

Policy Brief

The Nerds, the Cool and the Central: Peer Education and Teen Pregnancy in Brazil

June 2024

KEY MESSAGES

- Teenage pregnancy rates in Brazil are amongst the highest in Latin America.
- Significant evidence associates teenage pregnancy with school dropout, lower educational outcomes, poor maternal and infant health, and higher poverty rates.
- In Brazil, pregnancy during childhood is associated with a 400 percent increase in the female dropout rate.
- In Salvador, a peer-led intervention focused on sexual and reproductive health and students' aspirations at public high schools resulted in significantly improved contraceptive use and decreased teenage pregnancy rates.
- The program was most effective when relying on measures of the school network to select the students who would perform the interventions.

CONTEXT

Teenage pregnancy rates in Brazil are among the highest in Latin America. The current rate of 68.4 per 1,000 adolescents lies well above the world average of 46 per 1,000 and is higher than the Latin American average of 65.5 per 1,000 (The Lancet Adolescent Health Commission, 2020).

There is wide evidence of the association between teenage pregnancy and detrimental health and economic outcomes. Early pregnancies and marriages lead to lower female educational attainment and a decreased use of preventative health services (Field & Ambrus, 2018), while increased school access also leads to a reduction in teenage pregnancy among women (Ozier, 2015).

Interventions, such as cash transfers targeting teenage girls, have been shown to increase access to financial resources, increase school attainment,

decrease teenage pregnancy and early marriages, and improve health (Baird et al., 2014).

There is growing evidence of the potential of using network structure to increase information intervention effectiveness. Targeting central individuals as the main information sources was found to increase the impact of programs aimed at adopting technology among farmers in Malawi (Beaman et al., 2021) and increasing vaccination rates in India (Banerjee et al., 2019).

Peer education is especially promising in addressing sensitive topics, where a top-down approach may be met with resistance. However, evidence on the effectiveness of peer education interventions is limited, with especially scant information on its impacts on behavioral change (Dodd et al., 2022).

STUDY DESCRIPTION

In a forthcoming working paper, Baumgartner et al. (2024) study a peer-led intervention on sexual and reproductive health education in Salvador, the capital city of the State of Bahia, Brazil. In 88 randomly selected secondary state schools out of a total of 134 schools, the materials and contents of this intervention were diffused through a series of dissemination activities in the academic year of 2018 (February – December 2018).

The dissemination activities were organized and implemented throughout the year by a team of six pupils from that school, who played the role of “mobilizers” (peer educators)¹. The activities performed by “mobilizers” consisted of the distribution of materials produced by the Health Ministry, and activities proposed by the students themselves, ranging from banners in the school courtyard to roundtable discussions, movie sessions and plays.

To compare the effectiveness of different approaches for choosing peer educators, the authors collected social network data in 2017, the year prior to the launch of the intervention, in all schools in the study sample.

Students were asked to name their closest friends, the most popular students in the school, and the ones who would be most suitable to lead the implementation of an information intervention. Their answers provided the researchers with a detailed overview of the social network structure in schools.

Schools participating in the intervention were subsequently randomized into three different groups:

- In the first group, the **school's administration** was asked to select peer educators. This approach is a natural policy benchmark, where the administration uses information on pupils to choose their peer educators.
- In the second group, the most **central students** in the school's social network were selected as peer educators. Centrality was determined based on students' number of social connections and how central their connections are.
- In the third group, peer educator choice was based on **students' popularity** according to the network survey.



Pelourinho - Historic Center of Salvador, Bahia, Brazil by gustavomellossa via canva.com

¹ The peer educators or “mobilizers” took part in weekly meetings with “mediators”, university students trained by the Department of Education of the State of Bahia to develop activities related to the project's themes. On average, “mobilizers” had 10 meetings of around two and a half hours with their “mediators” throughout the school year of 2018. Though “mediators” had a clear structure in their interactions with “mobilizers”, the peer educators were allowed to decide how they would organize activities in their own schools to disseminate information.

