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# MAKING SCHOOLS MORE GIRL FRIENDLY: EXPLORING THE EFFECTS OF 'GIRL FRIENDLY SPACE' ON SCHOOL ATTENDANCE OF ADOLESCENT GIRLS

**Elijah Kipchumba**[1]+
**Munshi Sulaiman**[2]

[1]*Research Associate Save the Children International, Somalia.*
*Email:* Elijah.Kipkech@savethechildren.org
[2]*Research Director Save the Children International, Somalia*

*(+ Corresponding author)*

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## *ABSTRACT*

School enrolment and attendance for adolescent girls is a key priority for education sector in most developing countries. In Somalia, this is even more prominent given the low enrolment rate of girls and the gender specific challenges that the girls face. Girls in Somalia often remain absent from schools during their menstrual periods due to lack of hygiene facilities and the social stigma in using the facility where they exist. Girl Friendly Space (GFS) has been adopted as a means to mitigate these challenges. Despite strong narratives of the effectiveness of the GFS, there is lack of evidence on the impact of GFS on reducing school absenteeism. By using secondary data, this study explores the potential effects of GFS on reducing school absenteeism. The study indicate that having GFS in schools can reduce the likelihood of adolescent girls being absent from school in the past month by about 15 percentage points. Absenteeism due to 'sickness' is about 17 percentage points lower in schools with GFS compared to schools without the facility. Although this study cannot fully address the selection bias to claim these as impact estimates, the differences for boys between the two types of schools in absenteeism is much lower indicating possible effects of GFS on girls' school attendance.

**Contribution/Originality:** This study is one of very few studies that have sought to demonstrate potential effects of girl friendly spaces in reducing adolescent girls' school absenteeism in culturally sensitive regions like Somalia. Primarily the study shows equipping and enhancing privacy in girls-only toilets can potentially reduce absenteeism up to 15 percentage points.

## 1. INTRODUCTION

Gender parity in education is a key priority in Save the Children (SC) in Somalia since it is not only linked with the holistic development of individual child but also wider societal change enabling a breakaway from widespread poverty the country is currently witnessing. While it is important in its own right, girls' education is also associated with wider gender equality and greater long-term development. Keeping girls in school also offers them protection against early marriage and teen pregnancy. However, inability of schools to provide quality-learning environment for girls disadvantages them in school enrolment and consistent school attendance. In Somalia, 21% of girls attend school as compared to 25% of boys attending school (UNICEF, 2016). Many factors contribute to higher school absenteeism or dropout for girls including gender bias of their parents to pay for education expenses, fear of


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gender-based violence at schools and the need for homely chores. Girls may face additional constraint associated with school sanitary conditions at their puberty. More specifically, menstruation may inhibit girls' ability to attend school if they lack access to appropriate sanitary facilities (McMahon *et al.*, 2011; Jewitt and Ryley, 2014). The lack of privacy and space for changing, cleaning, drying or discarding sanitary materials, as well as insufficient availability of water for personal hygiene stand out as important determinants of girls' school attendance (Birdthistle *et al.*, 2011). A recent systematic review found hardware Menstrual Health Management (MHM) interventions reduce adolescent girls' absenteeism (Hennegan and Montgomery, 2016). The review did not include 'girl friendly' toilets. In their review, Hennegan and Montgomery (2016) hypothesized 'Girl friendly' changes to school latrines improve MHM thus reduction in school absenteeism and potentially boost learning outcomes.

In the Somalia context, girls are socialized to exercise 'modesty' that limits opportunities to play or engage in extra-curricular activities. Furthermore, girls are generally shy and do not feel comfortable in using publicly located toilets for fear of being seen by boys (Koshin, 2014). Schools in the country, especially in urban areas or at camps, are located in small parcels of land making it impossible to 'hide' toilets. Additionally, hygiene conditions of toilets within schools tend to be poor. Even when there are hygiene facilities in terms of clean and gender segregated toilets, girls may feel uncomfortable in using them during menstruation if privacy from other girls is not assured. During the menstruation period, they generally prefer staying home (McMahon *et al.*, 2011) thus increasing the risk of school drop-out. As a result, Somali girls need more than gender-segregated latrines in favour of a compatible safe space where they can also learn and play.

