

Evaluation of a Safe Spaces Program for Girls in Ethiopia

Annabel Erulkar and Girmay Medhin



ABSTRACT

There is increased consensus on the role of adolescent girls in reaching development goals but few programs for girls have been rigorously evaluated. In Ethiopia, *Biruh Tesfa* (Bright Future, in Amharic) mobilizes out-of-school girls into safe space groups led by mentors. Girls receive training in literacy and life skills, and they are given vouchers for medical services. A longitudinal study was conducted to measure changes in girls' learning outcomes and their use of health services. After adjusting for background factors, we found that girls who had never attended school in the project site had significantly higher literacy scores than did control girls. At endline, girls in the project site were 1.6 times more likely to have used a health service in the past six months than those in the control site. Girls-only safe spaces programs can be effective at improving literacy and health-seeking behavior among the most marginalized girls who otherwise lack educational opportunities and access to services.

KEYWORDS

girl domestic workers, girls' education, health-seeking behavior, mentorship, safe spaces



Background

Approximately one in eight of the world's population is a female aged between 10 and 24, and attention is increasingly being focused on the central role of adolescent girls in achieving global health and sustainable and other development goals (Levine et al. 2008; Temin and Levine 2009). The development field's areas of focus include girls' education and health, as well as the eradication of child marriage and gender-based violence.

The focus on girls as key development actors has resulted in an increasing number of initiatives developed to support girls, especially in poorer countries. Many of the programs for marginalized girls employ what are known as safe spaces—sometimes referred to as child friendly spaces—that are places in which girls can socialize and build networks, acquire social



support and skills, and receive information on community resources and other entitlements (UNFPA 2015; UNICEF n.d.). They are characterized as being private and confidential, free from physical or psychological threats, conveniently located and safely accessed, and not subject to intrusion from those in authority or those who could disrupt self-expression and exchange (Brady 2005). Safe spaces are not necessarily dedicated, physical spaces, but can be created by applying these principles to meetings in a variety of locally available settings, including under a tree, in tents, or in community halls.

Safe Spaces Programs

Safe spaces have been implemented in a variety of settings and targeted at girls in a range of circumstances. Most programs have demonstrated the effectiveness of the approach in reaching the most hard-to-reach girls. When evaluations are included in the programs, many demonstrate positive improvements. One of the earliest safe spaces programs was the *Ishraq* (Sunrise) program in rural Upper Egypt. Launched in 2001, the program mobilized 3,000 out-of-school girls of 12 to 15 into groups where they received training in literacy, life skills, and financial education over a two-year period. In addition, participants played sports; this was an uncommon opportunity for girls in this very conservative setting. While adolescent girls in traditional settings often face increased restrictions and confinement to the domestic sphere, *Ishraq* demonstrated that safe spaces programs can overcome restrictions and effectively mobilize and support girls in poor rural settings (Selim et al. 2013).

In Uganda, Empowerment and Livelihoods for Adolescents (ELA) was a two-year program for girls aged 14 to 20 that provided life skills, financial literacy, and vocational training through girls' groups led by mentors. ELA included a randomized control trial in which the intervention was randomized to 100 treatment and 50 control communities. The evaluation demonstrated positive impacts in the ELA communities including increased condom use, and decreased fertility and nonconsensual sex (Bandiera et al. 2012).

Meseret Hiwott (Base for Life) was a program for married girls in rural Ethiopia who were formed into groups that met for three to four months and were provided with HIV and reproductive health (RH) information and financial literacy, as well as skills related to communication, self-esteem, and equitable gender roles. In parallel, a program for husbands promoted men's support of women's RH, and equitable relationships. Over 230,000 married girls and 130,000 husbands participated. The evaluation suggested improvements in men's assistance with housework, along with their accom-

paniment of wives to the clinic, and in voluntary counselling and testing (VCT) of couples (Erulkar and Tamrat 2014). Recent evidence from Bangladesh demonstrated positive impacts of safe spaces programs on preventing child marriage. In a program entitled *Balika* (Bangladeshi Association for Life Skills, Income and Knowledge for Adolescents), girls who received educational support and life skills training were 31 percent less likely to be married at endline compared to girls in the control group (Population Council 2016).