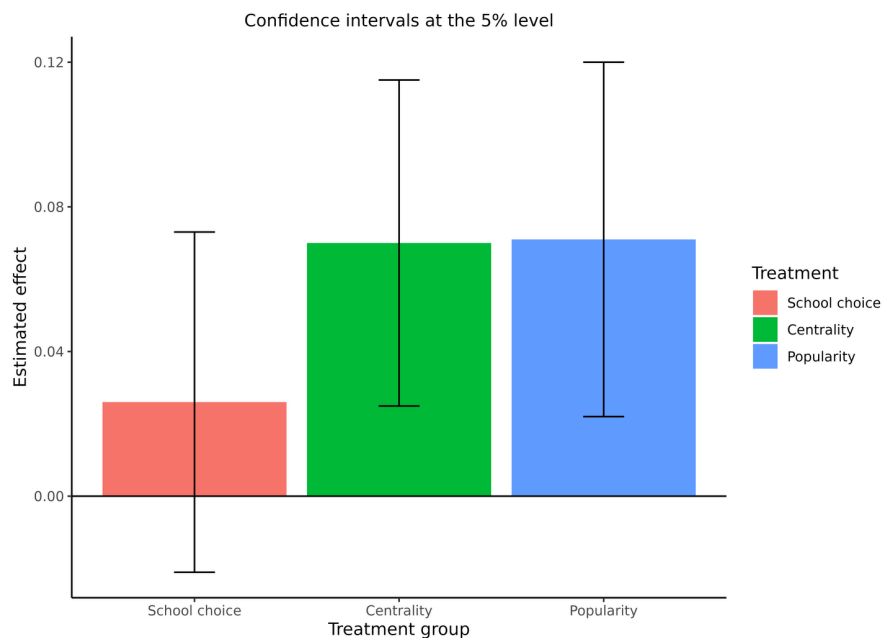
THE EVIDENCE

Program effects on educational outcomes, contraceptive use, and teenage pregnancy

A follow-up survey was conducted with sampled students at the end of the 2019 school year (one year after the intervention). The survey team was able to interview around 6,900 students, about 84% of the students surveyed in 2017. Administrative data on longer term educational outcomes complemented the analysis.

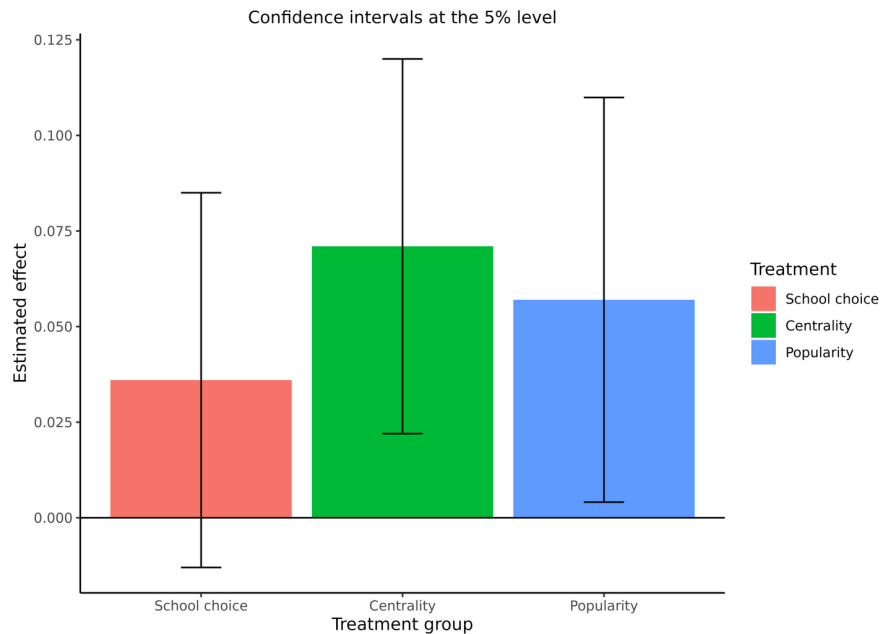
The intervention greatly impacted the salience of sexual health subjects in the participating institutions. While it is a formal part of the Brazilian school curriculum, only 43.7% of survey participants in schools that were not part of the intervention reported exposure to sexual health education in school. The interventions involving central or popular peers as mobilizers significantly increased the percentage of students who reported participating in sexual health education by around seven percentage points (see Figure 1).

