

Empowering girls: A randomized trial on mHealth ‘safe spaces’ during COVID-19

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Abstract

In spite of their promise, there is limited evidence that mobile-phone-based adolescent girls ‘safe space’ and sexual and reproductive health interventions have improved wellbeing and health outcomes in developing countries. The existing causal evidence on mHealth programs for women and girls has focused on text message or interactive voice response programs, and often shows limited impact, or even negative effects (Zurovac et al., 2011; Jamison et al, 2013, L’Engle et al., 2016; Iribarren et al., 2017; Berendes et al., 2021). We study, using a randomised controlled trial, the effect of a weekly SMS and phone-call-based ‘safe space’ or big brothers/big sisters-type program. It provided adolescents with information about HIV risk and sexual and reproductive health and support services. Over 1,200 adolescents in Botswana were randomly assigned to control or treatment groups during COVID-19 school disruptions. Using school administrative data, we find that the program reduced school dropouts and pregnancy six months after program end. Using phone surveys, we also find that the program increased adolescents’ knowledge, willingness to disclose sensitive experiences including gender-based violence, and improved intended health behaviors and girls’ self-reported empowerment.

Introduction

Motivation

Converting knowledge into behavior change is a difficult challenge in public health, for example improving outcomes on diet, exercise, smoking cessation, and risky sex. We study a program that targets adolescent girls to share knowledge that, if applied, will delay sexual debut. This in turn increases the amount of schooling girls receive, and reduces teen pregnancy and contraction of sexually transmitted diseases including HIV, and later in life, reduces the risk of intimate partner violence and increases subsequent labour market outcomes, (Bandiera et al., 2018). Many governments include sex education in school curricula to curb risky sex. However, it has proven difficult to convert sex education into changed behaviour.

The stakes are high: Globally 16 million teen pregnancies and 1.8 million HIV infections occur every year. This is particularly true in Sub-Saharan Africa, which accounts for 70% of new HIV infections (UNFPA 2013; UNAIDS 2018), and where 1 in 4 females give birth before age 18 (UNICEF 2022).

Previous shocks, for example, Ebola, increased unsafe sex, pregnancies and school dropouts for adolescent girls. Covid-19 posed a similar risk, with girls out of school and financially constrained, potentially increasing the risk for unsafe behaviours such as dating older partners who may provide girls with financial benefits, or dropping out of school if they had less access to contraceptive or other support resources. Early evidence from other contexts suggests that negative outcomes can be mitigated with programs such as adolescent safe spaces. For example several studies have identified that in-person safe space programs have delayed marriage, improved sexual health, and reduced domestic violence (Bandiera et al, 2020; Gourlay et al., 2019; Gulesci et al., 2021). However, none of these studies have been conducted with ‘low tech’ safe space programs that can be delivered over the phone.

In spite of widespread phone ownership in Low and Middle Income Countries (LMICs), there is limited evidence on phone call-based safe spaces. Feature phones are ‘high access’- over 70 percent of households in low and middle income countries have access to one. There is also limited evidence on phone-based mHealth programs in resource-constrained settings, and on longer-term behaviours such as school pregnancies and dropouts (e.g. Jamison et al, 2013, L’Engle et al., 2016; Iribarren et al., 2017). Further, very few adolescent sexual and reproductive health programs measure their impact using objective school data, as opposed to self-reported data. As such, phone-based mHealth adolescent sexual and reproductive health programs are understudied but present promise for cost-effective and scalable impact.

Research and policy Question

We study whether a phone-based adolescent safe space program can affect longer-term behaviours such as pregnancy and dropouts during a major public health and economic crisis (Covid).

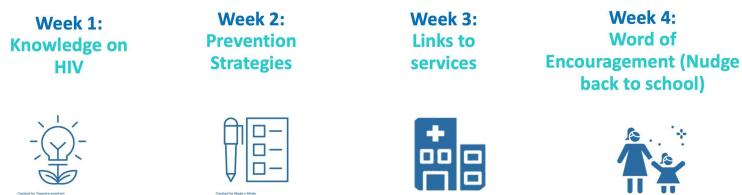
Methods

Context and Program

During Covid school closures, the Botswana-based NGO, ‘Youth Impact’ converted its proven, normal in-school anti-sugar daddy program to a 1-on-1 phone call-based safe space program. The 1 hour in-school program has recent evidence from a large-scale RCT proving it to be extremely cost-effective, causing a 40% reduction in pregnancy (Angrist, et al, 2019). However, during COVID, this program could not be delivered while schools were closed, and students were at home and facing the loss of their mobility, social access to friends and support networks, and information and support services provided at schools and in communities.

The adolescent phone-based safe space program consists of four sessions of 1-to-1 20 minute phone calls between a facilitator and adolescent, offered weekly. This diagram below shows topics covered each week. Calls are targeted to adolescent girls and boys. The complementary SMS and phone call content included messages such as providing information and behaviour change messages about risk factors for HIV transmission, such as relative HIV risk between partners in

different age groups. It also provided students with information on services they could access, and encouraged them to pledge safe dating strategies. The complementary SMS messages were sent two days prior to each phone call.