The aim of this study¹ was to analyze the educational and health impacts of a program for girls, including child domestic workers and rural-urban migrants residing in poor urban areas or informal settlements.

***Biruh Tesfa* Ethiopia**

Established in 2006, *Biruh Tesfa* aimed to increase social networks and support for the most marginalized girls in the poorest urban areas of Ethiopia. The program was implemented by the Ministry of Women, Children and Youth Affairs and their regional bureaus. Through the program, adult female mentors were recruited from low income urban areas and trained in the project curriculum, facilitation skills, and recruitment. Once trained, mentors paid house-to-house visits to mobilize out-of-school girls into safe spaces groups. During these visits, mentors were able to negotiate for girls' participation if there was resistance from their guardians and for domestic workers whose employers were opposed to this. This recruitment strategy resulted in the mobilization of the most marginalized girls, including, as mentioned above, child domestic workers, as well as daily laborers, and rural-urban migrants (Erulkar 2014). Once in groups, girls received basic training in literacy and life skills as well as wellness check-ups. In an earlier evaluation, *Biruh Tesfa* demonstrated positive changes in social support, HIV knowledge, and knowledge and demand for VCT among girls in the project areas compared to those in the control areas (Erulkar et al. 2012).

In 2013, *Powering Up Biruh Tesfa* was the name given to a new initiative to expand the project in Addis Ababa, Ethiopia's capital, focusing attention on measuring learning and health outcomes. The project was expanded to 17 of Addis Ababa's 116 *woredas* (districts) and was concentrated in low-income areas on the outskirts of the city that were emerging because of rapid urbanization. Out-of-school girls aged 7 to 18 were eligible to join the 20 new safe spaces sites, managed by 80 female mentors, that were established. The pro-

gram uses existing sites within the communities, mainly primary schools (after school hours), youth centers, and community halls. Modest renovations were undertaken in these facilities including partitioning rooms and painting.

Groups are segmented by age—7 to 11 and 12 to 18. *Biruh Tesfa* groups meet in the afternoon for two hours, five days per week. Meeting times coincide with the availability of classrooms as well as the time when girls in domestic service are free to attend. Once in the groups, girls receive non-formal education for four days a week, using the Ministry of Education curriculum. The fifth day's meeting is devoted to life skills that cover topics such as self-esteem and communication, financial literacy, hygiene and menstruation, disabilities, and violence. Each participant receives school materials including exercise books, pens, text books, and a book bag. They also receive basic clothing, including underwear, and sanitary napkins.

Girls in need of health services are offered a voucher to subsidize the cost of these. Twelve clinics from both the private and public sectors were invited to participate in the voucher scheme and girls who require medical services can request vouchers from their mentors. Vouchers are used for a range of medical issues including reproductive tract infections and HIV services. Providers submit vouchers at the end of each month to the project for reimbursement for services provided. Mentors also offer to accompany girls to the clinic if they are uneasy about going alone, do not know where to go, or have misgivings about seeing a medical professional; for many, this is a first time experience. The vouchers provide girls with free medical consultations, services, and medications.

The *Powering Up Biruh Tesfa* expansion was implemented from September 2013 to February 2014, after which the program continued to operate through another donor. In all, 3,159 girls took part in the program expansion. The average age of participants was 12.8 years and 41 percent were domestic workers. During the project, 487 medical vouchers were issued to 320 participants; 70 percent of voucher users had never visited a health facility before and this suggests that large numbers of girls were introduced to the health system through the scheme.

Methods

Data Collection

This is a longitudinal study of girls residing in the expansion sites of *Biruh Tesfa* and in areas where *Biruh Tesfa* was not implemented. The baseline sur-

vey was conducted prior to the establishment of the safe spaces groups; the endline survey took place among the same respondents six months after the establishment of the groups. The study was conducted in 27 *woredas* of Addis Ababa of which 17 were experimental areas and 10 were waitlisted controls. The districts were purposefully selected in collaboration with the local government staff from departments of education and the Ministry of Women, Children and Youth Affairs. Using available government statistics, areas that displayed high levels of poverty and low school attendance among girls were selected. We attempted to select comparable control districts based on available data as well as on the researchers' observation of socio-economic similarities with experimental areas.

