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Abstract

This paper analyzes the relationship between the presence of LGBTQI+ students in the classroom and the prevalence of violence in the school setting. We rely on a representative sample of secondary schools in Uruguay and exploit variation in the share of LGBTQI+ students across classrooms to study how their presence affects the individual experience of violence. Our results show little support for the contact hypothesis: a larger share of LGBTQI+ students in the classroom has no impact on the individual experience of violence. On the contrary, a greater share of female LGBTQI+ students in the classroom is associated with greater psychological and physical violence among girls, irrespective of their gender identity or sexual orientation.

JEL Classification: J16, J24, I21, I24
Keywords: LGBTQI+, diversity, conflict, contact hypothesis, violence, secondary school

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1 Introduction

A long line of research has analyzed the role of more cohesive and inclusive societies in economic growth and productivity (Easterly et al. 2006, Pervaiz & Chaudhary 2015). Higher levels of social capital are usually linked to better economic and social outcomes, both due to the gains derived from cooperation and a reduced likelihood of observing conflict, violence, or segregation. However, social cohesion is generally more challenging to achieve in settings in which the population is diverse. In these societies, inter-group conflict is more likely to emerge due to low levels of inter-personal trust, diverging preferences for public goods, and inequality across groups (Arbatlı et al. 2020). When diversity is related to identity-based discrimination, prejudice, and stereotyping, reducing hostility is challenging, particularly when the distance between groups is borne out of ethnic, religious, sexual orientation, or gender identity differences.

This paper investigates whether greater levels of contact with LGBTQI+ students (i.e., lesbian, gay, bisexual, transgender, queer, intersex, nonbinary, or otherwise gender non-conforming) lead to lower levels of conflict in schools. We rely on data from 95 middle and high schools in Uruguay and exploit plausibly exogenous within-school and across-classrooms variation in the share of LGBTQI+ students to estimate its impact on the experience of violence in the school setting.

At the core of all inter-group conflicts, there is a reluctance to see each other's perspective and refusal to see the other as someone similar to oneself on several aspects (Alan et al. 2021). The "Contact Hypothesis" (or "Intergroup Contact Theory", Allport 1954) suggests that prejudice emerges from fear, ignorance, and lack of shared goals. Interactions between the prevailing "in-group" and an "outgroup" under appropriate conditions can bring opportunities to overcome fears, get to know each other, and appreciate different points of view. Therefore, these interactions can *reduce* prejudice and discrimination between the majority and minority group members. The Contact Hypothesis has been chiefly applied to understand racial divisions and ethnic conflicts in a variety of settings with mixed results[1]. The theory has been expanded to investigate whether the

[1]For example, in a meta-analytic review of the literature on Contact Theory, Pettigrew & Tropp (2006) analyze the findings in 526 papers with 713 independent samples. The authors find that more than half of the samples focused on the relations between racial or ethnic groups. For a review of the relationships between racial/ethnic groups, see Patchen (1999).

Intergroup Contact can reduce negative attitudes between religious groups[2] and, more recently, a few have tested if it applies to the relationships between heterosexual and LGBTQI+ individuals. For instance, previous studies have found a positive correlation between heterosexual individuals' interpersonal contacts with gays and lesbians and more favorable attitudes towards them in the U.S., (Herek & Glunt 1993, Herek & Capitanio 1996), the U.K. (Brown et al. 2007) Canada (Mohipp & Morry 2004), Norway (Anderssen 2002), and Turkey (Çirakoğlu 2006), among other countries. Other studies have applied the Contact Hypothesis to investigate whether interpersonal relations of white heterosexuals with transgender individuals or gays and lesbians can lead to reductions in transprejudice (King et al. 2009) or opposition to gay parenting (Costa et al. 2015).

While the Contact Hypothesis has relatively optimistic predictions, interactions between an ingroup and an outgroup can also lead to negative consequences. The "Intergroup Threat Theory" (or Integrated Threat Theory, Stephan & Stephan 2000) hypothesizes that contact between groups can heighten tensions between them if they perceive them as threats to one another. In the Intergroup Threat Theory, members of an ingroup (a prevailing group) might *perceive* (real or illusory) threats from a relatively unknown outgroup (Stephan et al. 2009). Thus, closer interactions between an ingroup and an outgroup can *increase* conflict as it may exacerbate perceptions of threats to the status quo, regardless of the accuracy of the threats. For example, Stephan et al. (1999) find that prejudice against Mexican, Cuban, and Asian immigrants in the U.S. is highly correlated with perceived realistic threats, symbolic threats, and stereotypes. A similar result is found in Stephan et al. (1998) in relation to attitudes towards immigrant groups in Spain and Israel. The Integrated Threat Theory has also been used to understand political polarization on social media platforms (Bail et al. 2018), among other issues.

Previous research has aimed to identify a set of factors that can mediate the effect of social interactions on perceptions of other groups and the level of conflict in society. For example, increased interactions between an ingroup and an outgroup are more likely to improve their relationship when both groups have similar social standings, are able to find common goals, and whenever authorities' support is present (Allport 1954). A critical factor discussed in the literature is how the size of the

[2]For example, Paolini et al. (2004) analyze the impact of friendships between Catholics and Protestants in Northern Ireland. Kanas et al. (2015), and Tausch et al. (2009) apply Contact Theory hypotheses to investigate Christian-Muslim and Hindus-Muslims relationships in Indonesia and India, respectively.

outgroup can alter the outcomes of their interactions with the ingroup. However, there is no clear consensus about how this affects intergroup relations. Blalock (1956) finds that an increase of the same magnitude in the size of the black population has a larger effect in metropolitan areas in the US with relatively fewer African Americans than in areas where blacks are more numerous. Similarly, Forman (2001) finds that an increasing number of black high schools students is negatively correlated with prejudice among their white peers, but negative attitudes towards black increase once the share of black students in the school exceeds 35%. Taylor (1998) also finds that white individuals' perceptions about African Americans worsen as their local share of black population increases, but this relationship is non-linear and even reverses slightly as the percent of black reaches its highest levels. In turn, Wagner et al. (2006) find that an increase in the size of ethnic minorities improves how they are perceived by German citizens, but support the claim that this relationship is non-linear. Schlueter & Scheepers (2010) find support for both the Integrated Threat Theory and Contact Hypothesis in a sample of Dutch adults: an increase in the share of immigrants triggers threat perceptions among the Dutch and leads to more negative attitudes towards immigrants. However, they also find that larger migrant populations also facilitate intergroup contact which somewhat mitigates unfavorable sentiments towards immigrants.

