

Cross-national evidences of a school-based universal program for promoting prosocial behaviors
in peer interactions:

Main theoretical communalities and local uniqueness

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Abstract

The purpose of this study was to evaluate the role of prosocial behavior against aggression in a school-based universal intervention adapted in two different (non-Western) countries, Colombia and Chile. Using a randomized pretest-posttest design (and controlling for participants' gender and parents' level of education), current results highlighted different effects of a similar program in both sites. First, the school-based universal program designed for promoting prosocial behaviors in the peer context obtained a positive cross-national effect on prosocial behavior rated by three informants (i.e., self, peer, and teacher reports). In Colombia this effect was moderated by the initial level of prosociality of the participants and their level of education. Mediation two waves model corroborated that the improvement on prosocial behaviors in both countries (moderated in the case of Colombia) predicted significantly lower level of physical aggression. Characteristics of the implementation considering different cultural and historical backgrounds were discussed.

Keywords: prosocial behavior; school-based intervention; adolescence.

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Demands on schools to prevent problematic behaviors among students and promote their successful development have grown in the last decades (e.g., Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2010). Interestingly, preventive school-based interventions not only focus on reducing problem behaviors but also on fostering the development of positive behaviors, enhancing students' socioemotional competences, character, health, and civic engagement (e.g., Conduct Problems Prevention Research Group, 2010). Among those socioemotional skills that may counteract aggression, prosocial behavior has been identified as a crucial protective factor against different facets of violence (see Eisenberg, Spinrad, & Kanfo-Noam, 2015; Malti, Ribeaud, & Eisner, 2011). However, the extent to which the promotion of prosocial behavior in a natural setting (i.e., via intervention programs) can reduce behavioral problems is still a matter of debate. Most important, the majority of these programs have been implemented in samples from Western, Educated, Industrialized, Rich and Democratic societies (*WEIRD*; Henrich, Heine, & Norenzayan, 2010). Accordingly, there is a need to adopt a wider perspective on preventive interventions which takes into account the role played by cultural and national factors to test the efficacy of school-based programs (Castro, Barrera, & Martinez, 2004). The present study is aimed at partially addressing this gap by adapting the "Promoting Prosocial and Emotional Skills to Counteract Externalizing Problems in Adolescence" (CEPIDEA; Caprara, Luengo Kanacri et al., 2015), in two different countries (Chile and Colombia¹). The CEPIDEA is a school-based universal program specifically designed to promote prosocial behaviors in the peer context as a

way to counteract aggressive behaviors during adolescence. The program, designed and implemented for the first time in Rome (Italy), showed positive effects on several main outcomes such as prosocial behavior, interpersonal self-efficacy, academic achievement, and physical aggression (Caprara et al., 2014; Caprara, Luengo Kanacri et al., 2015). Importantly, mediation analysis indicated the protective effect of prosocial behaviors for decreasing aggressive behaviors among adolescents (Caprara, Luengo Kanacri, et al., 2015). These findings, however, stemmed from a quasi-experimental design, thereby preventing firm conclusions about the true efficacy of the intervention. Yet, considering the promising results, the program was adapted and implemented in Medellín (Colombia) and in Santiago (Chile) using a cluster randomized controlled trial design (CRCT). In particular, the adaptation of the program in the two countries followed local considerations of historical and cultural processes. In Medellín (Colombia) the program incorporated a focus on linking the enactment of prosocial behaviors to conflict resolution, while in Santiago (Chile) the adaptation included a stronger focus on promoting civic engagement and social cohesion within classrooms through the enactment of prosocial behaviors. The adapted program in Chile was called ProCiviCo (i.e., “Promoting prosocial behavior and civic engagement for social cohesion in school settings”; Luengo Kanacri & Jiménez-Moya, 2017). In Chile this ad hoc focus on civic engagement was added to have, as a long-term aim, the promotion of social cohesion and universalism value among Chilean citizens; whereas in Colombia the long-term focus was related with a positive (conciliatory) school climate.

Prosocial behavior as a protective factor against aggression

Numerous studies have shown how the tendency to enact prosocial behavior—voluntary and intentional behavior that benefits another (Eisenberg, et al., 2015)—predicts a series of indicators of adjustment in childhood and adolescence, such as academic achievement (e.g.,

Caprara, et al., 2015), and civic engagement (e.g., Luengo Kanacri et al., 2014). Instead, aggressive behavior—behavior intentionally aimed to cause physical or psychological harm (Krahé, 2013)—has been associated with negative outcomes such as school dropout (e.g., Kokko et al., 2006) and both overt and covert antisocial behaviors (e.g., Eisner & Malti, 2015).

To our knowledge, only two studies examined the longitudinal and simultaneous relation between prosocial and aggressive behaviors across childhood and adolescence. Obsuth, Eisner, Malti, and Ribeaud, (2015) tested the cross-lagged relations between prosocial and aggressive behaviors using a 5-year longitudinal covering the transition to late childhood and early adolescence (aged 7 to 11) from Switzerland. Results from their study supported the negative prediction of aggressive behavior on prosocial behavior one year later but not vice versa (Obsuth et al., 2015). This cross-lagged longitudinal pattern was also observed in a study conducted in another dissimilar cultural context, China (Chen, Huang, Chang, Wang, & Li, 2010).