Girls aged 12 to 18, who were out-of-school during the 2012 to 2013 academic year, were interested and allowed to participate in a girls' club were considered eligible for the survey. Study participants were identified through house-to-house visits made by program mentors and data collectors. In the intervention area, mentors went house-to-house with local guides to identify eligible girls and introduce the *Biruh Tesfa* program to them as well as to household heads and other gatekeepers. The mentors were provided with a script for introducing the program to ensure uniformity in the recruitment procedure. Girls who wanted to join the program and who were given permission to do so were included in the survey sampling frame.

In the control areas, interviewers were coupled with local guides, who had similar characteristics to mentors, to make house-to-house visits. During visits, interviewers undertook similar recruitment procedures and were similarly scripted as in the intervention areas. However, instead of being invited into the program, girls were asked if they would be interested and allowed to join a girls' program if it were expanded to their areas. Gatekeepers were asked if they would allow girls in their household to join should an expansion occur. This measure was undertaken in an attempt to control for selectivity which is the bias that results when those joining programs have different characteristics from those not joining. After introducing the program and obtaining the approval to enroll the girl in the program, the interviewer recorded the household information on the listing form to enter the girl into the sampling frame. Using SPSS statistical software, 2,000 girls (1,000 each from intervention and control areas) were randomly selected from the sampling frame.

The survey instrument was a structured, interviewer-administered questionnaire covering a range of issues including demographic characteristics, education, migration, work, social networks, reproductive health,

and sexual history. In addition, respondents were administered reading and math tests to measure their literacy and numeracy. The same study instrument was used at both rounds of survey. However, at endline, an additional section measuring exposure to the intervention was added to the end of the questionnaire for all age groups. *Biruh Tesfa* targets out-of-school girls aged from 7 to 18 years. However, the survey was restricted to those aged 12 to 18 because, for ethical reasons, research among members of younger age groups should be necessary and justified. Moreover, the stage of cognitive development in younger adolescents may make standard forms of research less appropriate to this age group (Institute for Reproductive Health 2010). In addition, younger adolescents aged between 12 and 14 received an abbreviated questionnaire that omitted sensitive questions on sexual activity and violence.

Given that the study is longitudinal, to control for loss to follow-up, interviewers requested a phone number through which respondents could be contacted for re-interview at endline. At endline, respondents were also offered a phone card with enough credit on it to encourage continued contact as well as this re-interview at endline.

Informed consent was obtained from all survey participants and parental/guardian consent was provided in cases when the respondent was under 18. The study protocol was approved by the Ethiopia Ministry of Science and Technology and the sponsoring institution's review board.

Measures

The expansion phase, *Powering Up Biruh Tesfa* aimed to increase literacy and numeracy capabilities among out-of-school girls living in the poorest urban areas. It also aimed to improve girls' health, including their utilization of health services. Literacy and numeracy acquisition was measured using reading and math cards based on those developed for the *UWEZO* program in East Africa that measures progressive skill levels in reading and math.² *UWEZO* tests were adapted for use in Ethiopia so that, for example, the reading cards measured the identification of Amharic letters, the reading of single words and sentences, and reading for comprehension. Math cards follow a similar progression of numeracy acquisition, including counting dots, identifying numbers, identifying the larger of two numbers, adding, subtracting and, finally, solving word problems. Two tests were adapted at baseline and assigned at random to respondents. At endline, two different tests were adapted and assigned at random. Literacy was measured through four items while math was measured through nine items. A score was con-

structed to reflect acquisition of literacy in the aggregate (ranging from 0 to 4) as well as overall numeracy (ranging from 0 to 9). A combined literacy-numeracy score was constructed, with scores ranging from 0 to 1. Because the number of numeracy items outnumbered literacy items, literacy items were weighted by a factor of two (scores ranging from 0 to 8), added to the numeracy score, and divided by 17, the total number of items in the test.