We aim to contribute to the strand of literature that investigates how changes in the size of an outgroup affect conflict. We focus on LGBTQI+ students in the secondary school setting, given the educational system's important role in reducing social distance between individuals and the alarming levels of bullying and cyberbullying observed during this stage. Since the allocation of students to classrooms within schools is likely to be unrelated to students' gender identities and sexual preferences, we argue that the variation in the share of LBGTQI+ students across classrooms and within schools is plausibly random.

We applied a self-administered survey in a representative sample of schools in Montevideo, the capital city, and the rest of the regions in the country. We randomly selected up to four classes per school and conducted the survey during the school day. The instrument included self-identification questions on gender identity, sexual orientation, and sexual attraction, as well as information about personal experience of psychological, physical, and sexual violence.

Our results show little support for the contact hypothesis in the Uruguayan secondary school setting. A larger share of LGBTQI+ students in the classroom has no impact on individual experience of psychological, physical, nor sexual violence in the school. However, if we look at the separate effect of the share of LGBTQI+ students by their biological sex, the results seem supportive of the Integrated Threat Theory. A larger share of female LGBTQI+ students in the classroom is associated with greater levels of psychological and physical violence among girls, irrespective of their gender identity or sexual orientation. This may be related to the limited observability of gender identity and sexual orientation: prejudiced students may perceive that more girls in the classroom are LGBTQI+, but may not be able to distinguish who among them self-identify as LGBTQI+.

Our paper contributes to at least two strands of the literature. First, our study contributes to the still inconclusive debate around the Contact Hypothesis's and Integrated Threat Theory's predictions. Focusing on the case of interactions between LGBTQI+ students and their heterosexual cisgender peers, we overcome some of the methodological limitations present in previous studies. As Hewstone (2009) argues, reverse causation issues arise as people with different prior attitudes may differentially seek out contact with outgroup members. An increasing number of recent studies rely on experimental methods that randomly assign information campaigns to artificially increase "exposure" to an outgroup (Broockman & Kalla 2016). Other experimental studies have randomly assigned individuals to participate in group activities with varying degrees of exposure to minorities. However, these activities tend to be relatively short-lived (Finseraas & Kotsadam 2017, Scacco & Warren 2018). Our paper exploits quasi-random variation in sustained exposure to members of a minority group (i.e., LGBTQI+) in a real-life setting. This allows us to better understand intergroup contact patterns in a setting where relations between groups have been long established.

Second, we contribute to the the field of LGBTQI+ Economics. While the field has been producing more high-quality studies due to new and better data availability, most of the existing work is related to labor and demographics in developed countries. Very few rigorous studies have focused on the school setting and/or in developing countries (Badgett et al. 2021).

2 Context and Data

2.1 Context

Uruguay ranks first in Latin America for LGBTQI+ friendliness.[3] In the span of a few years, important norms linked to the rights of LGBTQI+ people have been advanced including the enactment of a civil union law, the modification of provisions to allow adoption by couples in civil unions, legislation protecting the right to gender identity and change of name and sex in identification documents, as well as the protection of marriage equality. However, the country still faces important challenges in terms of prejudice against this group in different settings. For instace, data from the Ibero-American LGBTI Education Network[4] indicates that 42.6 percent of students state that no one intervened when they heard homophobic comments.

The National Public Education Administration (ANEP) has been working to strengthen its sexual education program and foster gender policies in the school setting. Within this context, ANEP has been integrating gender policies within its cross-cutting goal of protecting human rights in schools. To measure the progress made in recent years, ANEP and the Uruguayan Ministry of Social Development (MIDES) joined forces with the Inter-American Development Bank in 2019 to conduct a survey that could characterize the school climate in middle and high schools (equivalent to grades 7 to 12 in the U.S.). The main goal of the survey was to gauge the prevalence of violence and harassment that takes place in the school setting. ANEP and MIDES were particularly interested in understanding the situation of minority groups such LGBTQI+ students, afro-descendants, migrants, and persons with disabilities.

Secondary education in Uruguay encompasses six years of instruction, divided in two three-year levels, lower secondary and upper secondary (i.e., middle and high school) (Ness & Lin 2015). Education in these levels is free, but upper secondary is not compulsory and it is geared to prepare students for university. Students can receive academic secondary education at either public or private high schools, or they can opt for a technical education program.[5]

[3] https://americasquarterly.org/article/social-inclusion-2016-explanation-of-methodology/

[4] http://educacionlgbti.org/

[5] These programs are offered by the University of the Republic of Uruguay, a public institution sponsoring technical high schools across the country.

2.2 Sample

To conduct the study, the partner institutions first defined a sample of schools that was representative of Montevideo and the rest of the regions in the country as well as of the three types of schools in the system (public, private, and technical). The only restriction imposed was that the school was located in a locality with a population size above 10,000 inhabitants. Selection probability for each school was determined based 2018's national enrollment and the target was a sample of 100 schools. Once these schools were chosen, the sample was stratified by level and up to four classes were randomly selected per school. All classes had the same selection probability. Once the sample was defined, all students in the selected classes were invited to participate in the survey.

Due to logistical difficulties, the survey could not be applied in 5 of the schools selected, which yields a final sample of 95 schools. In the end, a total of 5,995 students from 365 classrooms were surveyed between June and July 2019.

2.3 Data

Since many of the questions included in the survey were sensitive, the survey was anonymous and self-administered. Eliminating interactions between an interviewer and study participants may help reduce bias responses via enumerator effects. Each student independently filled out the survey at school, using their personal computer and a secure web platform hosted by MIDES to protect the confidentiality of the data.[6]

The instrument tried to capture the school climate and discrimination in the school setting. Thus, the questionnaire includes questions on students' perceptions of the school climate, experience of violence and discrimination, perceptions of harassment and safety, as well their knowledge and usage of institutional support resources. In addition, the instruments collected individual characteristics such as sex, age, education level as well as self-identification questions on race, nationality, and non-cisgender identities.