Coherently with this reasoning, the idea that the roots of aggressive behaviors partially may be found in scarce behavioral assets (e.g., Dodge, Coie, & Lynam, 2006) was also stressed by the influential Moffit (1993)'s work. Following Moffit's perspective, life-course-persistent aggressiveness also reflects a lack of contextual opportunities to learn and practice prosocial alternatives at each stage of development. In this vein, considering the relevance that the peer context exerts on adolescent prosocial development (e.g., Berger, Batanova, & Duncan Cance, 2015), preventive efforts might have as a central aim the development of prosocial behaviors intentionally focused on peer interactions.

The Theoretical Model and Program Background

The theoretical model underlying the CEPIDEA program address the personal roots of prosocial behaviors and stems from the integration of various research backgrounds, such as

personality, developmental, and social psychology. Values which emphasizes equality, reciprocity and cooperation are considered relevant motives for prosocial behaviors, such as self-transcendence values (e.g., benevolence and universalism; Schwartz, 2010) and constitute the first component of the CEPIDEA intervention. However, guiding principles and moral standards may not be enough for behaving prosocially. The enactment of prosocial tendencies also involves emotional regulation abilities needed for both show socially competent abilities and block and interrupt negative externalizing behaviors (e.g., Eisenberg et al., 2015). Indeed, longitudinal empirical findings stressed that individual differences in prosociality are positively related to early emotional and behavioral self-regulation skills (e.g., Luengo Kanacri, Pastorelli, Eisenberg, Zuffianò, & Caprara, 2013). In particular, the management of one's own negative emotions can likely increase perspective taking while preventing the onset of personal distress (see Eisenberg et al., 2015). In addition, individuals' emotional adjustment implies their knowledge about when and how positive emotions (e.g., gratitude and joy) should be expressed to maintain and develop good peer interactions. Besides, a great amount of developmental literature stresses the key role of empathy and perspective-taking skills as roots of behaving prosocially (see Eisenberg et al., 2015). Thus, the enhancement of empathic and emotional regulation skills constitutes two key components of the CEPIDEA program.

Moreover, prosocial behaviors are considered precursors of civic engagement because they may support the development of concern for others from an individual to a "collective" or society level (e.g., Eisenberg et al., 2015; Luengo Kanacri et al., 2015). In this vein, because schools should promote positive social skills, habits, and values that allow students to participate actively in their communities, prosocial behavior are a key target variable for preparing youth to be engaged in their community. As stressed by a recent longitudinal research, promoting civic

school participation may, in turn, reinforce further prosocial behaviors across adolescence (Luengo Kanacri et al., 2017). Thus, offer opportunities for act prosocial and civic involvement at school in the peer context is the final component of the CEPIDEA curriculum.

In terms of relevant contents of the CEPIDEA program, the aforementioned personal determinants (i.e., prosocial values, empathic and emotion regulation skills) and related outcomes (i.e., civic school engagement) of prosocial behaviors are the conceptual components of the intervention and constitute the foundations of the *conceptual theory* behind the CEPIDEA intervention. Instead, in terms of the *action theory* behind the intervention (i.e., the theory by which the program will have an impact in expected variables or mechanisms; Mackinnon, 2008), an important contribution in explaining the expected behavioral change is social cognitive theory (SCT; see Bandura, 1997). According to SCT, self-efficacy beliefs (i.e., individuals' confidence in their abilities across different domains of functioning) have been identified as the most proximal predictors of prosocial behaviors (Caprara et al., 2012). Indeed, emotional, empathic, interpersonal self-efficacy beliefs during adolescence may exert a critical and a proximal role on responding prosocially in peer contexts, because if adolescents' beliefs about their abilities to positively interact with peers in situations of need are high, they probably will be able to react to peer's feelings and help them accordingly. The good news is that self-efficacy beliefs are relatively flexible and permeable psychological structures to environmental inputs and teaching strategies (see Bandura, 1997) and may help adolescents to turn their potential into actual prosocial conducts (Caprara et al., 2012). Accordingly, the program adopted learning strategies for the promotion of interpersonal and social self-efficacy beliefs, such as persuasion, modeling, and mastery experiences (Bandura, 1997), applied to the enactment of prosocial behaviors.

The Implementation in Colombia and Chile

In the attempt to design an effective school-based preventive intervention that might be also culturally pertinent (Castro et al., 2004), the CEPIDEA program was adapted in two different Latinoamerican countries. Even if Colombia and Chile share some regional common characteristics and roots, they also show specific cultural and historical processes that have been considered as first steps of the program adaptation.

When peace and (armed) conflict matters: The case of Colombia

During the past five decades Colombia has suffered one of the world's most prolonged and violent conflicts, with more than 200,000 deaths, thousands of forced disappearances and almost 7 million people displaced (Herbolzheimer, 2016). At the same time, nowadays Colombia shows an improvement in performance during the last decade according to The Human Development Index in which this country ranks in an intermediate level of human development in Latin America (Human Development Index, 2018).

The last historical processes occurred in this country and the recent peace agreement are not considered the end of the peace process in Colombia, rather it can be the beginning of a transitional process to address long-neglected structural problems of poverty and social inclusion (Herbolzheimer, 2016). Therefore, promoting peaceful coexistence is one of the most important aspects of citizenship training in Colombia (Krug et al., 2002). Within this scenario, socialization practices in which teaching children positive ways to overcome conflicts, using prosociality rather than aggressiveness, can be particularly relevant; even more in a country that gives great value to the collective standards of cooperation (Herbolzheimer, 2016). Thus, efforts to adapt the CEPIDEA intervention program to some facets of the historical and cultural reality of Colombia, pushed us to focus on teaching prosocial behaviors as an alternative way to solve peacefully interpersonal conflicts. In addition, recent findings of a two-wave study of Colombian

adolescents showed bi-directional relations among positivity, positive school climate, and prosocial behaviors, suggesting that reinforcing positive feelings and thinking in this context may support positive school climate and then prosocial behaviors (Luengo Kanacri et al., 2017). Finally, because the CEPIDEA program was developed for students coming from the lower social status, the program gave a special attention to adapt some strategies signed by social issues related with contexts of poverty.