Health-seeking behavior was another primary outcome. Respondents were read a list of places and asked if they had visited the facility in the last six months. Two of the locations were private clinics and government hospitals or health centers. If the respondent reported being to either a clinic, hospital, or health center, she was coded as having used a health service.

Migration status was measured using the question from Demographic and Health Surveys (DHS): “How long have you lived in this location?” Those reporting that they had lived their entire life in the location were coded as native to the area; all others were coded as migrants.

Analysis

The data was entered using EpiData, and analysis was undertaken in STATA and SPSS. Because of loss to follow-up in the second round of survey, we stratified baseline respondents by completion status and examined background characteristics of each group. Educational outcomes were examined, item by item and in an aggregate score for experimental and control groups at baseline and endline. There was significant school enrollment between survey rounds. Therefore, we created an interaction variable between treatment arm and having a history of attending formal school in order to examine whether girls who had never been to school and those who had ever been to school were differentially affected in the experimental and control sites. Generalized linear models were used to compare mean aggregate literacy and numeracy scores between the two study arms at endline after taking account of an individual’s baseline results and background characteristics such as age, migration history, and relationship to household head. Migration status is included since those who have recently arrived in an area are generally disadvantaged compared to those who are native. After obtaining a significant interaction between history of formal schooling and treatment arms, we conducted this analysis on the sub-group of girls who had never been formally schooled by the endline. Co-efficients are reported for the effect of being in the experimental group, after testing other factors, both individually and in a fully adjusted model.

For the dichotomous outcome, health service utilization in the last six months, we used McNemar's chi-squared test to examine the differences between baseline and endline, followed by logistic regression, controlling for baseline estimates of the outcome and background variables. Respondents' relationship to the household head was coded as being 1) a daughter or granddaughter to the household head, 2) another relative (other than daughter or granddaughter), or 3) a non-relative or employee of the household head.

Results

Sample Characteristics

At baseline, 1,876 girls were interviewed out of the 2,000 sampled, amounting to a 94 percent response rate (see Table 1). At baseline, samples from experimental and control sites differed with respect to age, schooling, and the relationship to the household head. Respondents from the control group were significantly more likely than those in the experimental group to have been to school and to have attained higher levels of schooling. Likewise, respondents in the control group were significantly more likely to be employees or nonrelatives of the household head (50 percent), compared to respondents in the experimental area (39 percent). The majority of respondents were migrants to Addis Ababa (92 percent). Few girls reported media exposure through radio, the most accessible form of media. Of the experimental group 64 percent reported never listening to the radio along with 59 percent of the control group; this partly reflects the level of isolation and marginalization of this group of girls.

At endline, the study achieved a 68 percent response rate, or 32 percent loss to follow-up. There was no difference in levels of loss-to-follow-up between treatment and control groups. The reasons for loss-to-follow-up were migration out of Addis Ababa (59 percent), moving to another unknown location (36 percent), refusal (3 percent) and migration to another country (2 percent). Schooling participation and attainment was not associated with loss to follow-up. However, respondents who were employees or nonrelatives of the household head and those who were migrants were significantly more likely to be lost to follow-up compared to girls who were related to the household head or native to the area.

Table 1: Baseline Sample Characteristic by Treatment Group and Endline Characteristics by Completion Status

	Experimental (n=913)	Control (n=963)	p value	Completed at endline (n=1,276)	Lost to follow (n=600)	p value
Age group			<0.001			<0.05
12 to 14	39.2	31.3		31.3	36.9	
15 to 18	60.8	68.7		68.7	63.1	
Ever been to school (yes)	67.0	78.7	<0.001	72.7	73.2	NS
Highest year of education			<0.001			NS
None	35.7	25.1		30.0	30.4	
1 to 4 year	39.1	39.7		40.8	38.7	
5 or more years	25.2	35.2		29.2	30.9	
Relationship to household head			<0.001			<0.001
Daughter or grand-daughter	12.3	8.7		14.5	1.8	
Other relative	48.7	41.5		49.1	36.2	
Employee or nonrelative	39.0	49.8		36.4	62.0	
Migrant to the area (yes)	91.2	92.1	NS	88.5	98.3	<0.001
Radio listenership			NS			NS
Never listens	63.5	59.2		61.5	61.2	
Listens daily or periodically	36.5	40.8		38.5	38.8	
Treatment group						NS
Experimental	-	-		47.2	49.4	
Control	-	-		52.8	50.6	

