significant performance differences between sexes, consistent with findings from the SIS and SVRAA. However, performance varies significantly across the four included emotions for both sexes, with more errors observed in Go trials when fear is depicted and in Stop trials when anger is displayed. These results are consistent with expected behaviors, less action when faced with an emotion of fear, more action and less inhibition when faced with an emotion of anger. Initial RMET results suggest that girls exhibit superior emotional recognition compared to boys, achieving significantly higher scores on the test (Lawrence et al., 2015). The WCST was excluded from baseline assessments due to concerns about potential learning effects. Instead, data from the control group at the conclusion of the intervention were used, revealing no significant gender disparities in task performance.

As highlighted throughout, these factors are interconnected with violence, suggesting potential correlations between SVRAA scores and other test and questionnaire outcomes. Indeed, our analysis indicates significant positive correlations between violence and impulsivity measures, and negative correlations between violence and emotional recognition, inhibitory control, and conflict resolution measures. For example, baseline responses yielded a correlation of 0.43 between the total violence measure and the SIS variable, along with correlations of 0.26 and 0.23 between the EIE variable and variables assessing proactive and reactive violence, respectively. Furthermore, negative correlations of -0.1, -0.06, and -0.05 were identified between proactive violence and variables related to emotional recognition, inhibitory control, and conflict resolution (passive means), respectively.

Annex 6. Subscales Results

In the main text, we focused on the aggregated scales for clarity and conciseness. However, this annex presents the extended results for the individual subscales. For each subscale, we estimate Model 1 and Model 2. These additional models provide a more detailed breakdown of the treatment effects across the various dimensions represented by the subscales.

Table A6.1. Extended Questionnaires Results: Main Effects (Model 1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Impulsivity (SIS – Attentional)	Impulsivity (SIS – Automatism)	Impulsivity (SIS – Gratification)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - Negative self-assessment)	Assessment of risk of violence (SVRAA - Lack of self-control)	Assessment of risk of violence (SVRAA - Self-harm)	Assessment of risk of violence (SVRAA - Proactive Violence)	Assessment of risk of violence (SVRAA - Reactive Violence)	Assessment of risk of violence (SVRAA - Verbal Violence)
Treatment	0.467	0.040	0.115	0.993	0.577	0.217	0.121	-0.591	0.225	0.109	0.030	0.022	0.070	0.099
p-value	(0.283)	(0.902)	(0.803)	(0.098)	(0.043)	(0.624)	(0.893)	(0.223)	(0.468)	(0.503)	(0.858)	(0.853)	(0.577)	(0.369)
Adjusted p-value for MHT	[0.903]	[0.903]	[0.903]	[0.689]	[0.608]	[0.903]	[0.903]	[0.903]	[0.903]	[0.903]	[0.903]	[0.903]	[0.903]	[0.903]
Female	0.499	0.266	0.384	0.172	0.029	0.052	0.401	0.005	0.123	-0.100	-0.192	-0.222	-0.082	-0.142
p-value	(0.135)	(0.354)	(0.244)	(0.679)	(0.916)	(0.892)	(0.500)	(0.994)	(0.674)	(0.397)	(0.256)	(0.188)	(0.477)	(0.463)
Constant	-0.289	0.221	0.200	-1.748***	-0.981**	0.305	-1.719**	-0.530	-0.073	0.390**	0.334*	0.536***	0.448***	0.297**
p-value	(0.379)	(0.333)	(0.660)	(0.006)	(0.012)	(0.502)	(0.029)	(0.147)	(0.696)	(0.036)	(0.071)	(0.002)	(0.002)	(0.038)

In parenthesis, p-values corresponding to clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values, only for hypotheses being tested.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Table A6.2. Extended Questionnaires Results: Effects by Gender (Model 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Impulsivity (SIS – Attentional)	Impulsivity (SIS – Automatism)	Impulsivity (SIS – Gratification)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - Negative self-assessment)	Assessment of risk of violence (SVRAA - Lack of self-control)	Assessment of risk of violence (SVRAA - Self-harm)	Assessment of risk of violence (SVRAA - Proactive Violence)	Assessment of risk of violence (SVRAA - Reactive Violence)	Assessment of risk of violence (SVRAA - Verbal Violence)
Treatment	0.647	-0.136	-0.226	0.680	0.163	0.225	-0.820	-0.790	0.464	0.059	-0.009	0.048	0.049	0.253
p-value	(0.086)	(0.641)	(0.688)	(0.410)	(0.660)	(0.698)	(0.401)	(0.311)	(0.404)	(0.744)	(0.972)	(0.795)	(0.715)	(0.267)
Adjusted p-value for MHT	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.986]	[0.957]	[0.957]	[0.957]
Female	0.663	0.106	0.073	-0.113	-0.349	0.060	-0.461	-0.178	0.338	-0.145	-0.228	-0.199	-0.101	-0.004
p-value	(0.179)	(0.713)	(0.846)	(0.781)	(0.232)	(0.918)	(0.348)	(0.855)	(0.372)	(0.462)	(0.400)	(0.443)	(0.657)	(0.991)
Female*Treatment	-0.335	0.328	0.635	0.585	0.774	-0.015	1.728	0.367	-0.444	0.094	0.073	-0.048	0.039	-0.285
p-value	(0.622)	(0.570)	(0.321)	(0.507)	(0.146)	(0.986)	(0.116)	(0.786)	(0.467)	(0.692)	(0.833)	(0.888)	(0.872)	(0.480)
Adjusted p-value for MHT	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.986]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]	[0.957]
Constant	-0.376	0.306*	0.365	-1.597**	-0.780**	0.301	-1.256	-0.432	-0.185	0.414*	0.352	0.524***	0.458**	0.225
p-value	(0.156)	(0.093)	(0.501)	(0.015)	(0.043)	(0.570)	(0.118)	(0.364)	(0.464)	(0.051)	(0.102)	(0.002)	(0.011)	(0.261)