When social class (really) matters: The case of Chile

The Global Competitiveness Index, a combination of twelve factors of competitivenessⁱⁱ, locates Chile as the 33th most competitive country in the world and the highest in South America (Central Intelligence Agency, 2018). Chile has growingly showed regional leadership, owing to its stable democracy, high quality of life, and comparatively low poverty rates (see World Bank, 2018). At the same time, Chile is an extremely fragmented country in terms of socio-economic status and, in fact, it presents the highest GINI indexⁱⁱⁱ of inequality in the OECD countries. This segregation is reflected in many dimensions, such as the health system and the division across territories and neighborhoods, among others (see PNUD, 2017). This inequality is also well-manifested in the educational system, which is one of the most segregated systems of the world, triggering unbalanced education opportunities among students from different social classes (see Villalobos & Valenzuela, 2012; see also Carrasco, Bogolasky, Flores, Gutierrez, & San Martín, 2014). It seems that prosocial behavior and solidarity does not necessarily improve intergroup relations between high and low social class individuals, on the contrary, Chileans report low levels of unity (see COES survey, 2015).

In sum, given that Chile is a highly segregated society in terms of socio-economic status, we argue that the improvement of prosocial behavior needs to be guided to improve social

cohesion among individuals from different social classes. The ProCiviCo program takes into account this intergroup dimension, framing it as necessary in order to improve social cohesion through prosocial behavior.

The adaptation of CEPIDEA in Colombia and ProCiviCo in Chile

The effort to adapt the goals of the CEPIDEA intervention in the context of Colombia have been oriented towards the development of prosocial and citizen competencies, that is, towards those emotional, empathic and communicative skills, that make possible for students to learn constructive ways, alternative to the use of violence, in overcoming conflicts in society. Thus, compared with the original CEPIDEA program created in Italy, in this site, a special focus has been given to: (1) the expression of positive emotions as a emotion regulation subcomponent that may particularly support prosocial behaviors in a context of Colombia; (2) the empathic and communication skills as basis of prosocial strategies for peaceful conflict resolution.

As we described above, the ProCiviCo program includes the requirement of social cohesion given the current situation of the Chilean society. In detail, five components are included and trained in the program: (a) prosocial responding in the peer context, (b) empathic skills, (c) emotion regulation, (d) prejudice and shared identities, (e) and civic participation towards the school community. According to the novel characteristic of this program (i.e., the inclusion of the long-term goal of promoting social cohesion within classrooms), in the fourth component (d above)we consider the intergroup relations dimension, and concepts such as prejudice and discrimination. Given that research shows that the emergence of a superordinate shared identity promotes positive relations between members from different social groups (e.g., Gaertner & Dovidio, 2000) and it also increases helping behavior (Levine, Prosser, Evans, & Reicher, 2005) in this fourth and novel component we discussed not only the negative

consequences of prejudice but we also highlighted the fact that individuals from different groups share characteristics that join them together.

The current study

Using an RCT, the present study aimed to evaluate the pretest posttest effects of the adapted CEPIDEA intervention (i.e., ProCiviCo program in Chile) on its main outcomes, i.e., the improvement of prosocial behaviors and the decline of aggressive behaviors. We reasoned that when an intervention expands children's behavioral repertoires, by including models conducive to prosocial exchanges, prosocial behaviors can be improved and likely redirect the tendency to respond with aggressive or violent behavior (e.g., Dodge et al. 2006). Then, we explored a possible mediation mechanism through which the school-based intervention could have achieved its effects, that is the indirect role of prosocial behaviors in the impact of the program on the reduction of aggressive behaviors (Caprara et al., 2014).

Finally, SES and gender were also included in our analysis to partial out their possible effects. A great amount of literature supports gender (e.g., see Eisenberg et al., 2015) and SES (e.g., Piff, Kraus, Côté, Cheng, & Keltner, 2010) differences in the manifestation of prosocial behaviors, as well as aggressive behaviors (e.g., Card, Stucky, Sawalani, & Little, 2008). Typically, girls tend to exhibit greater prosocial behaviors than boys across childhood and adolescence (see Eisenberg et al., 2015). Although the association between prosocial behavior and SES seems to be less consistent (e.g., Keltner, et al., 2014; Rajan, Pink, & Dow, 2009; Korndörfer, Egloff, & Schmukle, 2015), we took into consideration this variable as some schools in Colombia and Chile were from disadvantaged areas. Furthermore, since our program was targeted as universal, we wanted to explore if the effects of the intervention hold beyond SES and gender.

Method

Design

In both sites, randomization processes to the treatment or control condition took place at the school level. Thus, both the intervention and the control group were in different schools and assessed sequentially at two different time points (i.e., pretest and posttest at one month after the end of the intervention).