Differences between groups significant at * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Exposure to Biruh Tesfa

Among girls in the experimental areas, 47 percent ultimately reported that they participated in *Biruh Tesfa*. Girls who participated were significantly more likely to be in the younger age group and less likely to be domestic workers. Three girls in the control area reported participating thus reflecting minimal contamination in the control area. When girls in the experimental area were asked the reason for not participating, the most common reasons were that they did not know enough about the project (34 percent), that they had no time to attend (32 percent), and employer or family disapproval (14 percent).

On average, participating girls attended 39 sessions. Younger adolescents aged 12 to 14 attended an average of 43 meetings compared to older adolescents (aged 15 to 18) who attended an average of 34 meetings, a difference

that was statistically significant. There were high levels of exposure to all the topics covered in the curriculum, in particular hygiene (90 percent), numeracy (82 percent), and Amharic literacy (82 percent). Among the topics in the curriculum, family planning was mentioned as having been covered the least. This may be because of mentors' discomfort with the topic and the resulting tendency to avoid it, or to beneficiaries' reluctance to report having received the information. In addition, it appeared that younger girls were slightly less likely to be exposed to the topic than older girls; 50 percent of girls aged 12 to 14 reported having received the topic compared to 58 percent of girls aged 15 to 18 ($p < 0.10$). Nearly one third of participating girls (31 percent) used the medical voucher.

Educational Outcomes

Eligibility for inclusion in the study was being out of formal school at baseline. Between baseline and endline, participation in formal schooling among formerly out-of-school girls increased from 0 to 38 percent (see Table 2). The increase was similar in the experimental and control groups which has implications for inference. For example, between rounds of survey, the percentage of girls who had never attended school declined in the experimental area by 12 percentage points and in the control area by 10 percentage points. The enrollment is likely attributable to the Ministry of Education campaign which began in September 2013 to get children back to school. Under this campaign, parents, teachers, and community leaders are given the responsibility to target out-of-school children and support their school re-entry (UNICEF 2013).

Attendance at non-formal schooling also increased dramatically in the experimental site. Having ever attended non-formal schooling increased in the experimental site from 6 to 49 percent and from 5 to 12 percent in the control arm. The dramatic increase in non-formal education in the experimental site seems attributable to *Biruh Tesfa*. Among those reporting attendance of non-formal education at endline, 86 percent were *Biruh Tesfa* participants. The remainder would likely have attended the government's adult basic education program.

Between baseline and endline, respondents in both experimental and control areas improved their scores on the literacy and numeracy tests (see Table 3). On average, both experimental and control respondents improved

Amharic literacy by nearly half a point, on a scale of 0 to 4; numeracy scores increased by more than half a point; changes were statistically significant for both groups.

Table 2: Educational Participation in Formal and Nonformal School by Treatment Group and Time of Survey

	Experimental (n=630)		Control (n=646)	
	Baseline	Endline	Baseline	Endline
Formal schooling				
Never attended	32.4	20.3***	21.4	11.5***
Formerly attending	67.6	42.2***	78.6	50.3***
Currently attending	0.0	37.5***	0.0	38.2***
Mean years formal education	2.6	3.2	3.3	3.8***
Nonformal education				
Never attended	94.0	51.4***	95.2	88.5***
Formerly attending	5.6	14.4***	4.3	5.6
Currently attending	0.5	34.1***	0.5	5.9***

*Differences between survey rounds significant at * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$*