Girl friendly space (GFS)[i] provide exclusive space for girls with toilet, bathrooms, dining rooms, living room, reading materials and prayer facilities. The multi-purpose nature of the GFS is expected to make adolescent girls more comfortable in utilizing the space since a girl being inside GFS would not be known by other students if she is praying, eating, reading or using toilet. With clean water and other hygiene products available, adolescent girls are able to remain and feel clean, prevent odour and rinse away menstrual blood from the latrine facilities. In cases where girls are using reusable menstrual management material, the GFS provides adequate space for washing and drying those pads. With sufficient changing space, that is often unavailable in traditional girls' latrines, GFS reduces inconvenience associated with limited space. GFS has evolved to be also an important space where girls can discuss their personal issues, and female teachers can provide mentorship and information about menstruation. GFS, therefore, are being mainstreamed in schools that are supported by SC in Somalia as well as in many other countries. Despite various contextual justifications, there is lack of evidence on the effectiveness of the provision of GFS on girls' school attendance. Using secondary data from a strategic review of child protection in schools, this research explores the potential impact of GFS in reducing female student absenteeism.

This paper provides evidence of the possible magnitude of the effects of GFS in schools. After controlling for various student characteristics, we find that the girls in schools with GFS are 15 percentage points less likely to miss a school day in the past month. The analysis indicates possible positive *effects* of GFS on girls' school attendance. The results are encouraging to conduct a proper impact evaluation to assess wider set of outcomes of GFS, including attendance, dropout and learning.

## 2. DATA AND METHODOLOGY

### 2.1. Study Design and Sampling

This study was exploratory in nature seeking to understand potential impacts of GFS on girls' school attendance. The data comes from a strategic review of child protection in education (Kipchumba *et al.*, 2017). For that study, surveys were conducted in 24 schools, which are equally distributed across four districts of Somalia - Abudwak, Banadir, Garowe and Gardo. The number of schools sampled was dependent on resource constraints and thus not intended to be universally representative of other schools. Within each school, a random sample of 40 students attending grade 4 to 8 was drawn from their respective class registers. In each grade, an equal number of



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girls (4) and boys (4) were sampled. In total 933 students were involved in this study including 470 boys and 463 girls. This survey was conducted during February-May of 2017.

### 2.2. Ethical Considerations

At the time of this study, there was no Institutional Review Board in the country. We however ensured data collectors adhered to internal Child Safeguarding Policy by Save the Children. Permission to collect data was obtained from school authority and assent was obtained from participating students. Participation by schools and students was voluntary.

### 2.3. Data Collection and Analysis

Two forms of data collection was utilized in this study. The first involved observation of school environment and compilation of secondary data from school records. The second included one-on-one interview of sampled students by trained enumerators. The survey instrument included information on socio-economic characteristics, and various issues of school experience focusing on their perception on child protection issues. There was also a small competency test of mathematics using four multiple-choice questions. However, the main outcome for this study is the attendance of the surveyed children. This is a binary indicator of whether a student missed attending school at least once in the last one month preceding the survey. This was recoded from a categorical response reported by students on the number of days absent from school[ii]. This was validated from class attendance register. A second outcome indicator used in this paper is a binary response indicating whether a student missed school "at least once due to sickness in the last one month". This was recoded from multiple response on reason given by students as to why they missed school in the last one month preceding the study. This was a proxy to menstruation-related absenteeism since girls are likely to call this "sickness" or "feeling out-of-sorts".

Among the 24 schools, only three schools have GFS at the time of the survey. The key concern in using these three schools as intervention group and the rest 21 schools as comparison group for impact measurement is potential selection biases. For example, if the schools with very low attendance rate decided to construct GFS, a simple comparison can give spurious conclusions. Similarly, there could be various differences between the two types of schools, other than the presence of GFS, which can potentially lead to the observed difference in outcomes. To explore such potential selection bias, we look at the "effects of GFS" on different sample groups – viz. boys, adolescent girls and non-adolescent girls. The core hypothesis for using the different sample groups is – if there are other school level characteristics that determine the differences in attendance, we should observe similar difference in attendance for all three samples. However, the impact of GFS will be observed only for the adolescent girls and not the other two groups.

