# Methods

**Study design and sampling** This impact evaluation was a cluster randomized controlled trial, with both intervention and control groups assessed before and after the intervention (ie. pretest-postest control group design). The study design plan included 30 schools in each group, and a target sample size of 650 for each group. The target sample size was powered at 80% to detect a 10% change in the proportion of girls with the outcomes of interest post intervention, with the assumption of a design effect of 2. Including a 5% contingency to account for potential human error or low response rate resulted in an increased sample of 690 girls per group. Sample size calculation details are available in

**Outcome measures**

* Knowledge of:

*-nutrition*

*-reproductive health*

*-family planning*

*-HIV/AIDS*

*-savings attitudes*

* Self-esteem
* Self-efficacy
* Internal locus of control
* Gender attitudes
* *Self confidence*
* *Independence*
* Social relationships and leadership
* Ideal and expected marriage age
* Ideal and expected age for having first child
* Other possible: school retention

or absenteeism

**Sources for questions and variables** While the ultimate impact the Mercy Corps team wanted the Aflateen+ evaluation to focus on is early marriage and early pregnancy, there are a number of mediating variables (also called intermediate outcomes) that they believed would lead to this impact (please refer to Figure 1). The Aflateen+ team hypothesized that adolescent girls participating in the Aflateen+ programme would experience increased self-esteem, self-efficacy, self-confidence, internal locus of control, and independence, as well as strengthened social networks and gender attitudes supporting women. The evaluation used established and validated psychological scales to measure the intermediate outcomes of self-esteem, self-efficacy, and locus of control (ie. Rosenberg’s Self-Esteem Scale, Schwarzer and Jerusalem’s 1995 Generalized Self Efficacy scale,[[1]](#endnote-1) Levenson’s Multidimensional Locus of Control Scale). The questions used in constructing these three scales are available in the appendices (Appendix 2 **Rosenberg Self-Esteem Scale**

Appendix 3 General Self-Efficacy Scale (GSE) Appendix 4 **Levenson Multidimensional Locus Of Control scale: Internality, Powerful Others, and Chance Scales**).

Questions regarding participation in income generating activities and saving behaviour were measured using questions from the ICRW TESFA[[2]](#footnote-1) baseline survey, and questions on attitudes toward saving and self-confidence were identified from the Aflateen Survey Version 3 provided by Aflatoun. Questions measuring socioeconomic status and gender attitudes were measured using standard questions from the Tajikistan Demographic Health Survey. Finally, Oyserman’s individualism measures[[3]](#endnote-2) were used as an approximation of independence.

## Data collection

Data cleaning and analysis was conducted from December 2012 to April 2013. The main data collection tool, an interviewer-administered survey, was translated from English to Tajik, and verified by Mercy Corps staff. Mercy Corps staff tested the tool at non-participating schools (neither treatment nor control) in Hisor district, and changes were incorporated into the final survey tool.

Two district-based teams of Tajik-speaking field interviewers, all women, were hired via a transparent and competitive selection process and trained in a three-day session in May 2013, with separate sessions in each district. The third day of the training allowed for interviewers to test the survey guide with adolescent girls not participating in the baseline. Data collection took place between May and June 2012, and four data entry technicians, organised into two district teams, entered data simultaneously under the supervision of Mercy Corps staff.

The survey was administered at schools, after spring term classes ended, starting on the week of final exams. To minimise lack of participation, interviewers were instructed to attempt to contact girls who did not show up for their appointed interview three times, and to document the reasons for the no show. After three unsuccessful attempts, interviewers were instructed to replace her with another randomly selected girl. On the other hand, girls who refused to participate in the interview were not replaced.

## Data analysis

For this baseline survey report, we compare characteristics between participants enrolled at intervention and control sites using proportions for categorical variables and means +/- standard deviation and medians with ranges for continuous variables. Baseline survey responses provided at intervention and control sites were compared using methods to account for the similarity between participants enrolled at each site (intracluster correlation). A household wealth index constructed by polychoric principal component analysis was used to categorise participants into wealth quintiles.

Statistical tests used included chi-square tests for categorical variables and t-tests for continuous variables, and were adjusted for clustering effects using the clttest and clchi2 routines (StataCorp., College Station, TX, USA). Statistical significance was set at 5%.

# Results

**Random sampling** With the exception of two schools (school 24 in Somon and school 1 in Fayzi), which were incorrectly assigned to the intervention group due to duplication of school names (ie numbers) across different villages, randomisation of schools proceeded as planned. This resulted in 32 schools in the intervention group, and 28 schools in the control group.