Because of increases in school enrollment across study arms given the Ministry of Education campaign, we focused attention on learning outcomes among girls who had never been in the formal schooling system at endline. This was an attempt to remove the effect of the government campaign to re-integrate young people back into school. As expected, girls who had never been to school recorded low scores on the literacy and numeracy tests, compared to the overall study population. At baseline, girls who had never been to school scored at average of 0.4 (out of a maximum 4.0) on the reading test and 2.6 (out of a maximum 9.0) on the math test. Between baseline and endline, girls in the experimental area who had never been in formal schooling demonstrated significant increases on the Amharic literacy score, numeracy score, and composite score. For example, the mean score on the numeracy test increased from 2.6 to 3.5 between baseline and endline ($p < 0.001$). Similar improvements in test scores were not seen among girls in the control group who had never been to school. Scores for these girls in the control group either remained constant or increased slightly in the case of the numeracy test.

Table 3: Mean Scores (and Standard Deviation) on Aggregate Amharic Literacy and Numeracy Measures among All Respondents and Those Who Have Never Been to Formal Schooling, by Treatment Group and Time of Survey

	All respondents				Respondents who never attended formal school			
	Experimental (n=630)		Control (n=646)		Experimental (n=127)		Control (n=74)	
	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
Amharic literacy (0 - 4)	1.86 (1.82)	2.26*** (1.77)	2.07 (1.78)	2.45*** (1.66)	0.46 (0.10)	0.66* (0.10)	0.32 (0.85)	0.32 (0.72)
Numeracy (0 - 9)	5.20 (3.15)	5.98*** (2.85)	5.58 (3.00)	6.21*** (2.86)	2.63 (2.48)	3.50*** (2.78)	2.50 (2.25)	2.64 (2.16)
Literacy/numeracy score (0 - 1)	0.52 (0.37)	0.62*** (0.34)	0.57 (0.35)	0.65*** (0.33)	0.21 (0.25)	0.28*** (0.26)	0.19 (0.21)	0.19 (0.18)

*Paired T-test; Differences between means significant at *p<0.05 **p<0.01 ***p<0.001*

Because of the government’s campaign that increased school enrollment between rounds of survey, we included an interaction term combining treatment arms and having ever attended formal school to understand if girls who had never attended school were affected differently in the experimental and control sites (see Table 4). The main effect of residing in the intervention area was not significantly associated with a greater mean score on the literacy/numeracy test. The effect of never having attended school was associated with an average of 0.52 points lower on the test, compared to those who had attended school. The interaction term was significant. After controlling for other background characteristics, age, migration history, and relationship to household head, the intervention positively affected those who were out of school and residing in the intervention site.

Because the interaction combining treatment group and schooling history was significant, we conducted sub-group analysis only on the girls who had never attended formal schooling. Generalized linear models were used to estimate the mean difference of never-schooled respondents’ literacy/numeracy aggregate score, between treatment groups, after adjusting for one’s baseline score, age, migration status, and relationship to household head (see Table 5). After adjusting for background factors and one’s baseline test score, being in the experimental group was associated with a significantly higher endline literacy/math score, compared to the control group (adjusted mean difference

Table 4: Mean Difference in Aggregate Literacy/Numeracy Score (Range 0 to 1) (and 95% Confidence Intervals) by Treatment Group and History of Attending Formal Schooling

Outcome	Mean difference (95% CI)	p-value
Unadjusted effect of being in intervention group	-0.01 (-0.05, 0.03)	0.52
Effect of being in intervention group after adjusting for ever having attended school and interaction term		
Being in the intervention	-0.01 (-0.05, 0.02)	0.55
Never attended school	-0.52 (-0.59, -0.45)	0.00
Interaction never attended school and intervention group	0.10 (0.01, 0.19)	0.03
Fully adjusted effect of being in intervention group ¹		
Being in the Intervention	-0.01 (-0.04, 0.03)	0.75
Never attended school	-0.52 (-0.59, -0.45)	0.00
Interaction never attended school and intervention group	0.11 (0.01, 0.20)	0.02

¹ Adjusting for age, migration history and relationship to household head

0.08; 95% CI 0.02, 0.14; $p < 0.05$). This suggests that residing in the *Biruh Tesfa* project site was associated with improvements in reading and math scores among girls outside of the formal schooling system.

