

# **Community violence as a moderator of the impact of a social-emotional learning program in Brazilian primary schools**

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## **Background & Context**

Around the world there is growing interest in supporting children's social-emotional development as a means of improving both individual and societal outcomes (OECD, 2015; UNESCO, 2017). Research has shown that classroom-based social-emotional learning (SEL) programs can positively impact students' skills, attitudes, and behaviors (Durlak et al., 2011). At the same time, the vast majority of SEL studies have been conducted in high-income country settings, limiting understanding of how these programs work in diverse parts of the world. Furthermore, given that most evaluations have relied on relatively small and homogenous samples, little is known about the extent to which the impact of SEL programming may differ across school communities characterized by different resources and risk factors.

## **Research Question**

We examine the extent to which a classroom-based SEL program – *Programa Compasso* (PC) – differentially impacts Brazilian primary school students' social-emotional outcomes based on levels of community violence.

## **Setting**

The PC intervention was implemented in 90 primary schools across Rio de Janeiro, Brazil. Rio is a large and diverse city that has experienced unprecedented levels of community violence since the beginning of the PC intervention in 2017. We use this study as an opportunity to understand the extent to which this community violence may moderate the overall impact of PC.

## **Participants**

Participants included 3,019 third- and fifth-grade children in 90 primary schools. These 90 schools represent 53% of the 170 primary schools in Rio, and were selected predominantly based for having a full-day (rather than part-day) program. Students were, on average 9.85 years old ( $SD = 1.25$ ) at study baseline, and half (50%) were female. Students came from households with an average of 4.96 people. Sample descriptive statistics are shown in Table 1.

## **Intervention & Research Design**

Schools were matched pairwise based on a local measure (IDEB) that includes schools' previous test scores, failure rates, size, and region, and randomly assigned within pairs to either the school-wide PC intervention (treatment) or business as usual (control). The PC intervention includes 22 half-hour lesson plans and accompanying materials (e.g., puppets, posters) that were delivered by students' classroom teachers on a weekly basis from May through November, 2017. PC lessons target students' self-regulation, executive function, emotion knowledge, and social problem solving through explicit instruction and individual and group activities. All teachers in the PC schools received training on how to deliver the lessons, as well as a general introduction to SEL and its importance for wellbeing. Previous work using intent to treat (ITT) analysis has shown marginally significant ( $p < .10$ ) positive average impacts of the PC intervention on student inhibitory control, and null impacts on behavior problems, emotion knowledge, and working memory (Authors, 2019).

### **Data Collection & Measures**

Data on children's social-emotional skills were collected in a group-based setting by trained data collectors at the beginning and end of the 2017 school year (baseline and follow-up, respectively) using a set of instruments that were locally translated, adapted, and pilot tested. Emotion knowledge was measured using two tasks from the Assessment of Children's Emotional Skills (ACES), which captures students' ability to accurately identify facial expressions in photos (e.g., as happy, sad, etc.) and students' ability to accurately name an appropriate emotional reaction to a social situation using vignettes. Students' executive function was measured using two tasks: the Hearts & Flowers (H&F) measure of inhibitory control and the Backward Digit Span (BDS) measure of working memory. Teachers also reported on the behavior problems of a randomly selected subsample using the Strengths and Difficulties Questionnaire (SDQ). School community violence was represented using homicides rates constructed from data provided by the Instituto de Segurança Pública (ISP), or Institute of Public Safety, on individual incidences of homicides across the city's neighborhoods. Prior to analysis, the psychometric appropriateness of all child outcomes was established using confirmatory factor analysis and classical test theory.

### **Analysis**

Analyses were conducted using linear regression models with school randomization pair fixed effects. Reflecting an ITT approach, each outcome was regressed on an indicator variable for school-level treatment assignment, a variable for school community violence, an interaction term between treatment and community violence, and a set of child-level covariates (baseline outcome scores, grade, gender, age, and socio-economic status). Missing covariates (see Table 1) were addressed using multiple imputation by chained equations.

### **Results**

Results are summarized in Table 2. Overall, we find that the interaction term between PC random assignment and community violence was statistically significant ( $p < .05$ ) and negative when predicting both emotion knowledge tasks. This signifies that the PC intervention was less effective in supporting students' ability to accurately identify others' emotional expressions and

appropriate reactions to specific emotional situations in schools embedded in high-violence communities. No evidence for differential impacts based on community violence was observed for either executive function outcome or for teacher-reported behavior problems.

## **Conclusions**

These results suggest that the PC intervention may be less effective in supporting students' emotion knowledge in high-violence communities, and equally (in)effective in supporting students' executive function skills and behavioral development regardless of community violence. These results suggest that additional or alternative supports may be needed in high-violence communities to help students to identify, understand, and react to emotional situations. The final presentation will include exploration of a treatment-on-treated approach to understand the effects of differential dosage of the PC program, which may be related to issues of community safety (e.g., due to limiting teacher and/or student attendance). Limitations and additional implications for practice and policy – including Brazil's newly ratified Base Nacional Comum Curricular – will also be discussed.