Participants

Colombian sample. The study took place in four middle schools in Medellin, Colombia (two schools for interventions and two for control conditions) and included 320 adolescents ($M_{age} = 12.78$, $SD = 1.11$; 58.1% males) at pretest (Time 1) and 314 adolescents ($M_{age} = 13.16$, $SD = 1.12$; 59% males) at posttest (six months apart; Time 2). At Time 1, the intervention group included 169 students ($M_{age} = 12.87$, $SD = 1.15$; 57.4% males) belonging to two different schools (two classrooms for each), and the control group included 151 students ($M_{age} = 12.68$, $SD = 1.06$; 58.9% males) belonging to two different schools (two classrooms for each). All participants attended seventh grade at pretest. A few (6.1%) mothers did not have access to the school system, 21.7% completed primary school, 45.8% completed middle school, 11.5% completed high school, and 14.9% completed the Master's degree or higher. Analogous percentages for fathers were 6.5%, 28.2%, 47.7%, 5.1%, and 12.5% respectively.

Chilean sample. Participants from the Chilean site were 596 adolescents ($M_{age} = 12.29$, $SD = 0.62$; 55.1% males) at T1 and 593 adolescents ($M_{age} = 12.94$, $SD = 0.69$) at T2. At Time 1, the intervention group included 315 students ($M_{age} = 12.28$, $SD = 0.65$; 53.7% males) belonging to four schools (8 classrooms for each), and the control group included 281 students ($M_{age} = 12.30$, $SD = 0.58$; 56.6% males) belonging to other four schools (8 classrooms for each) as well.

All participants attended seventh grade at pretest. A few (4%) mothers did not have access to the school system, 12.2% completed primary school, 43.2% completed middle school, 20.3% completed high school, and 20.12% completed the Master's degree or higher. Analogous percentages for fathers were 3.5%, 15.2%, 45.3%, 18.4%, and 17.6% respectively.

Procedures

The entire study was conducted over a 21 to 24-month period in Chile and Colombia respectively and included a previous research period (6 months in the case of Colombia and one year in the case of Chile) for the adaptation of the program, assessments, teacher training and classroom activities. First, the program was presented to the School Council and the assembly of teachers for approval. Then, letters describing the study were sent home with children, and parental informed consent was obtained at each assessment point for students. All the teachers of classrooms involved had been invited to attend training sessions (two sessions per year, with 16 hours of training for Colombia and 22 hours for Chile) and a large part of them participated in Colombia (93%) and Chile (82%). In the intervention group, the research staff worked with teachers using the curriculum materials to plan together the schedule of the intervention. Teachers who could not participate in the training sessions were offered the possibility to attend personal meetings with the research staff to ensure the adherence to the program. In Colombia, teachers of the control group, after the final assessment, participated in a meeting about the benefits of prosocial behavior and its role for positive youth development. In Chile, schools of the control group (after the final assessment) received an adapted version of the ProCiviCo program.

In April 2012 in Colombia (in April 2017 in Chile), students from the intervention and control groups were assessed for the first time (pretest). Then, the prosocial curriculum was

implemented from the end of April 2012 (May 2017 in Chile) to October 2012 (November 2017 in Chile). At the end of the intervention, students were evaluated at a 6-month posttest. Letters describing the study were sent home with children, and parental informed consent was obtained at each assessment point for students and in Chile also an individual student's assent was ensured. Questionnaires for students were administered in each classroom by three-four members of the research team during school hours. The purpose and response choices of the questionnaires were explained to students, who were asked to complete the questionnaires independently of others.

Finally, in both sites intervention fidelity was controlled by: (a) manualization of weekly *prosocial sessions* (i.e., classrooms activities performed by the university staff in collaboration with the teacher); and *prosocial lessons* (i.e., conducted by the teachers of all subjects) to ensure the inclusion of the CEPIDEA and ProCiviCo goals in the normal curriculum of the school; (b) regular communication with, and ongoing supervision of, teachers; (c) weekly staff meetings; and (d) an ad hoc checklist completed by the research staff at the end of each prosocial session with the aim to evaluate adherence to the programmed specifications.

Measures

Participants' prosocial behavior and physical aggression were each assessed with a multi-informant approach that combined self, peer, and teacher reports^{iv}. At each time point, we averaged the scores across the three informants to create an overall score of prosocial behavior and physical aggression.

Prosocial behavior. Students rated their prosocial behaviors using the 16-item Prosociality Scale (Caprara, Steca, Zelli & Capanna, 2005; e.g., "I share things I like with my

friends,”). The reduced version of the Prosociality Scale was used with teachers, consisting of the six items (e.g., “He or She tries to console people who are sad”). Prosocial behavior was also assessed by using three peer-reported items and participants rated each classmate on four items intended to assess the frequency of occurrence of basic prosocial behaviors through a 5-point response scale “How many times does ___ console others?”). Each item (across informant) was rated on a 5-point scale from 1 = *never/almost never* to 5 = *often*. Scores across informants were averaged to create a multinformant measure of prosocial behavior. Reliability coefficients for the multi-informant construct were α s = .83 and .81 at T1 and T2 in Chile and .79 and .76 at T1 and T2 in Colombia.

Physical aggression. Students reported their physical aggression using a reduced version of the *Physical and Verbal Aggression Scale* (AFV; Caprara & Pastorelli, 1993; e.g., “I fought,” “I give jostling and tripping,” “I threat others”). In addition, participants rated each classmate on two items intended to assess the frequency of occurrence of physical (“How many times does ___ kick and punch others?”) and verbal aggression (“How many times does ___ insult others?”). The AFV was used with teachers, consisting in one item (e.g., “Attacks verbally or physically other people.”). Each item (across informant) was rated on a 5-point scale from 1 = *never/almost never* to 5 = *often*. Scores across informants were averaged to create a multi-informant measure of physical aggression. Reliability coefficients for the multi-informant construct were α s = .69 and .71 at T1 and T2 in Chile and .70 and .66 at T1 and T2 in Colombia.