Figure 1. Had sexual education in school



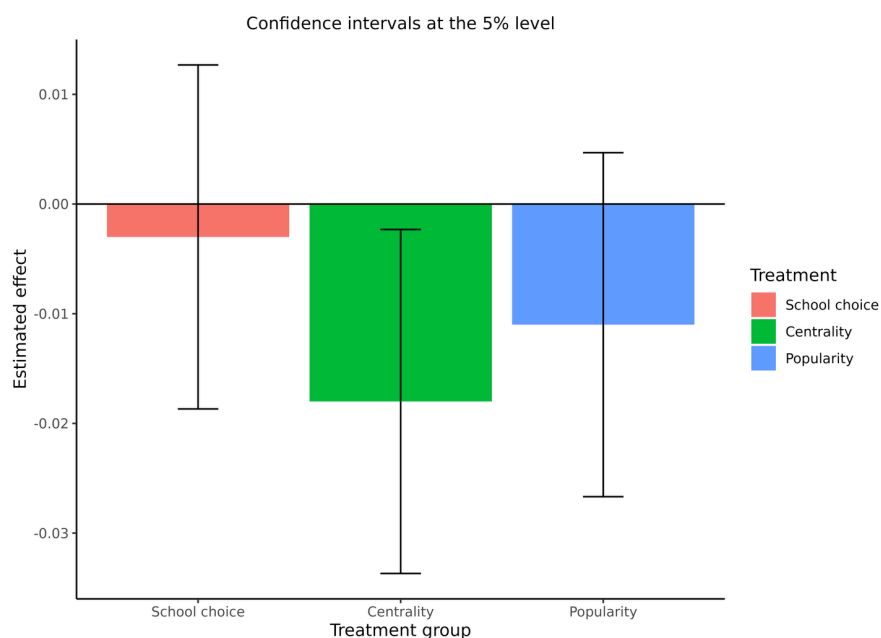
The project tasked peer educators with disseminating free informative materials like a so-called "Teenager Booklet" produced by the Ministry of Health. Mobilizers were tasked with distributing these materials in their own schools. Once again, students in schools where peer educators were selected using the centrality and popularity methodology were more likely to be acquainted with the "Teenager Booklet" and its contents (see Figure 2). These findings highlight the effectiveness of strategically targeting 'influencers' to maximize the dissemination and impact on a broader group. Though freely available in health centers, awareness of the "Teenager Booklet" among students in schools with a centrality-based peer educator group was 7.1 percentage points higher than the control group, representing a 41% increase.

Figure 2. Knows the “Teenager Booklet”



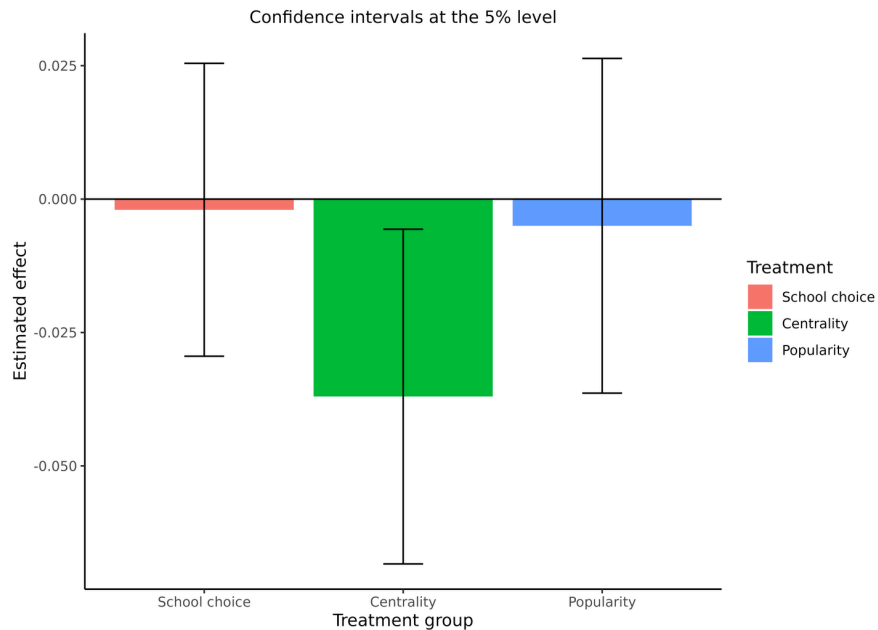
The increased participation in health education is reflected in behavioral outcomes. At follow-up, 7.2% of the students in the control group declared that they or their partner had been pregnant in the previous two years. In schools participating in the intervention this percentage was 6.1. Students in schools with peer educators selected based on centrality experienced a statistically significant decrease in teenage pregnancy of 1.8 percentage points, which represents a 25% decrease (see Figure 3).