[6] All students in Uruguay have access to a personal computer in the school. Nevertheless, 849 surveys were filled out in paper due to connectivity issues in remote areas. However, even in these cases, the survey was still anonymous and no enumerator participated in the data collection process.

Identifying LGBTQI+ population is quite challenging, as it encompasses dealing with fluid and overlapping identities. In general, the gold standard to measure sexual orientation and transgender-inclusive gender identities considers asking about several dimensions of individual preferences and behavior in order to be able to capture sub-groups of interest (Badgett et al. 2009, Patterson et al. 2017). Our survey tried to maximize the chances to capture non-hetero normative identities and orientation. Thus, we include three different questions on gender identity, sexual orientation, and sexual attraction. Table 1 presents details on each of these multiple choice questions as well as the response alternatives provided.

While we do not intend to reduce or transform complex identities into binary concepts, we define a person identifying as LGBTQI+ if they respond to any of these three questions with an option that is considered non-cisgender, non-heterosexual, or that reflects attraction for same-sex individuals. For the purposes of our study, we are after a definition of LGBTQI+ that is the most inclusive possible.[7] Thus, we construct an indicator variable LGBTQI+ that is equal to one if at least one of the answers to the three questions on gender identity and sexual preferences reflects a non-cisgender or non-heterosexual response.

Table 1: Questions on Gender Identity, Sexual Orientation, and Sexual Attraction

Concept	Question	Alternatives	Additional alternatives
Gender Identity	How do you describe your gender identity?	a. female b. trans female c. male d. trans male e. other	f. unsure g. prefer not to respond
Sexual Orientation	Which of the following options do you think best describes your sexual orientation?	a. bisexual b. gay c. straight d. lesbian e. other	f. unsure g. does not understand h. prefer not to respond
Sexual Attraction	To whom are you attracted?	a. women b. men c. both d. other	f. unsure g. prefer not to respond

[7]Students are considered non-cisgender if their biological sex does not correspond to their gender identity or if they choose trans, other, or unsure. Students are considered non-heterosexual if they self-identify as bisexual, gay, lesbian, other or if they are unsure. Finally, non-heterosexual attraction is determined when the student is attracted to same-sex partners (e.g., female biological sex or gender identity who is attracted to women), both sexes, or others, as well as those who are not sure about their sexual attraction.

Table 2 shows basic descriptive statistics on the sample. The mean age among the respondents is 14, which reflects an age range of 11 to 20 years old among students enrolled in middle and high school. The sample includes over a third of students who self-identify as afro-descendants and/or indigenous and 6.9% who declare having a disability. Considering all non-cisgender identities and orientations, Table 2 shows that the total share of self-identified LGBTQI+ students in the sample is 18%. Self-report is clearly higher in high school relative to middle school[8]. Although it was not directly targeted, the sample seems generally balanced in terms of its characteristics by biological sex. However, a larger share of girls (24.4%) self-identify as LGBTQI+ relative to boys (12.5%).

Table 2: Descriptive Characteristics

	Global (1)	Middle School (2)	High School (3)	Female (4)	Male (5)
Age	14.747	13.538	16.389	14.742	14.763
	(1.885)	(1.289)	(1.201)	(1.903)	(1.864)
Afro-indigenous	0.265	0.258	0.274	0.247	0.285
	(0.441)	(0.437)	(0.446)	(0.431)	(0.452)
Migrant	0.036	0.037	0.033	0.034	0.038
	(0.185)	(0.189)	(0.180)	(0.180)	(0.190)
Expected Education: Tertiary	0.494	0.454	0.547	0.560	0.423
	(0.500)	(0.498)	(0.498)	(0.497)	(0.494)
Any Disability	0.070	0.077	0.060	0.069	0.070
	(0.254)	(0.266)	(0.238)	(0.254)	(0.255)
Lives in Montevideo	0.449	0.475	0.414	0.459	0.441
	(0.497)	(0.499)	(0.493)	(0.498)	(0.497)
Private education	0.243	0.238	0.249	0.250	0.236
	(0.429)	(0.426)	(0.433)	(0.433)	(0.425)
Public education	0.558	0.572	0.540	0.591	0.528
	(0.497)	(0.495)	(0.498)	(0.492)	(0.499)
Technical education	0.198	0.190	0.210	0.159	0.236
	(0.399)	(0.392)	(0.408)	(0.366)	(0.425)
LGTBQI+	0.186	0.179	0.196	0.244	0.125
	(0.389)	(0.384)	(0.397)	(0.429)	(0.331)
Non-Hetero (Gender Identity)	0.028	0.032	0.023	0.031	0.024
	(0.165)	(0.175)	(0.151)	(0.174)	(0.154)
Non-Hetero (Sexual Orientation)	0.185	0.190	0.178	0.246	0.116
	(0.388)	(0.393)	(0.382)	(0.431)	(0.321)
Non-Hetero (Sexual Atraction)	0.132	0.110	0.161	0.193	0.068
	(0.339)	(0.313)	(0.368)	(0.395)	(0.252)

Note: Standard deviations in parentheses.

2.4 Explanatory Variables

Our main goal is to test whether a higher share of minority students in the classroom is linked to the individual experience of violence. We construct the share of LGBTQI+ students relative to

[8] Rust (1993), Fernández et al. (2019) explain that youth are more aware of their identity as they get older

all students in the classroom, as well as sex-specific shares. The latter are defined as the shares of LGBTQI+ female and LGBTQI+ male students relative to their peers of the same biological sex in the classroom.

Formally, for each student i in the sample, we define $Q_{cs,-i}$ as the leave-one-out fraction of LGBTQI+ students in the classroom c of school s, excluding student i from this calculation. Alternatively, we let $Q^F_{cs,-i}$ and $Q^M_{cs,-i}$ denote the share of female and male LGBTQI+ students in the classroom.