**Screening** According to the original Aflateen+ evaluation plan,[[4]](#endnote-3) the exclusion criteria for participation in the baseline survey included: 1) marital status of married, 2) pregnancy or having already had a first child, 3) not living with parents 4) date of birth before 21/5/1994 or after 19/11/1998, and 5) not enrolled in school in the following September. In practise, the first two screening criteria (ie already married, pregnant or having had first child) proved to be not simply impractical but threatened reduced participation of girls in the baseline survey,[[5]](#footnote-2) so these screening questions were dropped. The three remaining criteria (not living with parents, not enrolled in school in following September, out of range date of birth) were provisionally included but can still be excluded in the final analysis. The team wished to include girls not living with their parents, as this was seen as putting such girls at a disadvantage. In addition, human error led to the inclusion of girls outside the targeted age range. Finally, the Mastchoh office decided to include girls that were not enrolled in school in September, so that 95% of cases (ie. intervention group participants) and 79% of controls reported being enrolled.

Among the 144 girls who reported not being enrolled in school the following September, 90% were recruited in Mastchoh. Among the 91 girls participating in Aflateen+ who also reported not being enrolled in school, 97% were from Mastchoh. Finally, due in part to discrepancies between girls’ reported ages and reported dates of birth, girls under and over the targeted age group were first included in the data collection. A desire to maximise the study sample size led to the inclusion of younger girls in this baseline study, as described in the results. The final date of birth inclusion range for the impact evaluation may still be adjusted before the endline survey. In short, no screening criteria were followed as originally planned.

Interviewers completed questionnaires for 1225 girls, including 147 girls who reported that they would not be enrolled at the school in September, and 11 girls who did not respond to this question. With respect to the inclusion age range (21/5/1994 to 19/11/1998), four girls with dates of birth earlier than 21/5/1994 were excluded, for a final sample size of 1221 for this baseline survey. There were 40 girls who were born after 19/11/1998, which corresponds to girls under the age of 13.5. Due to sample size concerns, these girls have been included in this baseline survey analysis, though they may or may not be included in the final evaluation study that includes endline data.

**Demographic characteristics** Of the 1221 girls participating in the baseline survey, 662 girls were recruited through schools where the Aflateen+ programme would take place, and 559 girls were drawn from control schools. This included 555 girls from Hisor and 666 from Mastchoh. Sixty percent of the Aflateen+ participants who participated in the baseline survey were from Mastchoh. Among Mastchoh Aflateen+ participants, 22% indicated they were not enrolled in school the following September. On average, girls were 15.1 years old, with 61% aged either 14 or 15. The highest grade completed of two-thirds of the girls was 7th and 8th grade. Over 98% self-identified as or spoke Tajik, and almost all lived with at least one parent (97%), in an average household of size 7.3 and a home with 2.6 sleeping rooms (average of 3 persons per room). Overall, about one out of three girls interviewed reported that their father was in Tajikistan at the time of the interview, compared to 23% who reported a father in Russia. A great majority of girls (94%) reported that their mother was in Tajikistan at the time of the interview. Table 1 presents demographic characteristics of girls who participated in the baseline survey. Cases and controls were not significantly different with respect to age, highest grade completed, wealth index, father’s and mother’s education, father’s and mother’s occupation, self-identification as Tajik, location of father or mother at time of interview, whether girls lived with parents or whether they were enrolled in school the following September.

**Self-esteem, self-efficacy, locus of control (LOC) and other indicators.** Baseline levels of self-esteem, self-efficacy, internal locus of control and self-confidence appeared to be within normal range**.** The Rosenberg self-esteem scale ranges from 0 to 30, with various sources[[6]](#endnote-4) suggesting that scores of 15 to 25 out of 30 correspond to a “normal range.” Accordingly, the mean and median self-esteem score of 18 (range: 10-27) for this baseline study was within this range. The General Self-Efficacy (GEE) scale’s composite score ranges from 10 to 40, and it has no defined range for classifying levels of self-efficacy. The baseline GEE scores’ mean and median of 30 (range: 18-40) for this population is consistent with norms for the Generalized Self Efficacy scale reported for adult populations in the US and Germany, and German high school students.[[7]](#endnote-5) In addition, four out of five girls agreed or strongly agreed with statements affirming independence and self-confidence.