Figure 3. Pregnancy in last two years



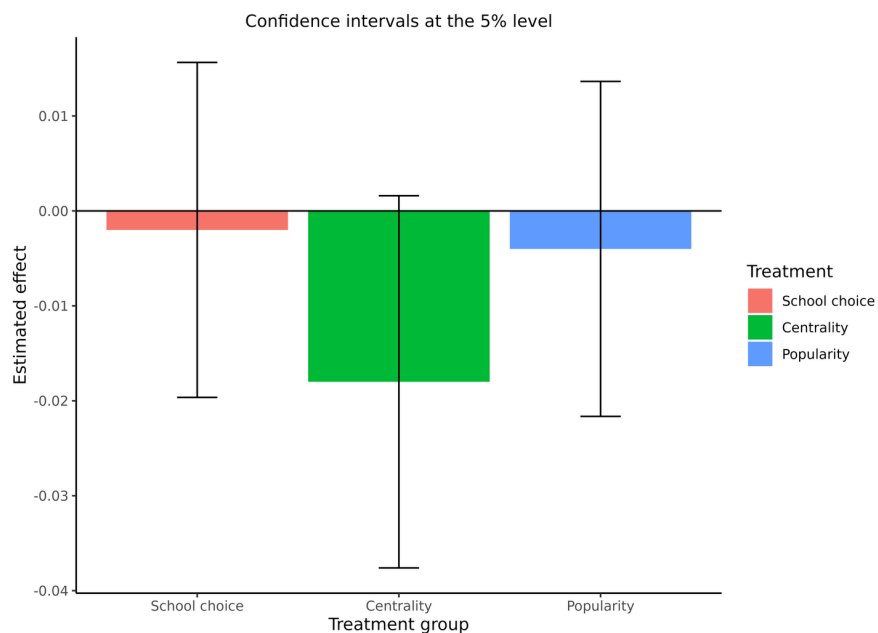
One important reason appears to be that the intervention led students to be more open to the use of contraceptive methods. When asked about possible reasons preventing them from having protected sex, such as high costs, issues with the partner or the burden to plan the protection in advance, respondents in the centrality-based intervention group were 3.5 percentage points less likely to see any of these factors as an issue (see Figure 4).

Figure 4. Mentions at least one burden in using contraceptives



These results are also reflected in longer-term outcomes. By the end of their school cycle, students in schools that received the centrality-based intervention were less likely to be neither in employment, education, or training (NEET) the following year (see Figure 5). These results suggest that peer-led interventions in sexual health can act not only as a driver of improvements in knowledge, but also of behavioral change, where results are currently mixed (Dodd et al., 2022).

Figure 5. No high school, no school and no formal job in 2020 (among females)



POLICY RECOMMENDATIONS

- Peer-led interventions can have a substantial impact on both knowledge and behavioral outcomes. The study developed in Brazil shows that interventions led by students can successfully reach their peers and improve both the knowledge of sexual and reproductive health and the behavior of their peers, and eventually decrease teenage pregnancy rates.
- The innovative approaches used to select peer educators are a driving force behind these impacts. Targeting central individuals can significantly increase the effectiveness of these interventions. Central peer educators were substantially more effective in both creating awareness of the interventions and in driving behavior change in their schools. Policymakers could consider similar approaches when designing and implementing sexual and reproductive health policies.
- Schools can identify central individuals even without access to detailed network information. When assessing schools' social networks prior to the intervention, we also asked students who they thought would be the best potential mobilizers in a similar kind of intervention. The answers to this question show considerable overlap with the most popular students identified in the network survey. While 88.3% of the peer educators chosen by the school were mentioned by someone as one of the best potential mobilizers, this was the case for 98.7% of the students ranked as most popular.



REFERENCES

- Baird, Sarah, Chirwa, Ephraim, De Hoop, Jacobus, and Özler, Berk. "Girl power: cash transfers and adolescent welfare: evidence from a cluster-randomized experiment in Malawi." African Successes, Volume II: Human Capital. University of Chicago Press, 2014. 139-164.
- Banerjee, Abhijit, Chandrasekhar, Arun G., Duflo, Esther, and Jackson, Matthew O. "Using gossips to spread information: Theory and evidence from two randomized controlled trials." The Review of Economic Studies 86.6 (2019): 2453-2490.
- Baumgartner, Erick, Breza, Emily, La Ferrara, Eliana, Orozco, Victor, Rosa Dias, Pedro. "The Nerds, the Cool and the Central: Peer Education and Teen Pregnancy in Brazil". Forthcoming working paper (2024).
- Beaman, Lori, BenYishay, Ariel, Magruder, Jeremy, and Mobarak, Mushfiq. "Can network theory-based targeting increase technology adoption?" American Economic Review 111.6 (2021): 1918-43.
- Dodd, Steven, Widnall, Emily, Russell, Abigail Emma, Curtin, Esther Louise, Simmonds, Ruth, Limmer, Mark, and Kidger, Judi. "School-based peer education interventions to improve health: a global systematic review of effectiveness." BMC public health 22.1 (2022): 2247.
- Fernandes, Reynaldo. "Ensino médio: como aumentar a atratividade e evitar a evasão." Instituto Unibanco (2010).
- Field, Erica, and Ambrus, Attila. "Early marriage, age of menarche, and female schooling attainment in Bangladesh." Journal of political Economy 116.5 (2008): 881-930.
- Ozier, Owen. "The impact of secondary schooling in Kenya a regression discontinuity analysis." Journal of Human Resources 53.1 (2018): 157-188.

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