2.5 Outcome Variables

To measure individual violence, we rely on survey questions aimed at measuring victimization in the school setting in terms of psychological, physical, and sexual aggression. Under psychological violence, we consider incidents related to verbal aggression, experience of exclusion or rejection, coercion to perform activities without consent, and the non-consensual dissemination of sexual-related rumors, videos, or photos. Physical violence includes experiences such as contact aggression (pushing, hitting, kicking, etc.) and threats to be harmed with weapons. Finally, sexual violence refers to events such as receiving comments or gestures of sexual nature, non-consensual touching of intimate parts, and being forced to perform sexual acts without consent. We construct three indicator variables that are equal to one when the student self identifies as a victim of psychological, physical, or sexual violence. We also construct an indicator variable that captures victimization of any kind.

Table 3 presents the descriptions of our primary outcome variables. Approximately 45% of our sample has experienced some form of violence, especially the youngest and female students. Most reported violence refers to psychological violence (41%), but still 16% of our sample reports to have experienced physical violence. Finally, the prevalence of sexual violence is 12% in our sample, with higher reported levels among females.

Table 3: Descriptive Characteristics

	Global	Middle School	High School	Female	Male
Any Violence	0.450	0.506	0.376	0.471	0.427
	(0.498)	(0.500)	(0.485)	(0.499)	(0.495)
Psychological Violence	0.408	0.459	0.341	0.435	0.378
	(0.492)	(0.498)	(0.474)	(0.496)	(0.485)
Physical Violence	0.162	0.220	0.086	0.129	0.198
	(0.369)	(0.414)	(0.280)	(0.335)	(0.398)
Sexual Violence	0.125	0.143	0.100	0.139	0.109
	(0.330)	(0.351)	(0.300)	(0.346)	(0.311)

Note: Standard deviations in parentheses.

3 Research Design

3.1 Balance Test

To verify the validity of our identification strategy, this subsection provides a balance check that confirms that the allocation of LGBTQI+ students to classes within the same school was close to random. We thus verify that the share of LGBTQI+ students, as well as the sex-specific shares, are not correlated with individual characteristics in the group.

Table 4 reports the coefficients of an OLS regression of students' socio-demographic characteristics (in columns) on the share of LGBTQI+ students in the classroom. The results show that, in general, individual characteristics are balanced across different intensities of exposure to the aggregate share of LGBTQI+ (see panel A). Despite a few statistically significant correlations for the case of the asset index and migrant condition, the distribution of characteristics is balanced with respect to the share of peers who self identify as gender/sexually diverse. A similar pattern is identified when we look a the coefficients of a regression of students' pre-treatment characteristics on the shares of LGBTQI+ females and LGBTQI+ males in the classroom. Except for a few statistically significant correlations (age and migrant condition in the case of the female share and disability condition in the case of the male share), individual characteristics are once more balanced across different values of these shares. Still, we control for the pre-treatment variables included in Table 4 in all our specifications.

Table 4: Balance on Observable Characteristics

	Age	Any Disability	Assets Index	Montevideo	Expected Education	Migrant	Afro Indigenous
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Share LGBTQI+							
Share LGBTQ	-0.045	0.054	-0.370**	0.001	-0.081	0.046*	0.077
	(0.215)	(0.046)	(0.158)	(0.024)	(0.061)	(0.024)	(0.067)
Panel A: Share LGBTQI+ by sex							
Share Female LGBTQ (Female class)	-0.254*	0.009	-0.097	-0.013	-0.048	0.039**	0.030
	(0.132)	(0.026)	(0.108)	(0.013)	(0.042)	(0.015)	(0.045)
Share Male LGBTQ (Male class)	0.024	0.088**	-0.134	0.007	-0.018	0.007	0.063
	(0.229)	(0.041)	(0.150)	(0.022)	(0.052)	(0.024)	(0.056)
Observations	5995	5778	5977	5990	5523	5933	5967

Note: Each coefficient reported in the table corresponds to a linear regression between the share in table's line on the characteristic variable corresponding to the column. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).

3.2 Variation in Explanatory Variables

As shown in the previous subsection, it is unlikely that the allocation of students to classrooms within the school was driven by the LGBTQI+ identity of the students. This is going to lead to exogenous variation in the share of LGBTQI+ students across classes within the same school. Table 5 shows the (leave-one-out) distribution of LGBTQI+students both in aggregate (column 1) and by biological sex (columns 2 and 3). The table reports the mean and the standard deviation both with and without school fixed effects (see panels A and B, respectively).

Panel A shows that, on average, 18.3 percent of the classroom (approximately 3 students considering an average classroom size of 16 students) self report as LGBTQI+. The standard deviation is 0.12. After removing the school fixed effects, panel B shows that the standard deviation of the share of LBGTQI+ students remains considerably large at 0.10. When focusing on these shares by biological sex, we notice that the average share of females who self-report as LGBTQI+ in the classroom (24%) is higher than that of their male counterparts (12%). The same pattern is observed in terms of the standard deviations for these shares, with 0.13 and 0.10 for females and males, respectively. Once the school fixed effects are removed, the standard deviation of each of these shares is slightly reduced (see last row in panel B), but remains around 0.10 in the aggregate share and 0.14 and

0.11 in the female and male shares, respectively.

Table 5: Variation in the Share of LGBTQ

	Share LGBTQ	Share Female LGBTQ (Female Class)	Share Male LGBTQ (Male Class)
	(1)	(2)	(3)
A. Raw Variables			
Mean	0.183	0.239	0.121
s.d.	0.124	0.181	0.134
B. Net of school fixed effects			
Mean	–0.000	0.000	0.000
s.d.	0.101	0.144	0.111
Number of observations	5995	5995	5995
Number of classes	365	365	365
Number of schools	95	95	95

Note: Panel B reports the residuals on a regression on the shares including school fixed effects.

3.3 Estimation Strategy

In order to measure the effect of exposure to LGBTQI+ students on violence, we propose the following baseline linear specification:

$$Y_{ics} = \alpha + \beta_1 Q_{cs,-i} + \Gamma X_{ics} + \theta_g + \theta_s + \varepsilon_{ics} \tag{1}$$

where Y_{ics} is the outcome variable for student i belonging to classroom c and school s. $Q_{cs,-i}$ represents the first moment of the leave-one-out distribution of LGBTQI+ peers in classroom c and school s. Thus, β_1 measures the marginal effect of the level of exposure to diverse students on the experience of violence. The matrix X_{ics} includes individual controls such as age, biological sex, having self-identified as LGBTQI+, socioeconomic status (as measured by an asset index), size of their network, residence in Montevideo, aspirations to attend university, disability condition, and afro-descendant or native origin. We also include fixed effects at the grade level, θ_g, and at the school level, θ_s. Finally, ε_{ics} is the zero-mean error term clustered at the school level.