Locus of control refers to the extent to which an individual believes she has control over events that affect her. The Levenson LOC scale distinguishes between the relative belief that control of events affecting one is centred on the individual herself (LCI), on “powerful others” (LCO) or on chance (LCC). For the baseline study, the scale was adapted to exclude three questions (details explained in Appendix 4) resulting in a possible range from 0 to 42. LCI baseline scores ranged from 15 to 42, with a median of 33 and mean of 32.2. LCO scores ranged from 4 to 42, with a median of 29 and mean of 27.6. LCC scores ranged from 4 to 42, with a median of 28 and mean of 27.5.

There were no significant differences detected between cases and controls with respect to scores for self-esteem, self-efficacy, locus of control (Table 2) or questions pertaining to independence and self-confidence (Table 3).

Table 2 Comparison of cases and controls: Wealth index, self-esteem, self-efficacy, and locus of control

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Cases | | | |  | Control | | | |  |
|  | N | Mean | SE | Median/  [Range] | N | Mean | SE | Median/  [Range] | p-value | ICC |
| Wealth index | 662 | 0.0041 | 0.1259 | -.1098269/  [-3.774677, 4.772555] | 559 | -0.0130 | 0.1348 | -.0914621/  [-3.768226, 4.675269] | 0.9265 |  |
| Self esteem | 641 | 18.2 | 0.1167 | 18/[11, 25] | 528 | 18.2 | 0.1266 | 18/[10, 27] | 0.7969 | 0.0526 |
| Self-efficacy | 644 | 30.2 | 0.2521 | 30/[18, 40] | 533 | 30.1 | 0.2711 | 30/[21, 38] | 0.7391 | 0.1364 |
| Locus of control: Internal | 659 | 32.2 | 0.1846 | 32/[19, 42] | 542 | 32.3 | 0.2015 | 33/[15, 41] | 0.6955 | 0.0229 |
| Locus of control: Powerful Others | 654 | 27.5 | 0.5521 | 28/[6, 42] | 544 | 27.7 | 0.5927 | 29/[4, 42] | 0.7939 | 0.1759 |
| Locus of control: Chance | 650 | 27.5 | 0.3823 | 28/[11, 40] | 539 | 27.6 | 0.4125 | 28/[7, 42] | 0.865 | 0.1112 |

Table 3 Comparison of cases and controls: Independence and self-confidence

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cases** | **Controls** | **P-value** | **ICC** |
| **“Independence”** |  |  |  |  |
| *It is sometimes better for me to follow my own ideas than to take suggestions from my family* | | | 0.3481 | 0.0734 |
| Strongly Disagree | 20 (3.0%) | 8 (1.4%) |  |  |
| Disagree | 102 (15.4%) | 74 (13.2%) |  |  |
| Agree | 409 (61.8%) | 333 (59.6%) |  |  |
| Strongly Agree | 131 (19.8%) | 139 (24.9%) |  |  |
| No answer |  | 5 (0.9%) |  |  |
| *If I make my own choices I will be more happy than if I listen to others* | | | 0.1745 | 0.0325 |
| Strongly Disagree | 16 (2.4 %) | 3 (0.5 %) |  |  |
| Disagree | 110 (16.6 %) | 100 (17.9 %) |  |  |
| Agree | 411 (62.1 %) | 357 (63.9 %) |  |  |
| Strongly Agree | 125 (18.9 %) | 93 (16.6 %) |  |  |
| No answer |  | 6 (1.1 %) |  |  |
| **“Self confidence”** |  |  |  |  |
| *I am able to do things as well as most other people my age* | | | 0.6949 | 0.0564 |
| Strongly Disagree | 4 (0.6 %) | 3 (0.5 %) |  |  |
| Disagree | 37 (5.6 %) | 37 (6.6 %) |  |  |
| Agree | 446 (67.4 %) | 392 (70.1 %) |  |  |
| Strongly Agree | 172 (26.0 %) | 122 (21.8 %) |  |  |
| No answer | 3 (0.5 %) | 5 (0.9 %) |  |  |
| *I am confident voicing my opinion in decisions that affect me* | | | 0.9145 | 0.1007 |
| Strongly Disagree | 6 (0.9 %) | 8 (1.4 %) |  |  |
| Disagree | 107 (16.2 %) | 79 (14.1 %) |  |  |
| Agree | 423 (63.9 %) | 358 (64.0 %) |  |  |
| Strongly Agree | 125 (18.9 %) | 108 (19.3 %) |  |  |
| No answer | 1 (0.2 %) | 6 (1.1 %) |  |  |
| *When I start something new, I know I will succeed* | | | 0.4405 | 0.0727 |
| Strongly Disagree | 11 (1.7 %) | 2 (0.4 %) |  |  |
| Disagree | 47 (7.1 %) | 43 (7.7 %) |  |  |
| Agree | 439 (66.3 %) | 387 (69.2 %) |  |  |
| Strongly Agree | 161 (24.3 %) | 119 (21.3 %) |  |  |
| No answer | 4 (0.6 %) | 8 (1.4 %) |  |  |
| *When I have a problem, I can come up with ways to solve it* | | | 0.9167 | 0.0871 |
| Strongly Disagree | 9 (1.4 %) | 8 (1.4 %) |  |  |
| Disagree | 101 (15.3 %) | 94 (16.8 %) |  |  |
| Agree | 414 (62.5 %) | 346 (61.9 %) |  |  |
| Strongly Agree | 136 (20.5 %) | 101 (18.1 %) |  |  |
| No answer | 2 (0.3 %) | 10 (1.8 %) |  |  |