## 3. FINDINGS

### 3.1. Number of Students and Dropout Rates

Secondary data on student enrolment were gathered from the records of 24 schools. Since these are school-level information and we have only three schools with GFS, statistical tests of the differences of the two types of schools is unreliable. However, schools with GFS had fewer students enrolled in 2017 (488 students on average) compared to schools without GFS (597 students) (Table-1). Both types of schools had similar gender ratio (80 girls for every 100 boys) in enrolled students.



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**Table-1.** School Enrolment and Dropout

| | | Without GFS | With GFS |
|---|---|---|---|
| Number of students in 2017 (average per school) | Boys | 325 | 294 |
| | Girls | 271 | 194 |
| | Total | 597 | 488 |
| Girl-boy ratio at 2017 enrolment | | 0.8 | 0.8 |
| Dropout rate 2016 (%) | Boys | 6 | 5 |
| | Girls | 7 | 12 |
| Dropout rate 2015 (%) | Boys | 8 | 16 |
| | Girls | 8 | 22 |
| Number of schools | | 21 | 3 |

**Source:** School records (24 schools)

In terms of student dropout rate in 2016, i.e. percentage of 2016 enrolled students who dropped out in 2017, there is no major difference between the two types of schools for boys. The average dropout rate for girls in 2016 is 7% in schools without GFS compared to 12% for schools with GFS. It is important to note that the girls' dropout rate in schools with GFS was much higher in 2015. Girls' dropout rate declined from 22% to 12% between 2015 and 2016 in schools with GFS while the rates are unchanged in schools without GFS during the same period. Coincidentally, 2015 is the same year when GFS was established in the three schools. However, we cannot claim this sharp decline in dropout rate as an effect of introducing GFS since there are other components of the project supporting GFS that may have contributed to this decline.

Despite our inability to assess whether the decline in girls dropout rate is attributable to GFS, the change is noteworthy as it can have implication on our main question of the effects of GFS on girls' school attendance. It is conceivable that irrespective of the components (the whole intervention package of SCI education program or external factors) that may have actually influenced such decline in dropout rate, these retained girls are more likely to be absent than others. A literature review by Shahidul and Karim (2015) report that irregular attendance is a precursor for dropouts. On the other hand, the underlying factors of attendance and dropout could also be the same. For example, poor hygiene facility can cause both low attendance and higher dropout. A meta-analysis of various dropout prevention programs find indication of reducing absenteeism as well (Tanner-Smith and Wilson, 2013). Therefore, it is not possible to establish the net effect of the underlying factor influencing the decline in girls' dropout rate may also have influence on absenteeism.

### 3.2. Student Profile

Half of students in both categories of schools were male, which reflects the sampling strategy of stratifying students by sex. Adolescent girls in schools with GFS composed 38% of students sampled while in schools without GFS the rate is 27% (*Table-2*). This shows that there were significantly more adolescent girls sampled in schools with GFS as compared to schools without GFS. On average, students from schools with GFS were older compared to students from schools without GFS. Significantly larger proportion of students in schools with GFS were living with both of their biological parents. The rate of orphanhood was not significantly different among the sampled students between the two categories of schools. Similarly, no significant difference was observed in having a male member as household head or in terms of their distance of their residence from schools.



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**Table-2.** Profile of surveyed students

| | | Without GFS | With GFS | P-value |
|---|---|---|---|---|
| Boys (%) | | 50 | 51 | 0.854 |
| Female | Adolescent (14-19 years) (%) | 27 | 38 | 0.001 |
| | Non-adolescent (<14 years) (%)[a] | 22 | 11 | 0.001 |
| Average age | | 13.9 | 14.4 | 0.007 |
| Lives with female adult (%) | | 88 | 96 | 0.015 |
| Lives with both parents (%) | | 58 | 71 | 0.005 |
| An orphan (%) | | 15 | 11 | 0.260 |
| Lives in male headed HH (%) | | 63 | 61 | 0.751 |
| Lives within 15 minutes distance from school (%) | | 64 | 64 | 0.927 |
| Number of students (n) | | 798 | 135 | - |

[a] Although menarche is estimated to begin at 14.8 years in Somalia, we took 14 years as the cut-off for adolescent. (See Gallo (1975))

Although the brief profile comparison shows that the sampled students from the two types of schools are similar, it is possible that they differ in other characteristics that can influence their school attendance and dropout. In cross-sectional data, it is not possible to control for all these other characteristics since many of these characteristics are unobservable (e.g. parental aspirations with children's education). We use the available data as control variables, which mitigates the concerns of biased estimate due to omitted variables but cannot eliminate the concern.