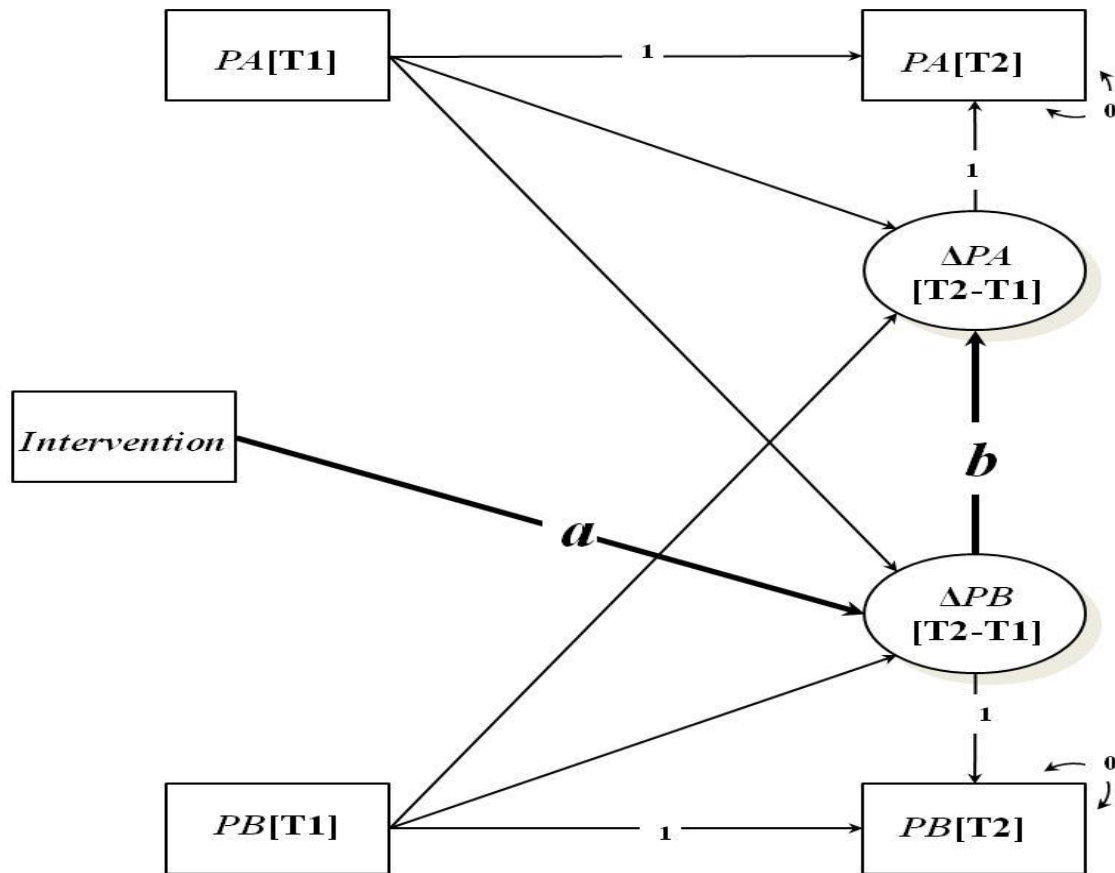
SES. As a proxy of SES, we used an average of the highest level of study (from 0 = he/she did not have access to the school system, to 5 = the Master’s degree or higher have been completed) reported by both parents (fathers and mothers for all the participants). Parents’ education reflects material and intellectual capitals of the family of origin at early ages

(Galobardes, Shaw, Lawlor, Lynch, & Davey Smith, 2006). Parents' educational level has also been recognized to be one of the most important indicators of SES by a great number of studies, especially those that focused on its role on children's school achievement (e.g., Mistry, Vandewater, Houston, & McLoyd, 2002).

Data Analytic Approach

Following recent recommendations for intervention programs with a pretest-posttest design (Valente & Mackinnon, 2017), we used an analysis of covariance (ANCOVA) approach within the latent change score specification to test the direct and mediated effects (intervention → increase in prosocial behavior → decrease in physical aggression) of our intervention programs on prosocial behavior and physical aggression (see Figure 1). As per ANCOVA assumptions (i.e., the regression slopes should be homogeneous across intervention and control group; Valente & Mackinnon, 2017), we also tested the presence of significant interaction effects between the intervention condition and pretest scores in predicting change scores in the constructs of interest. Finally, we also explored whether students' gender and SES moderated the effects of the intervention program on prosocial behavior and physical aggression. All models were run in *Mplus 8* (Muthén & Muthén, 1998-2017).

Figure 1. *Mediational Model*



Note. The effects of students' gender and SES were estimated but not depicted for the sake of simplicity. Prosocial Behavior (PB); Physical Aggression (PA); Time 1 (T1); Time 2 (T2).