**Attitudes toward saving** Girls’ attitudes about savings showed that generally, there is room for improvement (Table 4). Overall, 61% of girls agreed or strongly agreed that saving money is not necessary “*if you live at home with your family*.” Nearly one out of three girls also agreed or strongly agreed that *It’s better to spend money today than to save it for use in the future*, while 47% of all girls agreed that “*Savings is for adults only*.” Interestingly, despite these statements, four out of five girls indicated that they saved money “*every time*” they got money.

**Reported saving behaviour and income generation activity (IGA) experience** One out of three girls reported never saving money, while just over 60% reported saving regularly or irregularly (Table 5). One out of four girls (22%)reported having money saved, with a slightly larger proportion of cases than controls (25% vs 19%). Among girls with money saved, 93% reported saving at home. The average amount saved was 286 Somoni, with half the girls reporting less than 50 Somoni. Cases reported saving one-third less than controls, though the median difference consisted of only 12.5 Somoni.

Girls’ responses to income generating activity (IGA) questions indicated that only one in five had experience with IGAs, though only 14% reported being engaged in IGAs at the time of the interview. Cases were more likely to be engaged in IGAs at the time of the interview (19% vs 8%), a difference that was statistically significant at the 10 percent level. There were no additional differences between cases and controls for questions related to saving and IGA.

**Gender-related environment and gender attitudes** Responses to gender-related questions are displayed in Table 6. A great majority of respondents (93%) reported that men and women sit separately during meals in their household, while only 5.5% of girls reported living in a polygamous household. Girls were also asked whether they were usually permitted to go to four different places alone, accompanied or not at all: the local store/market, the local health centre, friends’ houses in the neighbourhood, and village or school events.[[8]](#endnote-6) More than three out of four girls said they were not allowed to go to the market, health centre or village/school events alone (78%, 82% and 75% respectively). While a minority were allowed to go to these same three place alone (5%, 6%, 18%), larger proportions reported that they were *never* allowed to (15%, 10%, 5%). Girls reported having more freedom to visit friends’ houses in the neighbourhood—42% were allowed to go alone, 46% were allowed to go accompanied, while 8% were never allowed to. Cases were more significantly more likely to be allowed to go to friends’ houses alone (51% vs 31%).

Girls’ responses to statements regarding gender norms indicated attitudes consistent with observations expressed by Mercy Corps staff before the survey was conducted. On the one hand, respondents generally had strongly beliefs in women’s right to be educated and work outside the home. An overwhelming majority (90%) agreed or somewhat agreed that *Women have the same right as men to study and work outside the home*. Encouragingly, 83% of girls in both case and control groups disagreed that *It is better to send a son to school than it is to send a daughter*, though cases were significantly more as likely to agree with the statement (12% vs 6%). Along the same lines, 88% agreed or somewhat agreed that *A married woman should be allowed to work outside the home if she wants to.* A comfortable majority (85%) agreed or somewhat agreed that *If the wife is working outside the home, then the husband should help her with household chores.*

On the other hand, responses to other statements indicated that relative to the men in the family, most girls believed that women do not have equal voice. For instance, just 62% agreed or somewhat agreed that *The wife has a right to express her opinion even when she disagrees with what her husband is saying.* Accordingly, over two-thirds of the girls (71%) agreed or somewhat agreed that *The important decisions in the family should be made only by the men of the family.* An important finding was that only 25% of the girls disagreed that *A wife should tolerate being beaten by her husband in order to keep the family together*. No additional differences between cases and controls were observed for gender-related questions beyond those mentioned in this section.