### 3.3. School Absenteeism in Schools with GFS and Schools without GFS

Figure 1 shows the percentage of sampled students, from the two types of schools, who have missed any school day during the past month. We look at this 'absenteeism rate' for boys, and adolescent (14 years and above) and non-adolescent (below 14 years) girls. Generally, schools with GFS recorded lower prevalence of school absenteeism for all three samples. However, the more important point for our analysis are the extent of differences between the two types of schools across the three samples. While the students from schools with GFS have 11 percentage points lower absenteeism for both boys (37% vs. 26%) and non-adolescent girls (38% vs. 27%), the difference is much sharper at 19 percentage points for adolescent girls (33% vs. 14%). This descriptive statistics indicate that the GFS may have influence over reducing absenteeism among the adolescent girls, who are the target group for GFS interventions.

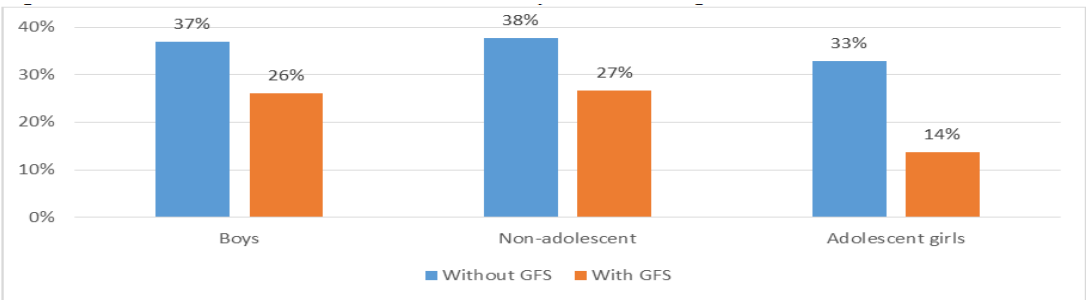


**Figure-1.** Prevalence of School Absenteeism by Student's Age and Gender

**Source:** School records (24 schools)

Students, who reported missing school in the past month, were also asked about the reasons for their absence. The most common reason was their 'sickness'. Other reasons behind school absenteeism were lack of school fees, helping in household chores and caring for younger siblings. It is possible that 'sickness' reported by girls was a euphemism for menstrual cramps and menstruation in general while at the same time girls without adequate understanding of menstruation may view it as actually a sickness hence tendencies to stay at home. While 96% of the boys who were absented reported being sick, the rate is 84% for girls. On the other hand, staying home for household chores or childcare were more common for girls. Similar to overall absenteeism, the more interesting aspect for assessing potential effects of GFS is the differences in "sickness related absenteeism" between boys and



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girls of the two types of schools (Figure 2). We observe that girls (both adolescent and non-adolescents) in schools with GFS are far less likely to report sickness related absence compared to their counterparts in schools without GFS. The differences are 22 and 15 percentage points compared to only 5 percentage points difference for boys.

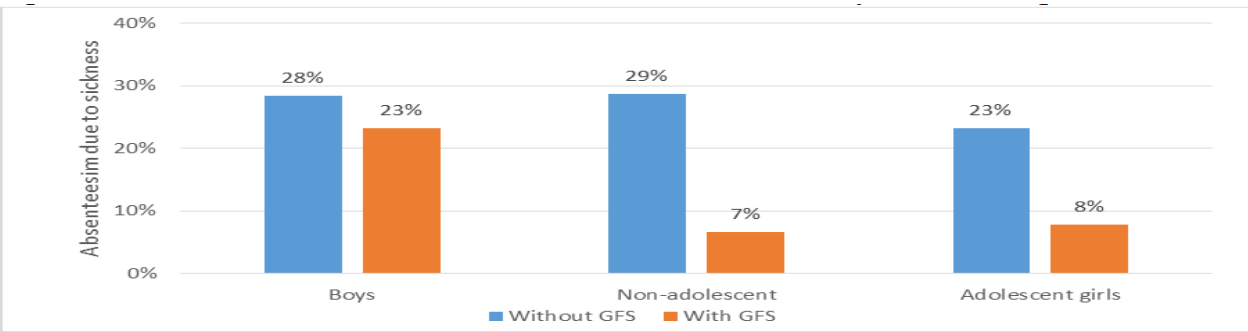


**Figure-2.** Prevalence of School Absenteeism due to 'Sickness' by Student's Age and Gender
**Source:** Student self-report in student survey

### 3.4. Statistical Significance of the Difference in School Absenteeism

Above analysis only reported the descriptive statistics of absence from school. In this section, we look at the statistical significance of the differences. In Table 3, the outcome indicator is whether the student was absence in the past month. The first regression shows the mean differences. In the second set of regressions we add student background characteristics as control variables, and in the third regression district dummies are added.