Results

Preliminary Analyses

Means and standard deviations of prosocial behavior and physical aggression are reported in Table 1. Multivariate regression analyses indicated that the intervention groups in both the Chilean sample and Colombian sample showed higher initial physical aggression than their respective control groups ($b = .216$, Standard Error [SE] = .052, $p < .001$, Cohen's $d = .353$ [95% CI: .191, .515], and $b = .239$, SE = .054, $p < .001$, Cohen's $d = .521$ [95% CI: .286, .755], respectively)^v. The intervention group in the Chilean sample also reported lower initial prosocial

behavior than the control group ($b = -.134$, $SE = .047$, $p = .005$, Cohen's $d = -.232$ [95% CI: $-.394, -.071$]). The Colombian sample, instead, did not show initial differences on prosocial behavior between the two groups ($b = -.025$, $SE = .052$, $p = .623$, Cohen's $d = -.057$ [95% CI: $-.287, .174$]). Given these initial differences on prosocial behavior and physical aggression between intervention group and control group, we investigated the effect of the intervention using an ANCOVA analysis in which we also considered all possible interaction effects of the treatment condition with pretest scores, gender, and SES.

Table 1. Means and standard deviations of prosocial behavior and physical aggression by condition

		Intervention Group				Control Group			
		T1		T2		T1		T2	
		<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>
Chile	Prosocial Behavior	3.25(3.52)	.61(.56)	3.43(3.52)	.55 (.59)	3.39(3.54)	.52(.42)	3.40(3.51)	.49(.51)
	Physical Aggression	1.88(1.74)	.66(.62)	1.93(1.79)	.63(.66)	1.65(1.50)	.55(.46)	1.71(1.59)	.51(.52)
Colombia	Prosocial Behavior	3.06(3.17)	.46(.41)	3.13(3.25)	.41(.40)	3.09(3.18)	.40(.40)	3.15(3.28)	.45(.53)
	Physical Aggression	1.59(1.44)	.48(.44)	1.65(1.55)	.53(.60)	1.35(1.32)	.43(.47)	1.55(1.46)	.45(.59)

Note. Means and standard deviations of females are in parenthesis.

Direct Effects

Chilean sample. ANCOVA results indicated that the intervention group (0 = control group, 1 = intervention group) reported a steeper increase in prosocial behavior compared to the control group ($b = .102$, $SE = .027$, $p < .001$, Cohen's $d = .298$ [95% CI: .123, .473]), while controlling for the nonsignificant effects of students' gender and SES on the change score (see Table 2). Intervention and control group, instead, did not significantly differ in the change rates of physical aggression ($b = .068$, $SE = .036$, $p = .059$, Cohen's $d = .165$ [95% CI: -.018, .347]). Girls reported lower change scores of physical aggression from T1 to T2, whereas SES did not predict change rates. For both prosocial behavior and physical aggression, the interaction terms *intervention* \times *pretest scores*, *intervention* \times *gender*, and *intervention* \times *SES* were not statistically significant and, therefore, were not retained in the final ANCOVA models.

Colombian sample. ANCOVA results (see Table 2) indicated that there was no main effect of the intervention as the interaction terms *intervention* \times *pretest scores* ($b = -.428$, $SE = .114$, $p < .001$) and *intervention* \times *SES* ($b = -.100$, $SE = .048$, $p = .039$) significantly predicted change rates in prosocial behavior (the interaction term *intervention* \times *gender* was not statistically significant and therefore was not retained in the final ANCOVA model). To understand the moderation effects, we conducted an analysis of the simple slopes (Cohen, Cohen, West, & Aiken, 2003), which showed that at low initial levels of prosocial behavior ($-1SD$), the students in the intervention group increased more in their prosocial behavior than the control group ($b = .311$, $SE = .118$, $p = .009$), but not at high ($+1SD$) initial levels of prosocial behavior ($b = -.046$, $SE = .122$, $p = .705$). Concerning high levels of SES ($+1SD$), students in the intervention group reported a lower change in prosocial behavior compared to the control group

($b = -.170$, $SE = .067$, $p = .012$), whereas the two groups did not differ at low levels ($-1SD$) of SES ($b = .027$, $SE = .068$, $p = .688$).

Change rates in physical aggression were not predicted by the intervention condition ($b = .012$, $SE = .059$, $p = .837$, Cohen's $d = .027$ [95% CI: $-.246$, $.299$]) and SES (see Table 2). Girls reported lower change scores of physical aggression from T1 to T2 ($b = -.265$, $SE = .058$, $p < .001$). For physical aggression, the interaction terms *intervention* \times *pretest scores*, *intervention* \times *gender*, and *intervention* \times *SES* were not statistically significant.

Table 2. *Intervention Effects on Change Scores (Δ) of Prosocial Behavior (PB) and Physical Aggression (PA)*

	Chile					
	ΔPB			ΔPA		
	<i>b</i>	<i>SE</i>	<i>p-value</i>	<i>b</i>	<i>SE</i>	<i>p-value</i>
Intervention	0.102	0.027	<.001	0.068	0.036	.059
Gender	0.010	0.014	.476	-0.043	0.018	.019
SES	0.011	0.015	.455	0.003	0.019	.883
Pretest scores	-0.303	0.026	<.001	-0.286	0.031	<.001
Intervention \times Pretest scores	–	–	–	–	–	–
Intervention \times SES	–	–	–	–	–	–
Intervention \times Gender	–	–	–	–	–	–
	Colombia					
	ΔPB			ΔPA		
	<i>b</i>	<i>SE</i>	<i>p-value</i>	<i>b</i>	<i>SE</i>	<i>p-value</i>
Intervention	0.132	0.110	.229	0.012	0.059	.837
Gender	0.278	0.049	<.001	-0.265	0.058	<.001
SES	0.054	0.032	.093	-0.002	0.028	.954
Pretest scores	-0.398	0.087	<.001	-0.389	0.070	<.001
Intervention \times Pretest scores	-0.428	0.114	<.001	–	–	–
Intervention \times SES	-0.100	0.048	.039	–	–	–
Intervention \times Gender	–	–	–	–	–	–