Table 1. Sample descriptive statistics

|   | <i>n</i> | <b>Overall</b><br><i>N</i> = 3,019 | <b>Treatme<br/>nt</b><br><i>n</i> = 1,603 | <b>Control</b><br><i>n</i> = 1,416 | <b>SMD</b> | <b><i>F</i><br/>statistic</b> | <b><i>p</i>-<br/>value</b> |
|---|----------|------------------------------------|---|------------------------------------|------------|-------------------------------|----------------------------|
| <i>Child characteristics</i>              |          |                                    |   |                                    |            |                               |                            |
| Sex (1 = Male)                            | 3,019    | 0.50<br>(0.50)                     | 0.50<br>(0.50)                            | 0.51<br>(0.50)                     | 0.00       | 0.01                          | .90                        |
| Age                                       | 3,015    | 9.85<br>(1.25)                     | 9.87<br>(1.23)                            | 9.84<br>(1.27)                     | 0.02       | 0.46                          | .50                        |
| SES                                       | 2,804    | 0.02<br>(1.36)                     | 0.04<br>(1.36)                            | -0.01<br>(1.37)                    | 0.03       | 0.82                          | .37                        |
| Third grade                               | 3,019    | 0.47<br>(0.50)                     | 0.46<br>(0.50)                            | 0.50<br>(0.50)                     | 0.08       | 4.75                          | .03                        |
| # of children living<br>in student's home | 2,915    | 2.88<br>(1.44)                     | 2.85<br>(1.43)                            | 2.91<br>(1.46)                     | 0.04       | 1.08                          | .30                        |
| # of adults living in<br>student's home   | 2,916    | 2.08<br>(1.64)                     | 2.06<br>(1.65)                            | 2.10<br>(1.63)                     | 0.03       | 0.60                          | .44                        |
| # of schools child<br>has attended        | 2,936    | 2.73<br>(1.40)                     | 2.69<br>(1.36)                            | 2.77<br>(1.43)                     | 0.06       | 2.52                          | .11                        |
| <i>Community violence</i>                 |          |                                    |   |                                    |            |                               |                            |
| Homicide rate per<br>100,000 (2016)       | 3,019    | 31.59<br>(30.29)                   | 31.37<br>(37.20)                          | 31.85<br>(19.75)                   | 0.02       | 0.18                          | .67                        |
| <i>Baseline skills</i>                    |          |                                    |   |                                    |            |                               |                            |
| Behavior problems                         | 1,072    | 0.46<br>(0.35)                     | 0.48<br>(0.35)                            | 0.45<br>(0.35)                     | 0.09       | 2.22                          | .14                        |
| Emotion knowledge:<br>Expressions         | 2,495    | 0.84<br>(0.15)                     | 0.84<br>(0.14)                            | 0.83<br>(0.17)                     | 0.08       | 3.83                          | .05                        |
| Emotion knowledge:<br>Situations          | 2,590    | 0.79<br>(0.17)                     | 0.80<br>(0.16)                            | 0.79<br>(0.17)                     | 0.09       | 4.98                          | .03                        |
| Executive function:<br>Inhibitory control | 2,132    | 0.61<br>(0.16)                     | 0.61<br>(0.15)                            | 0.61<br>(0.16)                     | 0.02       | 0.24                          | .62                        |
| Executive function:<br>Working memory     | 2,421    | 0.69<br>(0.29)                     | 0.70<br>(0.29)                            | 0.69<br>(0.29)                     | 0.02       | 0.34                          | .56                        |

Note: SMD = standardized mean difference between treatment and control groups; *F*-statistic from regressing variable on treatment.

Table 2. Results of moderated intent-to-treat analyses examining the differential effects of the *Programa Compasso* intervention on student social-emotional outcomes based on community violence

|                    | <b>Behavior Problems</b> | <b>Emotion Knowledge: Expressions</b> | <b>Emotion Knowledge: Situations</b> | <b>Executive Function: Inhibitory Control</b> | <b>Executive Function: Working Memory</b> |
|--------------------|--------------------------|---------------------------------------|--------------------------------------|---|---|
| Treatment          | -0.01<br>(0.04)          | 0.04***<br>(0.01)                     | 0.02<br>(0.01)                       | 0.01<br>(0.01)                                | -0.03<br>(0.02)                           |
| Treatment*Violence | 0.00<br>(0.00)           | -0.00***<br>(0.00)                    | -0.00*<br>(0.00)                     | 0.00<br>(0.00)                                | 0.00<br>(0.00)                            |
| Observations       | 1033                     | 2710                                  | 2710                                 | 2061  | 2667                                      |

*Note:* All models control for baseline scores, grade, gender, age, socio-economic status, and randomization pair fixed effects; Model predicting inhibitory control (Hearts and Flowers) additionally accounts for Hearts scores and model predicting working memory (Backwards Digit Span) additionally accounts for forward digit span scores; Standard errors are clustered at the school-level; Standard errors in parentheses; Stars indicate statistical significance \*  $p < 0.05$ , \*\*\*  $p < 0.001$