In parenthesis, p-values corresponding to clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata. In brackets, p-values corrected for Multiple Hypothesis Testing using Anderson's sharpened q-values, only for hypotheses being tested.
*if Anderson's q-values<.1; ** if Anderson's q-values<.05; *** if Anderson's q-values<.01

Annex 7. Robustness Check

To assess the potential influence of social desirability bias on the treatment effects, we present two models that include interactions with the Social Desirability Index (SDI) as robustness checks. The first model is the main regression including the interaction of treatment and SDI. The second model is a fully interacted model, incorporating two-way interactions between treatment, gender, and SDI, as well as the three-way interaction term.

Table A7.1. Questionnaires Results: Main Effects Interacted with Social Desirability Index (Model 1)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)
Treatment	6.158*	0.693	2.744***	2.049**	-0.836	3.738***	2.603***	1.975*
	(3.166)	(2.306)	(0.946)	(0.981)	(0.912)	(0.677)	(0.888)	(1.195)
Female	-0.671	1.146*	0.110	-0.0240	0.0907	0.269	-0.111	-0.663
	(0.734)	(0.666)	(0.402)	(0.254)	(0.378)	(0.527)	(0.604)	(0.752)
Treatment*SDI	-0.421	-0.00902	-0.222*	-0.186	0.134	-0.459***	-0.406***	-0.180*
	(0.321)	(0.244)	(0.114)	(0.117)	(0.0935)	(0.120)	(0.0800)	(0.107)
Constant	-2.713***	0.132	-1.715***	-0.953***	0.285	-1.649***	-0.468	1.964***
	(0.681)	(0.776)	(0.318)	(0.221)	(0.413)	(0.504)	(0.292)	(0.370)
N	851	710	797	797	762	762	762	925

In parenthesis, clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata
*if p-value<.1; ** if p-value<.05; *** if p-value<.01

Table A7.2. Questionnaires Results: Gender Effects Interacted with Social Desirability Index (Model 2)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Sexist Beliefs (BASI)	Impulsivity (SIS - All)	Emotional Regulation (ERQ-CA-9 - Cognitive Reappraisal)	Emotional Regulation (ERQ-CA-9 - Expressive Suppression)	Cognitive flexibility (ICRS - Aggressive means)	Cognitive flexibility (ICRS - Collaborative means)	Cognitive flexibility (ICRS - Passive means)	Assessment of risk of violence (SVRAA - All)
Treatment	6.285	3.868	4.393***	3.366***	1.900	0.818	3.675**	5.711**
	(5.594)	(2.572)	(1.029)	(1.160)	(1.782)	(1.890)	(1.804)	(2.835)
Female	-0.513	0.926*	0.00623	-0.337	-0.166	-0.129	0.0246	-0.609
	(1.138)	(0.511)	(0.357)	(0.233)	(0.580)	(0.488)	(0.855)	(1.255)
SDI	0.381	-1.087***	-0.0373	-0.0294	-0.477***	0.659***	0.0955	-0.313
	(0.299)	(0.234)	(0.0852)	(0.0713)	(0.0920)	(0.239)	(0.212)	(0.245)
Treatment*Female	-1.103	-1.353	-3.449	-2.558**	-1.683	0.394	-3.408	-3.484
	(4.770)	(3.186)	(2.322)	(1.294)	(2.107)	(3.444)	(2.376)	(3.765)
SDI*Female	-0.759**	0.595	0.183	0.0570	-0.148	0.234	0.262*	-0.471
	(0.299)	(0.407)	(0.160)	(0.152)	(0.196)	(0.301)	(0.144)	(0.373)
Treatment*SDI	-0.354	-0.457	-0.449***	-0.393***	-0.213	-0.188	-0.544***	-0.622**
	(0.603)	(0.327)	(0.161)	(0.142)	(0.172)	(0.264)	(0.173)	(0.267)
Treatment*Female*SDI	-0.0224	0.269	0.487	0.409**	0.237	0.113	0.438**	0.361
	(0.540)	(0.424)	(0.336)	(0.164)	(0.184)	(0.365)	(0.214)	(0.384)
Constant	-2.832***	-0.182	-1.623***	-0.778***	0.103	-0.982*	-0.392	1.775***
	(0.827)	(0.482)	(0.277)	(0.201)	(0.479)	(0.520)	(0.460)	(0.510)
N	850	707	792	792	761	761	761	850

In parenthesis, clustered SE at the school-shift level, adjusted by small number of clusters using *reg_sandwich* command in Stata
*if p-value<.1; ** if p-value<.05; *** if p-value<.01