Note. Unstandardized effects (*b*) and their standard errors (*SE*) are reported in the table. Intervention (0 = control group, 1 =

intervention group); Gender (1=boys, 2 = girls). Non-significant interaction terms were not retained in the final models. R^2 coefficients

for ΔPB were .256 and .430 (for Chile and Colombia, respectively). R^2 coefficients for ΔPA were .161 and .183 (for Chile and

Colombia, respectively).

Mediated Effects

Chilean sample. We used the distribution of the product method (MacKinnon, Fritz, Williams, & Lockwood, 2007) to formally test the hypothesized mediational role of change in prosocial behavior in decreasing physical aggression (intervention → increase in prosocial behavior → decrease in physical aggression). In detail, we computed the 95% confidence intervals around the unstandardized mediated effect ab using the PRODCLIN program (Tofighi & MacKinnon, 2011). The mediational model revealed that the intervention group reported a higher increase in prosocial behavior than the control group ($a = .113$, $SE = .027$, $p < .001$) which, in turn, significantly predicted lower level of physical aggression ($b = -.148$, $SE = .063$, $p = .018$). Importantly, the mediated effect was also statistically significant ($ab = -.017$) as the 95% CI did not include zero (-.035, -.002), indicating that the intervention condition (0 = control group, 1 = intervention group) indirectly predicted lower levels of physical aggression from T1 to T2 via the parallel increase in prosocial behavior.

Colombian sample. As the ANCOVA results indicated two interaction effects of the intervention on prosocial behavior (*intervention* × *pretest scores* and *intervention* × *SES*), we tested two moderated mediational models by following the same procedure described above for the Chilean sample. In the first moderated mediational model, we tested the effect of the intervention on physical aggression via the mediational role of prosocial behavior at both low (-1SD) and high (+1SD) initial levels of prosocial behavior. Results indicated that, at low initial levels of prosocial behavior, the mediated effect was statistically different from zero ($ab = -.108$, [95%CI: -.210, -.031]): the intervention group reported a significant higher increase in prosocial behavior than the control group ($a = .349$, $SE = .117$, $p = .003$) which, in turn, predicted significantly lower level of physical aggression ($b = -.310$, $SE = .077$, $p < .001$). At high initial

levels of prosocial behavior, instead, the mediated effect was not statistically significant as the lower and upper levels of the confidence intervals included zero ($ab = .004$, [95%CI: $-.073$, $.082$]). In the second moderated mediational model, we tested the effect of the intervention on physical aggression via the mediational role of prosocial behavior at both low ($-1SD$) and high ($+1SD$) levels of SES. The mediated effects were not statistically significant neither at low SES ($ab = -.020$, [95% BCCI: $-.067$, $.022$]) nor at high SES ($ab = .041$, [95%CI: $.000$, $.093$]).

Discussion

Although the promotion of prosocial behavior has been previously identified as a potential protective factor against aggression (Eisenberg et al., 2015), understanding to what extent its promotion in school-based different cultural contexts can actually work and help reduce adolescents' aggression needs to be clarified. This research attempted to fill this gap by studying the role of prosocial behavior against aggression in a school-based universal intervention adapted in two different (non-Western) countries, Colombia and Chile. Indeed, the school-based intervention reported in this work give special attention not only to the communalities of the two contexts (i.e., they are based on the same theoretical model and program background), but also to the local adaptations of these interventions in Colombia and Chile (i.e., the implementation considering different cultural and historical backgrounds of countries involved). Using an RCT with a pretest-posttest design (and controlling for the initial prosocial status of participants, their gender and level of education), current results highlighted different effects of a similar program in both sites. First, the school-based universal program designed for promoting prosocial behaviors in the peer context obtained a positive cross-national effect on prosocial behavior rated by three informants. In Colombia this effect was moderated by the initial level of prosociality of the participants and SES. In detail, effects of the CEPIDEA on

Colombian adolescents' prosocial behaviors was statistically significant for those adolescents who exhibited lower initial levels of prosociality at the beginning of the intervention. Hence, the adaptation of the CEPIDEA in Colombia seemed to have a positive effect on those adolescents who lack adequate social and interpersonal skills prior to the intervention. This preliminary result in terms of preventive efforts might be explained by interactions that may occur among peers who act prosocially. Prosocial peer interactions can improve cooperation and supportiveness among classmates which, in turn, may create a natural positive behavioral regulation in the group (Berger et al., 2015). Probably, a kind of reciprocal regulation occurs when adolescents react in prosocial ways to their less prosocial classmates and those who are less predisposed to help others in daily peer-interactions have an alternative chance and benefited from this kind of "peer positive contagion". In addition, similarly, comparing those Colombian participants of the intervention coming from families with higher SES exhibited a lower change in their prosocial behavior compared to those who did not participate in any intervention program, while participants did not differ at low levels of education. This result is in line with prior evidence, in which children who experienced low status showed more communal and prosocial behavior and endorsed more egalitarian life goals and values compared with those who experienced high status (Guinote, Cotzia, Sandhu, & Siwa, 2015). Yet, as these moderation effects were exploratory in nature, cautions must be taken in generalizing these results. In the case of Chile, results were in line with previous findings (Caprara et al. 2014; Caprara, Luengo Kanacri et al., 2015), by pointing out the universal effects of the ProCiviCo program on fostering prosocial behavior regardless of participants' socioeconomic background.