**Table-3.** Association of GFS with School Absenteeism

| | Regression 1 | Regression 2 | Regression 3 |
|---|---|---|---|
| **Panel A: All students** | | | |
| Has GFS | -0.145 (0.039)*** | -0.156 (0.044)*** | -0.115 (0.052)** |
| Observation | 933 | 933 | 933 |
| $R^2$ | 0.012 | 0.052 | 0.059 |
| **Panel B: Boys** | | | |
| Has GFS | -0.108 (0.058)* | -0.160 (0.064)** | -0.090 (0.073) |
| Observation | 470 | 470 | 470 |
| $R^2$ | 0.006 | 0.072 | 0.085 |
| **Panel C: Non-adolescent girls** | | | |
| Has GFS | -0.110 (0.120) | -0.061 (0.118) | -0.066 (0.151) |
| Observation | 193 | 193 | 193 |
| $R^2$ | 0.004 | 0.053 | 0.057 |
| **Panel D: Adolescent girls** | | | |
| Has GFS | -0.192 (0.058)*** | -0.180 (0.071)** | -0.148 (0.086)* |
| Observation | 270 | 270 | 270 |
| $R^2$ | 0.027 | 0.077 | 0.082 |
| **Specification** | | | |
| Student controls | No | Yes | Yes |
| District dummies | No | No | Yes |

**Note:** Control variables include student grade, whether a student is an orphan, whether a student lives with female adult, satisfaction with latrine cleanliness, whether a student felt safe in school, whether a student witnessed a peer harassed by other students, time taken to walk to school, and whether school is in an IDP camp. *** p<0.01, ** p<0.05, * p<0.1

As shown in Table 3, GFS had a significant correlation with lower school absenteeism. However, this relationship is not significant for boys and non-adolescent girls when we add the control variables (Panel B and C). Presence of GFS in a school was associated with 14.8 percentage points reduction in school absenteeism among adolescent girls after controlling for student characteristics and district variations. By taking a difference-in-difference approach (differences between two types of schools in boys' vs. adolescent girls' absenteeism), the point estimate is 8 percentage points although not statistically significant.



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When reasons behind school absenteeism are considered, we find significant negative correlation between GFS presence in school and absence due to 'sicknesses among adolescent girls only. Results further shows presence of GFS in a school was associated with 16.6 percentage points reduction in sickness-related school absenteeism among adolescent girls (See Table 4). The point estimates for the non-adolescent girls are also of similar magnitude although not statistically significant. It is important to reiterate the small sample size for the non-adolescent girls group compared to boy and adolescent girl samples in our data[iii].

**Table-4.** Association of GFS with School Absenteeism due to 'Sickness'

| | Regression 1 | Regression 2 | Regression 3 |
|---|---|---|---|
| **Panel A: All students** | | | |
| Has GFS | -0.115 (0.035)*** | -0.134 (0.039)*** | -0.095 (0.048)** |
| Observation | 933 | 933 | 933 |
| $R^2$ | 0.009 | 0.031 | 0.036 |
| **Panel B: Boys** | | | |
| Has GFS | -0.052 (0.056) | -0.089 (0.062) | -0.012 (0.070) |
| Observation | 470 | 470 | 470 |
| $R^2$ | 0.002 | 0.023 | 0.036 |
| **Panel C: Non-adolescent girls** | | | |
| Has GFS | -0.220 (0.073)*** | -0.170 (0.066)** | -0.172 (0.135) |
| Observation | 193 | 193 | 193 |
| $R^2$ | 0.018 | 0.103 | 0.106 |
| **Panel D: Adolescent girls** | | | |
| Has GFS | -0.154 (0.047)*** | -0.187 (0.058)*** | -0.166 (0.077)** |
| Observation | 270 | 270 | 270 |
| $R^2$ | 0.023 | 0.065 | 0.066 |
| **Specification** | | | |
| Student controls | No | Yes | Yes |
| District dummies | No | No | Yes |