Design

We conducted a Randomized Control Trial with 1,200 students who were randomly assigned to a treatment or control group. The treatment group received a weekly SMS message and a phone call from a youth facilitator (a young person trained to deliver the content). The Control group did not receive messages or phone calls during the implementation period. This study took place between April 2020 and November 2021, and was thus over a period of disrupted schooling when adolescents were primarily out of school and seemed to value speaking to an older role model.

Attrition was low- 85% of the baseline sample of 1200 students were re-surveyed at endline. Attrition was balanced across treatment and control groups. Endline took place about 3 weeks after the program ended, and school administrative data was collected 6-9 months after program implementation. The samples were balanced at baseline on key demographic characteristics. We estimated treatment effects using a linear probability regression model.

Key Outcomes

The phone-based adolescent safe space program caused significant improvements both on knowledge and other survey outcomes, as well as using objective, administrative school data on longer-term behaviours.

Knowledge

The program improved knowledge on a range of indicators. As Table 1 shows, the program caused a 15.6 percentage point increase in the number of students correctly identifying 'older partners (men aged 20 years and above)' as the group with the highest HIV prevalence in Botswana. It further caused a 13.4 percentage point improvement in the share of students who accurately believe younger partners have the lowest rates of HIV. Finally, it caused a significant increase, 28.6 percentage point increase - in the share of students able to identify support services they can access. Column 4 also shows high demand and an increase in demand for the program.

Table 1: Improved knowledge about HIV risk and support services, and continued demand

	(1) Know boys low HIV	(2) Know old partner high HIV	(3) Name mental health, Youth support	(4) Wanted receive support phone SMS
Treatment	0.134*** (0.027) [0.000]	0.156*** (0.025) [0.000]	0.286*** (0.029) [0.000]	0.075*** (0.026) [0.003]
Control Mean	0.593	0.670	0.307	0.530
Observations	1280	1280	988	819
Controls	Yes	Yes	Yes	Yes
Gender	Both	Both	Both	Both
Rounds included	4	4	3	3

Note: There were 4 rounds of the intervention. Some outcomes were measured in only a subset of rounds.

Agency

We found significant improvements in a number of indicators that reflect agency and empowerment, and social connection. Table 2 shows the program caused an increase in the share of girls who report they would not want to date an older partner, and that they would feel comfortable refusing to hold hands with a guy if they didn't want to. The program also caused an increase (11.3 pp) in the share of girls willing to seek support from sexual health clinics- a stigmatised activity. The program caused a suggestive but not statistically significant reduction in the share of students feeling low, a measure of mental wellbeing..

Table 2: Improved agency on dating and sexual health

	(1) Not Date Older	(2) Refuse Hold Hands	(3) Friends	(4) Sex Health Clinic Visit	(5) Feel Low	(6) Help Friend Violence
Treatment	0.039** (0.017) [0.025]	0.080*** (0.029) [0.007]	0.036** (0.018) [0.043]	0.113*** (0.035) [0.001]	-0.010 (0.006) [0.109]	0.008 (0.007) [0.263]
Control Mean	0.920	0.854	0.926	0.594	0.014	0.008
Observations	807	421	700	682	988	988
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Gender	Girls	Girls	Both	Both	Both	Both
Rounds incl.	3	2	2	2	3	3

6 months post-program: reduced pregnancy and/or dropouts

We followed up with the students six months after implementation to measure our key indicators of pregnancy and drop-outs. We collected administrative data provided by schools to track the outcomes. The program caused a significant reduction in the share of students who became pregnant or dropped out of school. Reducing these by 2.9 percentage points represents a 100% reduction, essentially eliminating dropouts and bringing them to zero percent of students in the treatment group. Table 3 shows these outcomes estimated with a number of different specifications. Results are robust to estimating results in several ways.

Table 3: Student has become pregnant or dropped out of school

	(1)	(2)	(3)	(4)	(5)
Treatment	-0.029** (0.014) [0.036]	-0.029** (0.014) [0.036]	-0.026* (0.014) [0.055]	-0.026* (0.014) [0.055]	-0.026* (0.013) [0.054]
Control Mean	0.029	0.029	0.029	0.029	0.029
Observations	471	471	471	471	471
Controls	Yes	Yes	No	No	No
Previous program fixed effects	Yes	No	Yes	No	No
Region fixed effects	No	No	Yes	Yes	No
Rounds incl.	2	2	2	2	2

Note: Using 6 months post-program administrative data from schools.

Conclusion

This study provides evidence that a phone-based safe space program for adolescents during COVID-19 school closures can have positive effects on longer-term behaviors such as pregnancy and school dropouts. The findings suggest that speaking to relatable role models and receiving information on risky behaviors can contribute to improved agency and reduced negative outcomes. During negative shocks and emergencies, phone-based support programs for adolescents could be a cost-effective way to mitigate harmful impacts, including pregnancy and dropout.

The study adds to the limited evidence on phone-based mHealth programs in resource-constrained settings and on longer-term behaviors. Further research is needed to determine the generalizability of these findings to other contexts and populations. In conclusion, phone-based safe spaces have the potential to address critical gaps in adolescent sexual and reproductive health interventions and contribute to improved outcomes for young people in developing countries.

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