Table 5: Mean Difference in Aggregate Literacy/Numeracy Score (Range 0 to 1) (and 95% Confidence Intervals) among Girls Who Have Never Attended Formal Schooling, by Treatment Group, Baseline Score, and Background Characteristics

Outcome	Mean difference (95% CI)	p-value
Unadjusted effect of being in intervention group	0.09 (0.02, 0.16)	<0.01
Effect of being in intervention group after adjusting for baseline score	0.08 (0.02, 0.13)	<0.01
Effect of being in intervention group after adjusting for baseline score and each of the following factors, individually:		
Age	0.07 (0.02, 0.13)	<0.05
Migrant to the area	0.08 (0.02, 0.13)	<0.01
Relationship to household head	0.08 (0.02, 0.14)	<0.01
Fully adjusted effect of being in intervention group	0.08 (0.02, 0.14)	<0.05

Health Service Utilization

Health service utilization in the past six months increased significantly among respondents in the experimental site between baseline and endline (from 31 to 41 percent; $p < 0.001$). Among respondents in the control site, the increase in health service utilization was modest and not significant (26 to 30 percent).

At endline, the odds of health service utilization in the past six months was 1.60 times higher in the experimental group than in the control group (CI: 1.27, 2.02; $p < 0.001$) (see Table 6). Although baseline health service utilization was a significant predictor of recent service utilization, the observed excess health service utilization by the intervention group was not explained by baseline usage. Similarly, the age of study participants, being migrant to the area, relationship to the household head, and having attended formal schooling did not explain the observed excess health service utilization by the intervention group over that of the control group (adjusted OR = 1.55; CI: 1.22, 1.98; $p < 0.001$).

Table 6: Odds Ratios (and 95% Confidence Intervals) Comparing Intervention and Control Groups' Health Service Utilization in the Last Six Months

Outcome	Odds Ratio (95% CI)	p-value
Unadjusted effect of being in intervention group	1.60 (1.27, 2.02)	<0.001
Effect of being in intervention group after adjusting for baseline health service use	1.55 (1.23, 1.97)	<0.001
Effect of being in intervention group after adjusting for baseline health service use and each of the following factors, individually:		
Age	1.59 (1.25, 2.01)	<0.001
Migrant to the area	1.55 (1.22, 1.96)	<0.001
Relationship to household head	1.52 (1.20, 1.94)	<0.001
Ever attended formal schooling	1.55 (1.22, 1.97)	<0.001
Fully adjusted effect of being in intervention group	1.55 (1.22, 1.98)	<0.001

Discussion

This study has limitations. At baseline, respondents in the two groups were not comparable in terms of age, schooling, and their relationship to the household head. These variables were included in multivariate models in order to adjust for differences in the two groups. At the same time, the differences in the samples may be an indicator for other differences in the groups that are unobserved or unmeasured that may have influenced the results. In addition, nearly a third of respondents were lost to follow-up; these were more likely to be employees or nonrelatives of the household head and also more likely to be migrants, compared to those who were successfully interviewed. While attempts were made to minimize this loss, the results suggest that longitudinal designs may be less appropriate for highly mobile urban populations such as domestic workers and other girls living away from parents. Indeed, our level of loss-to-follow up is consistent with other longitudinal studies of adolescents in low income urban areas of Africa (Marston et al. 2013). Moreover, program managers should take into account the mobility of these populations at the point of program design, devising more powerful strategies to maintain contact, even among mobile populations. Finally, we examined literacy and numeracy levels of girls who had never been to school at endline. While the success of the government's enrolment campaign appears to be similar across study sites, selectivity in who enrolled versus who did not may have influenced our results.