**Note:** Control variables include student grade, whether a student is an orphan, whether a student lives with female adult, satisfaction with latrine cleanliness, whether a student felt safe in school, whether a student witnessed a peer harassed by other students, time taken to walk to school, and whether school is in an IDP camp. *** p<0.01, ** p<0.05, * p<0.1

### 3.5. Association of GFS with Student Competency and 'Placebo' Outcomes

While regular school attendance is expected to influence students' academic performance through increase teaching, academic achievement can also influence school attendance through increased motivation. Therefore, it is natural to find positive correlation between attendance and academic performance. Consistent absence from school implies concerned student miss from taught lessons hence reduced academic achievement. Therefore, it is of interest to explore whether girls in schools with GFS perform better than girls attending schools without GFS. For this, we use a short competency assessment that was conducted as part of the student survey.

With find that presence of GFS was associated with lower maths scores, but this was only consistent adolescent girls (See Table 5). This is counter-intuitive to the expectation. This negative correlation can potentially be explained by the massive reduction in school dropout rates among girls (See Table 1). It is plausible that absenteeism and dropout might have been more prevalent among low academically achieving girls. Because of the reduction in these absenteeism and dropout, more poorly performing girls are retained in school. Therefore, these students would pull the average down for the girls sample in schools with GFS. The fact that there is no statistical difference in the test performance by the boys between the two types of schools is aligned with the explanation. It is also important to note that the competency test may also have limitation. Although we administered similar questions to all grades, we did not find consistent increase in maths scores with higher grades. Panel data collected from the same children in future can enable us to conduct more robust assessment of the effects of GFS on learning outcomes.



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**Table-5.** Association of GFS with Student Competency

| | Regression 1 | Regression 2 | Regression 3 |
|---|---|---|---|
| **Panel A: All students** | | | |
| Has GFS | -0.110 (0.081) | -0.141 (0.086)* | -0.220 (0.098)** |
| Observation | 933 | 933 | 933 |
| $R^2$ | 0.002 | 0.068 | 0.077 |
| **Panel B: Boys** | | | |
| Has GFS | -0.001 (0.113) | 0.011 (0.121) | 0.015 (0.145) |
| Observation | 470 | 470 | 470 |
| $R^2$ | 0.000 | 0.070 | 0.073 |
| **Panel C: Non-adolescent girls** | | | |
| Has GFS | -0.361 (0.237) | -0.355 (0.234) | -0.444 (0.247)* |
| Observation | 193 | 193 | 193 |
| $R^2$ | 0.013 | 0.128 | 0.180 |
| **Panel D: Adolescent girls** | | | |
| Has GFS | -0.224 (0.127)* | -0.255 (0.143)* | -0.438 (0.167)*** |
| Observation | 270 | 270 | 270 |
| $R^2$ | 0.010 | 0.075 | 0.115 |
| **Specification** | | | |
| Student controls | No | Yes | Yes |
| District dummies | No | No | Yes |

**Note:** Control variables include school absenteeism, student grade, whether a student is an orphan, whether a student lives with female adult, satisfaction with latrine cleanliness, whether a student felt safe in school, whether a student witnessed a peer harassed by other students, time taken to walk to school, and whether school is in an IDP camp, class size, teacher-student ratio. *** p<0.01, ** p<0.05, * p<0.1

Finally, we tried to find outcome indicators that are conceptually unlikely to be affected by GFS. Such outcomes are considered as 'placebo outcomes' as a test of whether there are other factors that could influence the differences in absenteeism.