We expect that the effect of exposure will not be homogeneous for all students in the classroom. Thus, we interact the share of LGBTQI+ students in the classroom with Z_{ics}, representing either

the biological sex of the student or their individual report of an LGBTQI+ identity:

$$Y_{ics} = \alpha + \beta_1 Q_{cs,-i} + \beta_2 (Z_{ics} \times Q_{cs,-i}) + \Gamma X_{ics} + \theta_g + \theta_s + \varepsilon_{ics} \tag{2}$$

The effect of exposure to LGBTQI+ students may also vary according to peers' stereotypes about different identities and their intersection with biological sex. Thus, we also explore a model in which exposure to LGBTQI+ students is characterized by the shares of LGBTQI+ female and LGBTQI+ male students relative to their peers of the same biological sex in the classroom ($Q^F_{cs,-i}$ and $Q^M_{cs,-i}$):

$$Y_{ics} = \alpha + \beta_1 Q^F_{cs,-i} + \beta_2 Q^M_{cs,-i} + \Gamma X_{ics} + \theta_g + \theta_s + \varepsilon_{ics} \tag{3}$$

Once more, to test for potential heterogeneous effects by biological sex and LGBTQI+ identity, we estimate the following equation:

$$Y_{ics} = \alpha + \beta_1 Q^F_{cs,-i} + \beta_2 Q^M_{cs,-i} + \beta_3 (Z_{ics} \times Q^F_{cs,-i}) + \beta_4 (Z_{ics} \times Q^M_{cs,-i}) + \Gamma X_{ics} + \theta_g + \theta_s + \varepsilon_{ics} \tag{4}$$

Appendix A includes robustness checks for alternative definitions of the variable measuring exposure to LGBTQI+ students, including (i) high share of LGBTQI+ students in the classroom relative to the share in the school in Table A.1, (ii) number of LGBTQI+ students in the classroom in Table A.2, and (iii) the number of LGBTQI+ students by biological sex in the classroom in Table A.3.

4 Results

The baseline models for any type of violence as well as psychological, physical, and sexual violence are presented in columns (1), (4), (7), and (10) in Table 6. The results show that the proportion of LGBTQI+ students in the class does not have a significant effect on the prevalence of violence.

It is worth highlighting that both females and LGBTQI+ students are more vulnerable. These two characteristics thus become relevant potential mediators to the effect of the share of LGBTQI+ students. Indeed, data from the 2019 Youth Risk Behavior Survey (YRBS) in the US show that lesbian, gay, and bisexual high school students report having been bullied at the school (32%) or

Table 6: Gender and Sexual Diversity on Violence

	Any Violence			Psychological Violence			Physical Violence			Sexual Violence		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share LGBTQI+	0.074	-0.015	0.034	0.049	-0.036	0.037	-0.013	-0.062	-0.013	-0.013	0.013	-0.005
	(0.081)	(0.103)	(0.093)	(0.076)	(0.096)	(0.089)	(0.052)	(0.070)	(0.057)	(0.046)	(0.055)	(0.046)
Woman	0.037**	0.004	0.037**	0.048***	0.017	0.048***	-0.062***	-0.080***	-0.062***	0.024**	0.034**	0.024**
	(0.017)	(0.024)	(0.017)	(0.016)	(0.023)	(0.016)	(0.011)	(0.017)	(0.011)	(0.011)	(0.016)	(0.011)
Share LGBTQI+ × Woman		0.176*			0.171*			0.099			-0.052	
		(0.104)			(0.099)			(0.079)			(0.071)	
LGBTQI+	0.111***	0.109***	0.077**	0.109***	0.107***	0.099***	0.025*	0.023	0.024	0.106***	0.106***	0.113***
	(0.017)	(0.017)	(0.036)	(0.016)	(0.016)	(0.035)	(0.015)	(0.015)	(0.027)	(0.014)	(0.014)	(0.025)
Share LGBTQI+ × LGBTQI+			0.142			0.042			0.003			-0.029
			(0.121)			(0.129)			(0.089)			(0.077)
Observations	5774	5774	5774	5774	5774	5774	5757	5757	5757	5740	5740	5740
Mean dependent variable	0.450	0.450	0.450	0.408	0.408	0.408	0.162	0.162	0.162	0.125	0.125	0.125
S.D. dependent variable	0.498	0.498	0.498	0.492	0.492	0.492	0.369	0.369	0.369	0.330	0.330	0.330
Total Effect Share LGBTQI+	0.074	0.162*	0.176	0.049	0.134	0.079	-0.013	0.036	-0.011	-0.013	-0.039	-0.034
Total Effect Woman	0.037**	0.181**	0.037**	0.048***	0.188**	0.048***	-0.062***	0.019	-0.062***	0.024**	-0.018	0.024**
Total Effect LGBTQI+	0.111***	0.109***	0.220**	0.109***	0.107***	0.141	0.025*	0.023	0.027	0.106***	0.106***	0.084

Note: All specifications include controls for age, biological sex, LGBTQI+, household asset index, more than one friend, lives in Montevideo, university as expected education, any disability, and afro or indigenous. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).

online (26.6%) in the previous year. In contrast, their heterosexual cisgender counterparts report about half of those levels of harassment (17.1% and 14.1%, respectively; Underwood et al. 2020). In Mexico, Baruch-Dominguez et al. (2016) collected data from LGBTQI+ individuals that were 30 years of age or younger and asked retrospectively about their experiences during their school years. Two thirds of the participants disclosed having faced bullying. Often times, higher victimization among LGBTQI+ students translates into depression, traumatic stress, suicidal attempts, absenteeism, lowered future aspirations, and poor academic performance (Poteat et al. 2011). Similarly, the experience of violence tends to differ by sex, with boys experiencing higher levels of physical violence and girls facing higher levels of psychological and sexual violence.