**Knowledge of family planning** Thefamilyplanning (FP) section of the baseline survey initiated by surveying adolescent girls on basic understanding of reproductive health and FP: *How does a woman become pregnant?* and *Have you heard of any methods in which a woman can avoid becoming pregnant?*Most girls (87%) expressed ignorance to both questions (see Table 7). This result is open to interpretation since there are other hypothetical reasons to respond accordingly (eg. embarrassment, cultural pressure for girls to be modest). That said, if there *are* significant cultural or adolescent reasons for avoiding conversations on reproductive health and FP, a programme like Aflateen+ would be particularly valuable in reducing misconceptions arising from topics that are not openly discussed. In this context, a decrease in the proportion of *Don’t know* responses in the endline survey would be considered a step in a positive direction.

The family planning method that was most frequently cited as a known FP method was the IUD, which was mentioned by 7% of the girls surveyed, and twice the proportion of cases compared to controls (10% vs 4%). Nine out of 10 girls either did not respond or declared ignorance to questions related to the effectiveness of traditional methods of family planning and washing as a method of reducing the likelihood of pregnancy. About two out of five girls agreed with statements correctly asserting the risks of teenage pregnancy to mother and baby, with about half of those surveyed simply proclaimed ignorance.

**HIV/AIDS knowledge** Most knowledge questions concerning HIV/AIDS elicited responses of *Don’t know* (see Table 8)*.* Responses to questions related to HIV/AIDS knowledge indicated that 7% of girls had heard of sexually transmitted diseases (STDs), while 13% had heard of HIV/AIDS. Given the potential of cultural norms influencing these results, a conservative interpretation of these results suggests that basic knowledge of HIV transmission may not be well disseminated. The following STD and HIV/AIDS knowledge areas elicited responses in which at least 80% of girls responded *Don’t know:*

* risks associated with not finishing a course of antibiotics
* lack of cure for HIV/AIDS
* HIV/AIDS can cause death
* modes of transmitting HIV/AIDS
* incorrect beliefs regarding HIV/AIDS transmission and factors of risk (ie. not necessarily someone’s appearance or behaviour eg. prostitution, but sex with an infected person, even within a monogamous relationship)
* ways of protecting against HIV/AIDS transmission
* where to get tested for HIV/AIDS

No differences in HIV/AIDS knowledge were observed between cases and controls.

1. Schwarzer, R., & Jerusalem, M. **(1995)**. Generalized Self-Efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user’s portfolio. Causal and control beliefs* (pp. 35-37). Windsor, England: NFER-NELSON. [↑](#endnote-ref-1)
2. *Towards Improved Economic and Sexual Reproductive Health Outcomes for* *Adolescent Girls* [↑](#footnote-ref-1)
3. Oyserman, D. (1993). The lens of personhood: Viewing the self, others, and conflict in a multicultural society. *Journal of Personality and Social Psychology, 65*, 993-1009 [↑](#endnote-ref-2)
4. Mercy Corps Aflateen+ Impact Evaluation Plan, 2012. Mercy Corps/Tajikistan. [↑](#endnote-ref-3)
5. During the data collection tool testing phase of the interviewer training, the Mercy Corps team found that the idea of being married and in school at this age appeared to be so preposterous that the question provoked anger in at least one participant. The Mercy Corps staff participating in the evaluation at this phase believed that, given the reactions from girls they were seeing at both the tools pilot testing and the interviewer training, asking girls whether they are married would be unlikely to result in a positive answer *even if it were true*, which led to this question being dropped from the baseline questionnaire. The Mercy Corps team also believed that once a girl is married, she does not have the option of remaining in school. [↑](#footnote-ref-2)
6. <http://www.parqol.com/page.cfm?id=142>

   <http://www.wwnorton.com/college/psych/psychsci/media/rosenberg.htm> [↑](#endnote-ref-4)
7. <http://userpage.fu-berlin.de/~health/faq_gse.pdf> [↑](#endnote-ref-5)
8. Adapted from Demographic Health Survey questionnaire [↑](#endnote-ref-6)