**Table-6.** Association of GFS with 'Placebo Outcomes'

| | Participate in HH decision | Participate in Community decision |
|---|---|---|
| **Panel A: All students** | | |
| Has GFS | 0.017(0.047) | 0.042(0.046) |
| Observation | 933 | 933 |
| $R^2$ | 0.133 | 0.048 |
| **Panel B: Boys** | | |
| Has GFS | -0.045(0.063) | -0.029(0.065) |
| Observation | 470 | 470 |
| $R^2$ | 0.182 | 0.081 |
| **Panel C: Girls** | | |
| Has GFS | 0.082(0.068) | 0.098(0.066) |
| Observation | | |
| $R^2$ | 0.117 | 0.041 |
| **Specification** | | |
| Student controls | Yes | Yes |
| District dummies | Yes | Yes |

**Note:** Control variables include school absenteeism, student grade, whether a student is an orphan, whether a student lives with female adult, satisfaction with latrine cleanliness, whether a student felt safe in school, whether a student witnessed a peer harassed by other students, time taken to walk to school, and whether school is in an IDP camp, class size, teacher-student ratio. *** p<0.01, ** p<0.05, * p<0.1

Table 6 present the estimates for two such outcomes – their participation in household decisions and in community decisions. We do not find any significant association of GFS with these outcomes for either boys or girls. While this is a *necessary condition* to build confidence in the association between GFS and girls' absenteeism, this is *not sufficient* to eliminate possibility of other factors influencing such association.



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## 4. CONCLUSION

Although inadequacy of sanitation facilities in schools increases absenteeism in school due to sanitation-related morbidities among all categories of students, its impact is profound among menstruating girls. School sanitation ought to fulfil hygiene needs of varied categories of users within the school system. Despite having gender-disaggregated latrines in schools, girls would often fear to use them due to fear of being seen by boys. In limited resource countries like Somalia, school-aged girls have no choice but to use unhygienic or inconvenient methods, including tampons made of old cloths (Koshin, 2014). During this period, movement is very restricted, with many staying indoors during their menses. When they attend school, however, their active participation is hindered due to fear of leakage and odour (Humanitarian Innovation Fund, 2014). In case of a leakage, girls undergo psychological victimization from their male counterparts who often use derogative names and insults as they are perceived to be careless. Social stigma from male students is the most dreaded worries that girls have. This implies that the fear of leak inhibits girl's class concentration and movement within the school compound. On the other hand, water inaccessibility in girl's toilets hinders the opportunity to bathe or wash soiled garments (McMahon *et al.*, 2011). The fact that almost all girls in Somalia are circumcised and sewn implies menstrual flow is inhibited which increases pain associated with menstruation hence easy recognition of girls on their menses by other students. There was nearly equal prevalence of school absenteeism among boys and girls. Students mostly missed school due to sickness; however, there were cases where female students missed school in order to take care of household duties including taking care of siblings and other homely duties. This study explores the potential effects of GFS on girls' school attendance. For adolescent girls, GFS was associated with 14.8 percentage points lower school absenteeism and 16.6 percentage points lower absenteeism due to sickness. These estimates are statistically significant after controlling for various student characteristics and district fixed effects. On the other hand, the differences are much smaller for boys and statistical significance is not robust. Therefore, the evidence indicates possible effectiveness of providing improved sanitation facilities with sufficient privacy and satisfactory cleanliness through GFS on reducing absenteeism among girls. We, however, find that girls from schools with GFS have lower test score in competency test. This result is possibly influenced by major reduction in dropout rates for girls in schools with GFS in the past year. While the result is indicative of GFS as a possible tool on increasing girls school attendance, proper impact evaluation is required to estimate the full effects of this as an intervention. Such information can, in turn, be used for cost-effectiveness analysis. While the cost of USD 10,000 one-off investment and USD 20 monthly maintenance can seem high, the cost-effectiveness will depend on the effect size. More importantly, unlike most other school level interventions, GFS can play significant role in reducing gender gaps in access to education.

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Annex A. Girl Friendly Space (GFS) in school

Photo-credit: Charles Olaka Kesa, Save the Children

## Endnotes

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[i] Based on project budgets of SC, the construction of a GFS in a school costs about USD 8,000-10,000, and an additional USD 2,000 for furnishing. Each GFS is expected to have a reading corner (with 100 books), two tables, eight chairs, resting couch, cupboard, curtains, floor mat, toilets that can be used by physically challenged, and sanitation materials (soap, combs, mirror etc.). The maintenance cost per month is estimated to be USD 20. See Annex A for a picture of a GFS.

[ii] The categories were "did not miss", "missed 1-3 days", "missed 4-7 days", and "missed more than 7 days".

[iii] In a difference-in-difference analysis, we find an estimate of 13 percentage points for girls vs. boys, which is significant at 5% level.



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