Considering the hypothesized decrease in physical aggression, our results did not indicate a main effect of the intervention programs in both countries. This lack of effect could be due to

different reasons. First, we used only a pre-post testing and, as the literature stressed behaviors such as physical aggression must need time to be redirected (Moffit, 1993). Also, the consideration of overt physical aggressive behaviors, instead of other more malleable kind of aggressiveness (i.e., as covert aggression), can explain the lack of effect of the program on reducing this maladaptive outcome. Moreover, during adolescence, the development of aggressive behaviors followed a pattern of stability or growing from middle to late adolescence (Kokko et al., 2006). In addition, following Obsuth et al. (2015)'s reasoning, an aggressive adolescent will tend to be-friend with an aggressive adolescent, and will experience the peer pressure to react in a "cool" way to feel accepted and avoid ridicule. In sum, from our study it seems plausible to think that the pattern of change of physical aggression follows a different process and a longer period is needed for this kind of behavioral change.

However, the mediational two waves model corroborated that, after controlling for the role of gender and SES, the improvement on prosocial behaviors in both countries (moderated in the case of Colombia) predicted significantly lower level of physical aggression. In Colombia, the role of the intervention program on the lower levels of the use of physical aggression was higher for those students who started lower in prosociality prior the program (i.e., at the initial level). However, caution must be considered because outcomes were assessed simultaneously, and long-term effects must be tested in order to elucidate properly the hypothesized causal link between prosocial behaviors and aggressive behaviors.

Although our small-medium effect sizes were in line with meta-analytic findings in SEL programs (standardized effect around .20; Durlak et al. 2011), we are aware that the promotion of prosocial behavior may not be sufficient to produce more long-term and strong changes in aggression. Hence, we suggest that counteracting aggression should be embedded within a

broader SEL approach in which the promotion of prosocial behavior is just one of the several skills that should be part of the “socioemotional toolbox” which can help adolescents navigate towards positive social interactions.

Despite a number of strengths (e.g., data from two countries, the use of a RCT design, multi-informant assessment, etc.), several limitations must be acknowledged. First, this study assessed the efficacy of the intervention using a pretest-posttest design and long-term effects should be considered in future studies (of note, follow-up data are being collected in both sites). Although we assigned randomly the schools to each condition, we still found that the intervention and control group differed on their initial levels of prosocial behaviors and physical aggression in both countries. Although many factors could be responsible for these initial differences, we believe that the fact that the randomization occurred at the school-level could have played a role in such differences at the pretest. In fact, even if comparable in their socioeconomic profiles, schools hold their own cultural and micro cultural characteristics and, in particular, assign more or less relevance to the promotion of prosocial values (Battistich, Solomon, Watson, & Schaps, 1997; Reiman, 2009). Moreover, it must be acknowledgeable that there is a temporal distance in time regarding the moment in which the program was implemented and data were collected in both countries (2012 in Colombia and 2017 in Chile). Each cite’ results depend on the adaptation of the program to local implementations. In addition, it must be considered that timing of implementation of an intervention program depends on plausibility of application and availability of resources. Finally, effectiveness of the program was not a goal in this study, neither observational data was collected. Further studies must to add robustness by adding these aspects for a better methodological approach to the study of prosociality in “real” settings.

Interventions focused on peer dynamics during adolescence must benefit from a curriculum that promotes prosocial behaviors. The most promising results of this work is related to the effect on prosocial behaviors in two different countries exhibiting different common values, historicity and cultural features. Current results mainly show the relevance of programs aimed at promoting prosocial behaviors, especially in children coming from vulnerable conditions and with less initial predispositions to act prosocially. In particular, this study evidences the mitigating role of prosocial behaviors in the face of risk factors in contexts marked by social conflicts and inequality.

Because Prevention Science needs to look more deeply at cultural issues, one of the main strengths of the current study is the consideration of countries different from those in which most of empirical studies have been conducted (North America and Europe). Processes of specific contextual and local adaptation of programs facilitate the achievement of one of the main and common (global) goals of school-based preventive interventions, that is fostering prosocial behaviors as a protective factor against student aggression.

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Footnote

ⁱ These two countries are part of a broader research partnership that involves researchers from South America and Europe.

ⁱⁱ Institutions, technological progress, macroeconomic stability, infrastructure, health and primary education, higher education and training, goods market efficiency, financial market sophistication, market size, business, sophistication, and innovation

ⁱⁱⁱ Gini ratio is a measure of statistical dispersion intended to represent the income or wealth distribution of a nation's residents, and is the most commonly used measurement of inequality

^{iv} We aggregated the three informants based on a series of confirmatory factor analyses attesting to the cross-informant convergence of the scores for both prosocial behavior (standardized factor loadings were all statistically significant and ranged from .32 to .93 and from .20 to .67 for Chile and Colombia, respectively) and physical aggression (standardized factor loadings were all statistically significant and ranged from .43 to .87 and from .41 to .71 for Chile and Colombia, respectively).

^v Cohen's *ds* and the associated 95% confidence intervals (CI) for the main effects of the intervention condition were computed from unstandardized regression coefficients (Lipsey & Wilson, 2001).