Columns (2) and (3) introduce interactions between the primary explanatory variable, i.e., LGBTQI+ share, with a female dummy and an LGBTQI+ dummy, respectively. These interactions try to test if the higher level of vulnerability experienced by these groups is heightened by a higher presence of LGBTQI+ students in the classroom. Interestingly, the results show that there is no differential effect according to gender identity or sexual orientation (see column (3)). However, we find that the share of LGBTQI+ students has a greater effect on the levels of violence experienced by girls in the school setting.

When we focus on the three specific dimensions of violence, the results are consistent. Columns

(6), (9), and (12) show that there is no differential effect of the share of LGBTQI+ students on the levels of violence experienced by students who self-identify as part of this minority. Once more, the results confirm that a higher presence of LGBTQI+ students in the class does not increase violence on average, or particularly among minority students. However, column (4) confirms that a higher share of LGBTQI+ students in the class only affects female students, who are more likely to become victims of psychological violence. This pattern does not show up in the case of physical and sexual violence, which implies that the result in colum (2) is mostly driven by the experience of psychological violence among girls.

Table A.4 in turn tests the possibility of a differential effect of the LGBTQI+ share for people who are LGBTQI+ and also are female, by introducing a triple interaction reported in columns (4), (8), (12) and (16). However, the effect of this triple interaction is not statistically significant, ruling out the possibility of such a differential effect.

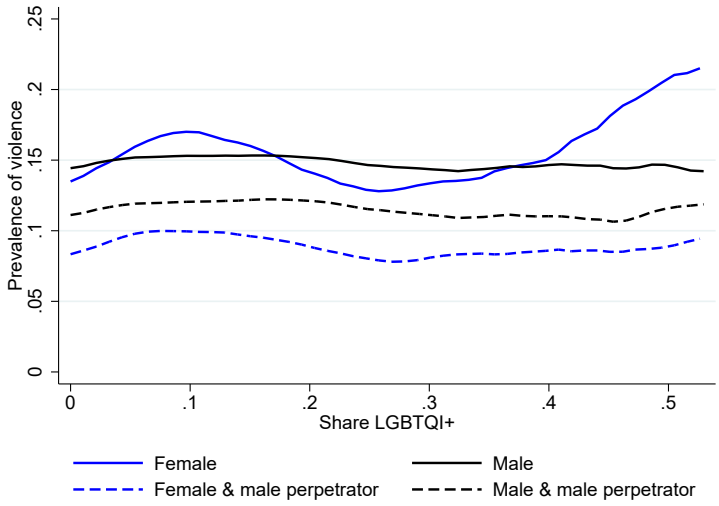
Table 7: Gender and Sexual Diversity on Violence

	Any Violence			Psychological Violence			Physical Violence			Sexual Violence		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Share Female LGBTQI+ (Female class)	-0.028	-0.106	-0.030	-0.030	-0.094	-0.012	-0.029	-0.087*	-0.037	-0.019	-0.047	-0.025
	(0.063)	(0.072)	(0.067)	(0.056)	(0.067)	(0.061)	(0.037)	(0.049)	(0.040)	(0.037)	(0.040)	(0.037)
Share Male LGBTQI+ (Male class)	0.097	0.127	0.069	0.061	0.091	0.045	0.005	0.039	0.038	-0.005	0.065	0.007
	(0.069)	(0.092)	(0.077)	(0.067)	(0.088)	(0.076)	(0.042)	(0.071)	(0.048)	(0.057)	(0.055)	(0.057)
Woman	0.038**	0.000	0.038**	0.049***	0.019	0.051***	-0.062***	-0.087***	-0.064***	0.024**	0.024	0.023**
	(0.017)	(0.024)	(0.017)	(0.016)	(0.022)	(0.017)	(0.011)	(0.017)	(0.011)	(0.011)	(0.016)	(0.011)
Share LGBTQI+ (Female) × Woman		0.187***			0.154**			0.138**			0.067	
		(0.070)			(0.068)			(0.064)			(0.059)	
Share LGBTQI+ (Male) × Woman		-0.057			-0.056			-0.064			-0.124*	
		(0.110)			(0.110)			(0.089)			(0.067)	
LGBTQI+	0.114***	0.104***	0.096***	0.112***	0.104***	0.126***	0.026*	0.018	0.034	0.107***	0.101***	0.106***
	(0.017)	(0.017)	(0.035)	(0.016)	(0.016)	(0.035)	(0.015)	(0.015)	(0.025)	(0.014)	(0.014)	(0.025)
Share LGBTQI+ (Female) × LGBTQI+			0.013			-0.074			0.028			0.023
			(0.090)			(0.096)			(0.070)			(0.070)
Share LGBTQI+ (Male) × LGBTQI+			0.083			0.050			-0.104			-0.036
			(0.121)			(0.122)			(0.092)			(0.086)
Observations	5774	5774	5774	5774	5774	5774	5757	5757	5757	5740	5740	5740
Mean dependent variable	0.450	0.450	0.450	0.408	0.408	0.408	0.162	0.162	0.162	0.125	0.125	0.125
S.D. dependent variable	0.498	0.498	0.498	0.492	0.492	0.492	0.369	0.369	0.369	0.330	0.330	0.330
Total Effect Share Female LGBTQI+	-0.028	0.081	-0.017	-0.030	0.060	-0.086	-0.029	0.052	-0.008	-0.019	0.020	-0.002
Total Effect Share Male LGBTQI+	0.097	0.070	0.152	0.061	0.035	0.095	0.005	-0.025	-0.066	-0.005	-0.059	-0.029
Total Effect Women	0.038**	0.130	0.038**	0.049***	0.117	0.051***	-0.062***	-0.013	-0.064***	0.024**	-0.033	0.023**
Total Effect LGBTQI+	0.114***	0.104***	0.193**	0.112***	0.104***	0.102	0.026*	0.018	-0.042	0.107***	0.101***	0.092

Note: All specifications include controls for age, biological sex, LGBTQI+, household asset index, more than one friend, lives in Montevideo, university as expected education, any disability, and afro or indigenous. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).