In just six months of implementation, the expansion phase of *Biruh Tesfa* (*Powering Up Biruh Tesfa*) extending into emerging low-income areas engaged over 3,000 of Addis Ababa's poorest and most marginalized girls. Service statistic data show that the average age of participants was 13 and nearly half were child domestic workers. Such groups of very young adolescents and domestic workers were frequently thought to be out-of-reach of support programs such as these. However, as a single-sex, safe spaces approach with targeted, house-to-house recruitment, *Biruh Tesfa* has proven to be highly effective in engaging girls who otherwise lack platforms through which to gain skills and build networks. In addition to creating platforms through groups for disenfranchised girls, building a bridge with medical facilities and higher status women leaders/mentors facilitates girls' access to entitlements to which they otherwise lack access because of lack of knowledge, confidence, or experience. In addition, participation in the program underscores the potential for focussing investments on younger girls aged 10 to 14, around the time of puberty, which is a pivotal time in a girls' life.

Between baseline and endline, participation in non-formal education increased significantly in the experimental group compared to the control group. Most of the excess participation in non-formal education was attributable to *Biruh Tesfa*, suggesting that the program was responsible for engaging girls in learning who would otherwise not have been able to attend. No significant results were detected in learning outcomes in the population as a whole; significant improvements were recorded across both groups. As already pointed out, this was likely related to an intensive Ministry of Education campaign to re-integrate young people back into school.

Analysis of the sub-group who had still not attended school at endline, despite the campaign, demonstrated significant gains in the aggregate reading and math scores among the experimental group. This finding underscores the impact *Biruh Tesfa* made on the educational outcomes of the most marginalized and hard-to-reach group of girls, those who were still not in formal schooling, even after a dedicated government campaign. It also underscores the effectiveness of the model to engage and mainstream girls who are thought to be unreachable, such as child domestic workers who are typically engaged in working during regular school hours.

At endline, girls residing in *Biruh Tesfa* areas were significantly more likely to have visited a health facility in the previous six months, compared to respondents in the control group. The effect of the voucher program remained after adjusting for baseline health service utilization and other factors. Moreover, among girls who used the voucher, 70 percent were first time users of the health system; this indicates that the voucher was instrumental in introducing them to the formal health sector. This finding is consistent with another evaluation of a maternal health voucher in Kenya that demonstrated increases in institutional delivery in locations where the voucher was offered (Obare et al. 2014).

Biruh Tesfa demonstrates that it is possible to mobilize large numbers of the most marginalized girls through a safe spaces approach, even those in child domestic work. A similar program for rural married girls in Ethiopia, *Meseret Hiwott*, also showed positive results for girls in remote rural areas, underscoring that safe spaces principles can be adapted to a range of settings (Erulkar and Tamrat, 2014). Results indicate that safe spaces platforms can be instrumental in engaging even the most marginalized and isolated girls in both the education and health sectors while improving learning outcomes.

Biruh Tesfa continues to be implemented in Ethiopia's capital, Addis Ababa, through support from USAID-PEPFAR and in collaboration with the Ministry of Women, Children and Youth Affairs. In addition, based on

the success of the safe spaces approach, the Ministry of Health is exploring options to upscale safe spaces for girls through the health sector in both urban and rural areas of the country.

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ANNABEL ERULKAR is Country Director in the Population Council's Ethiopia office and a social scientist specializing in girls' health and development. She heads projects related to child marriage, child labor, and trafficking. She has authored more than 80 reports and journal articles related to adolescence in sub-Saharan Africa and has led large research projects in many African countries.

GIRMAY MEDHIN is Associate Professor of Biostatistics and Epidemiology at Akilu Lemma Institute of Pathobiology, Addis Ababa University. His expertise is in infectious diseases and mental health epidemiology and he teaches graduate courses in research methods and data analysis. He has co-authored over 130 scientific papers.



Notes

1. Annabel Erulkar helped design the program, designed the present study including instruments and field procedures, and led analysis and writing of the results. Other Population Council staff gave technical assistance to partners in program implementation and local data collectors were recruited to conduct the interviews. Girmay Medhin oversaw data collection for the surveys including training data collectors, led data cleaning, and conducted analysis for the study.
2. www.uwezo.net

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