In Table 7, we separate the fraction of LGBTQI+ students in the class by their biological sex. Even when introducing the LGBTQI+ share by sex, we do not find a statistically significant effect of these variables on violence. When looking closely at the interactions with the female dummy (column

Figure 1: Prevalence of violence on the Share LGBTQI+ continuum



Note: The solid line reflects the number of students of biological sex s (female or male) who experienced violence and identifies the sex of the perpetrator over the number of students of the same sex in the class. The dashed line reflects the number of students of sex s who experienced violence perpetrated by a male over the number of students of the same sex in the class.

(2)), we find that the results for females identified above is driven by a higher share of female LGBTQI+ students in the classroom. In other words, as the share of girls who self-identify as LGBTQI+ increases, so does the likelihood that women in the class will experience more violence. This effect significantly persists in the case of psychological and physical violence (see columns (5) and (8)), but the coefficient on the interaction for sexual violence is also positive. The share of LGBTQI+ female students does not seem to differentially affect heterosexual and LGBTQI+ students in terms of their experience of violence. The same holds for the interactions of the share of male LGBTQI+ students with female and LGBTQI+.

Our instrument collected information on the sex of the perpetrator for those who experienced violence. We analyze these data to understand if the prevalence of violence along the support of the share of LGBTQI+ students in the classroom varies by sex of the perpetrator. Figure 1 plots the smoothed values resulting from local polynomial regressions relating the prevalence of violence and the share of LGBTQI+, only when considering victims of violence who report the sex of the perpetrator. The divergent pattern of the solid line on the prevalence of violence for the female class relative to that for the male class corroborates the differential effect affecting females as the presence of LGBTQI+ students in the class increases. The dashed lines report the prevalence

rate when a male student is the perpetrator. Violence experienced by boys appears to be mostly exerted by other boys, while violence experienced by girls is more evenly distributed among male and female perpetrators along the distribution of the share of LGBTQI+ students. In fact, at the highest levels of the share of LGBTQI+, the share of female perpetrators markedly increases.

5 Conclusions

This paper studies whether greater levels of contact with LGBTQI+ students lead to lower levels of violence in schools. We exploit plausibly exogenous within-school and across-classrooms variation in the share of LGTBQI+ students to estimate its effect on the prevalence of physical, psychological and sexual violence experienced in secondary school.

Our findings establish that a greater presence of LGBTQI+ students in the classroom does not have a statistically significant impact on individual experience of psychological, physical, nor sexual violence in the school. Thus, our results provide little support for the contact hypothesis in the Uruguayan school setting. Moreover, if we look at the separate effect of the share of LGBTQI+ students by their biological sex, the results seem supportive of the Integrated Threat Theory. That is, a larger share of female LGBTQI+ students in the classroom is associated with greater levels of psychological and physical violence among girls, irrespective of their gender identity or sexual orientation.

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A Robustness Checks

Table A.1: Gender and Sexual Diversity on Violence (Share of LGBTQI+ Higher than Median)

	Any Violence			Psychological Violence			Physical Violence			Sexual Violence		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
High LGBTQ	0.024	0.016	0.012	0.020	0.006	0.012	0.001	-0.001	-0.005	-0.001	0.009	-0.005
	(0.017)	(0.024)	(0.019)	(0.016)	(0.022)	(0.017)	(0.013)	(0.019)	(0.013)	(0.011)	(0.013)	(0.010)
Woman	0.037**	0.030	0.037**	0.049***	0.037**	0.049***	-0.062***	-0.063***	-0.062***	0.024**	0.033**	0.024**
	(0.017)	(0.018)	(0.017)	(0.016)	(0.018)	(0.016)	(0.011)	(0.014)	(0.011)	(0.011)	(0.013)	(0.011)
High LGBTQ × Woman		0.015			0.026			0.002			-0.020	
		(0.027)			(0.028)			(0.021)			(0.018)	
LGBTQI+	0.110***	0.110***	0.068**	0.107***	0.107***	0.079***	0.024	0.023	0.004	0.105***	0.106***	0.094***
	(0.017)	(0.017)	(0.028)	(0.016)	(0.016)	(0.026)	(0.014)	(0.015)	(0.022)	(0.013)	(0.013)	(0.021)
High LGBTQ × LGBTQ			0.068*			0.047			0.032			0.018
			(0.035)			(0.035)			(0.025)			(0.024)
Observations	5774	5774	5774	5774	5774	5774	5757	5757	5757	5740	5740	5740
Mean dependent variable	0.450	0.450	0.450	0.408	0.408	0.408	0.162	0.162	0.162	0.125	0.125	0.125
S.D. dependent variable	0.498	0.498	0.498	0.492	0.492	0.492	0.369	0.369	0.369	0.330	0.330	0.330

Note: All specifications include controls for age, biological sex, LGBTQ, household asset index, more than one friend, lives in Montevideo, university as expected education, any disability, and afro or indigenous. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).

Table A.2: Gender and Sexual Diversity on Violence (Number of LGBTQI+ Students)

	Any Violence			Psychological Violence			Physical Violence			Sexual Violence		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Total of LGBTQ students	0.009**	0.004	0.007	0.008**	0.003	0.007*	0.002	-0.002	0.000	-0.000	-0.001	-0.000
	(0.004)	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Woman	0.037**	0.001	0.037**	0.049***	0.013	0.049***	-0.062***	-0.085***	-0.062***	0.024**	0.017	0.024**
	(0.017)	(0.025)	(0.017)	(0.016)	(0.025)	(0.016)	(0.011)	(0.018)	(0.011)	(0.011)	(0.017)	(0.011)
Total of LGBTQ × Woman		0.010*			0.010			0.007			0.002	
		(0.006)			(0.006)			(0.005)			(0.004)	
LGBTQI+	0.107***	0.106***	0.058	0.104***	0.102***	0.084**	0.022	0.021	-0.012	0.105***	0.105***	0.103***
	(0.017)	(0.017)	(0.039)	(0.016)	(0.016)	(0.038)	(0.015)	(0.015)	(0.028)	(0.013)	(0.013)	(0.028)
Total of LGBTQ × LGBTQ			0.011			0.004			0.008			0.001
			(0.007)			(0.007)			(0.005)			(0.005)
Observations	5774	5774	5774	5774	5774	5774	5757	5757	5757	5740	5740	5740
Mean dependent variable	0.450	0.450	0.450	0.408	0.408	0.408	0.162	0.162	0.162	0.125	0.125	0.125
S.D. dependent variable	0.498	0.498	0.498	0.492	0.492	0.492	0.369	0.369	0.369	0.330	0.330	0.330

Note: All specifications include controls for age, biological sex, LGBTQ, household asset index, more than one friend, lives in Montevideo, university as expected education, any disability, and afro or indigenous. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).

Table A.3: Gender and Sexual Diversity on Violence (Number of LGBTQI+ Students)

	Any Violence			Psychological Violence			Physical Violence			Sexual Violence		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Total of Female LGBTQ students	0.005	-0.005	0.003	0.004	-0.006	0.004	0.002	-0.005	-0.001	-0.001	-0.002	0.001
	(0.005)	(0.007)	(0.006)	(0.005)	(0.007)	(0.006)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)
Total of Male LGBTQ students	0.016**	0.019*	0.014	0.016**	0.019*	0.014	0.001	0.004	0.002	0.001	0.001	-0.002
	(0.008)	(0.011)	(0.009)	(0.008)	(0.010)	(0.009)	(0.006)	(0.009)	(0.007)	(0.006)	(0.006)	(0.005)
Woman	0.039**	-0.001	0.039**	0.051***	0.011	0.051***	-0.062***	-0.087***	-0.064***	0.024**	0.017	0.026**
	(0.017)	(0.025)	(0.017)	(0.016)	(0.024)	(0.016)	(0.011)	(0.018)	(0.011)	(0.011)	(0.016)	(0.011)
Number LGBTQ (Female) × Woman		0.020***			0.020**			0.014**			0.003	
		(0.007)			(0.008)			(0.006)			(0.005)	
Number LGBTQ (Male) × Woman		-0.005			-0.006			-0.006			-0.000	
		(0.014)			(0.014)			(0.011)			(0.008)	
LGBTQI+	0.107***	0.100***	0.061	0.104***	0.097***	0.087**	0.022	0.017	-0.010	0.105***	0.104***	0.108***
	(0.017)	(0.017)	(0.038)	(0.016)	(0.016)	(0.037)	(0.015)	(0.014)	(0.028)	(0.013)	(0.013)	(0.028)
Number LGBTQ (Female) × LGBTQ			0.010			0.002			0.012*			-0.006
			(0.009)			(0.009)			(0.007)			(0.006)
Number LGBTQ (Male) × LGBTQ			0.012			0.007			-0.003			0.010
			(0.015)			(0.013)			(0.013)			(0.009)
Observations	5774	5774	5774	5774	5774	5774	5757	5757	5757	5740	5740	5740
Mean dependent variable	0.450	0.450	0.450	0.408	0.408	0.408	0.162	0.162	0.162	0.125	0.125	0.125
S.D. dependent variable	0.498	0.498	0.498	0.492	0.492	0.492	0.369	0.369	0.369	0.330	0.330	0.330

Note: All specifications include controls for age, biological sex, LGBTQ, household asset index, more than one friend, lives in Montevideo, university as expected education, any disability, and afro or indigenous. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).

Table A.4: Gender and Sexual Diversity on Violence

	Any Violence				Psychological Violence				Physical Violence				Sexual Violence			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Share LGBTQI+	0.074	-0.015	0.034	-0.009	0.049	-0.036	0.037	-0.020	-0.013	-0.062	-0.013	-0.071	-0.013	0.013	-0.005	-0.009
	(0.081)	(0.103)	(0.093)	(0.114)	(0.076)	(0.096)	(0.089)	(0.108)	(0.052)	(0.070)	(0.057)	(0.078)	(0.046)	(0.055)	(0.046)	(0.055)
Woman	0.037**	0.004	0.037**	0.020	0.048***	0.017	0.048***	0.027	-0.062***	-0.080***	-0.062***	-0.083***	0.024**	0.034**	0.024**	0.024
	(0.017)	(0.024)	(0.017)	(0.027)	(0.016)	(0.023)	(0.016)	(0.026)	(0.011)	(0.017)	(0.011)	(0.019)	(0.011)	(0.016)	(0.011)	(0.018)
Share LGBTQI+ × Woman		0.176*		0.097		0.171*		0.128		0.099		0.126		-0.052		0.007
		(0.104)		(0.132)		(0.099)		(0.127)		(0.079)		(0.096)		(0.071)		(0.089)
LGBTQI+	0.111***	0.109***	0.077**	0.139**	0.109***	0.107***	0.099***	0.152***	0.025*	0.023	0.024	0.023	0.106***	0.106***	0.113***	0.082**
	(0.017)	(0.017)	(0.036)	(0.056)	(0.016)	(0.016)	(0.035)	(0.053)	(0.015)	(0.015)	(0.027)	(0.045)	(0.014)	(0.014)	(0.025)	(0.038)
Share LGBTQI+ × LGBTQI+			0.142	-0.071			0.042	-0.126			0.003	0.022			-0.029	0.100
			(0.121)	(0.207)			(0.129)	(0.186)			(0.089)	(0.145)			(0.077)	(0.127)
LGBTQI+ × Woman				-0.091				-0.075				0.008				0.048
				(0.077)				(0.075)				(0.054)				(0.056)
Share LGBTQI+ × LGBTQI+ × Woman				0.307				0.227				-0.065				-0.205
				(0.271)				(0.251)				(0.164)				(0.196)
Observations	5774	5774	5774	5774	5774	5774	5774	5774	5757	5757	5757	5757	5740	5740	5740	5740
Mean dependent variable	0.450	0.450	0.450	0.450	0.408	0.408	0.408	0.408	0.162	0.162	0.162	0.162	0.125	0.125	0.125	0.125
S.D. dependent variable	0.498	0.498	0.498	0.498	0.492	0.492	0.492	0.492	0.369	0.369	0.369	0.369	0.330	0.330	0.330	0.330

Note: All specifications include controls for age, biological sex, LGBTQI+, household asset index, more than one friend, lives in Montevideo, university as expected education, any disability, and afro or indigenous. Grade-level and school-level fixed effects are included. Clustered school-level standard error in parenthesis. Stars denote significance levels (* 10%; ** 5%; *** 1%).