Mercy Corps Aflateen+

Impact Evaluation Baseline Report

May 2013

Acknowledgements

The Aflateen+ Impact Evaluation Baseline Report was possible only because of the support and collaboration of many individuals. Among many other contributions, the Mercy Corps Tajikistan team drafted the evaluation concept note; developed the Aflateen+ curriculum; hired, trained, supervised and coordinated interviewers and data entry staff; tested and assured accurate translation of the survey tool; responded to many detailed data cleaning questions; and provided helpful comments throughout the process. Both the Hisor team (Ramesh Singh, Malika Inoyatova, Gulnora Kamolova) and the Mastchoh team (Saadi Izzatov, Sangin Komilzoda, Dilshoda Gaybullaeva) approached this work with enthusiasm, dedication, patience and attention to detail.

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A number of researchers corresponded with me and/or shared technical materials to help in the development of the baseline questionnaire and data analysis. These included Anjala Kanesathasan and Jeff Edmeades, from the International Center for Research on Women (ICRW), who shared materials developed in collaboration with CARE Ethiopia and with funding from the Nike Foundation. Dr. Shea Rutstein shared technical materials on the construction of the DHS Wealth Index, and Stas Kolenikov and and Jeff Herrin wrote and publicly shared STATA modules used in the analysis. Any remaining errors in this baseline report are mine.

Finally Brian King, Tajikistan Country Director, provided me with the opportunity to lead and contribute to this evaluation, for which I am very grateful.

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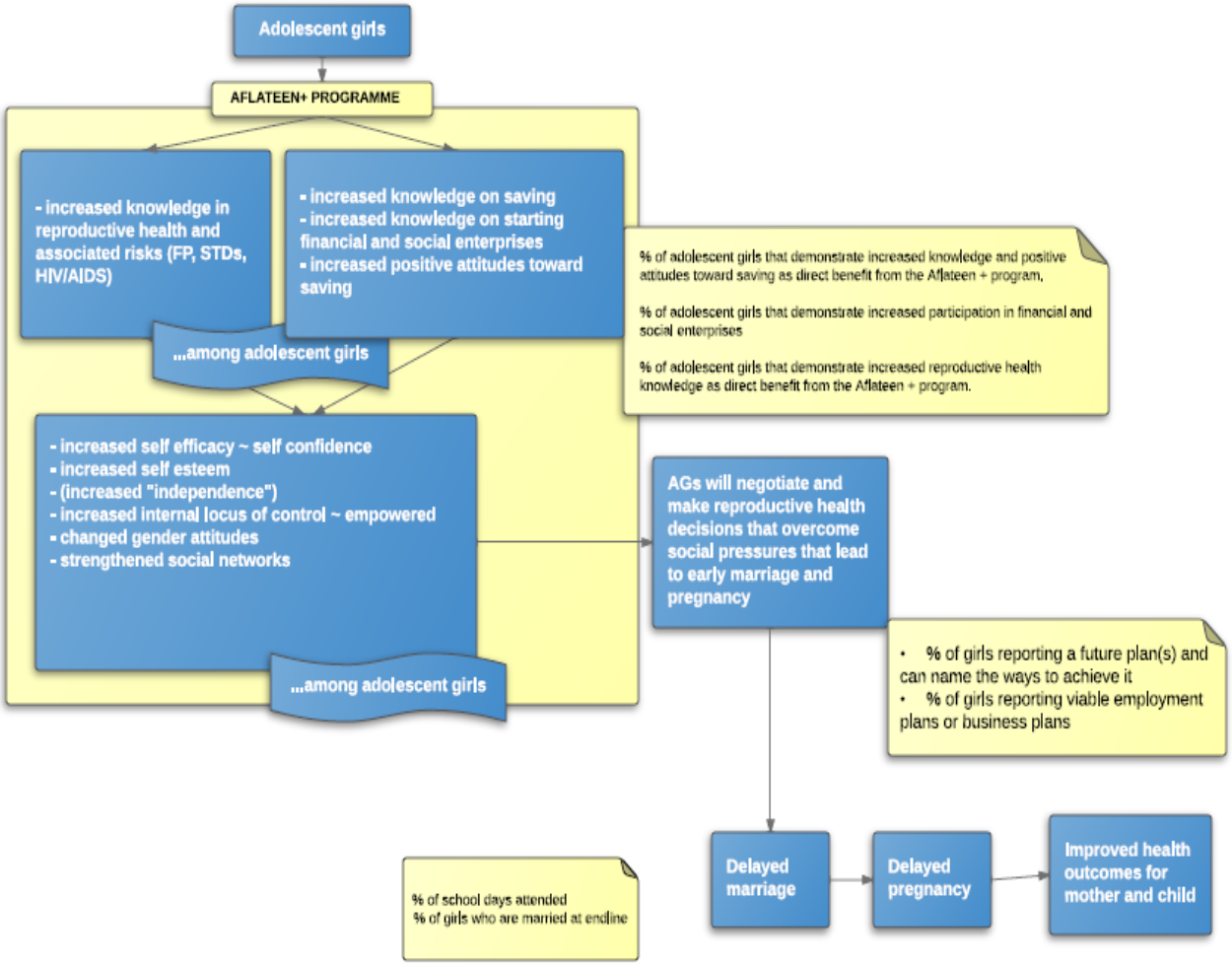
Introduction

Aflateen+ programme In August 2012, Mercy Corps/Tajikistan implemented the financial literacy and reproductive health **Aflateen+** programme among adolescent girls aged 13-17 identified through formal secondary Tajik schools in Mastcho district (Sughd province) and three jamoats in Hisor (Districts of Republican Subordination). The objective of the programme was to increase "*adolescent girls' reproductive and productive knowledge and skills (…)* [to] *enhance their agency and status in society, thus enabling them to delay marriage and motherhood, ultimately yielding better health outcomes for the mother and her children.*" Figure 1 shows the programme theory of change that was developed with the Mercy Corps Tajikistan team.

Figure 1: Graphical representation of Aflateen+ theory of change, May 2012



Purpose of impact evaluation The current impact evaluation was rolled out in May 2012 to evaluate the Aflateen+ programme. The goal of the Aflateen+ Impact Evaluation was to provide substantial, quantitative and qualitative evidence of whether and how Aflateen+ brings about tangible benefits and behaviour change to adolescent girls participating in the project that correspond to the theory of change previously detailed. In addition, a formative evaluation was planned to complement the impact evaluation in order to better inform on the characteristics of the adolescent girls that most benefit from Aflateen+, as

well as to provide insight on what aspects of the curriculum may have most influenced and impacted adolescent girls and how.

The overarching impact evaluation questions originally stated by the Mercy Corps Tajikistan team are as follows:

- Is the lack of knowledge, skills, and agency among adolescent girls in Tajikistan a root cause of early marriage and pregnancy?
- Is the Aflateen+ curriculum (themes and material) and delivery method effective in changing adolescent girls' reproductive health and family planning behaviors?

Detailed evaluation questions regarding whether the programmed worked as conceptualised by the Mercy Corps Tajikistan team are as follows:

- Compared with similar non-targeted girls, do the adolescent girls targeted by Aflateen+ exhibit:
  - Greater knowledge of key reproductive health and financial topics?
  - Greater self-esteem, self-efficacy, internal locus of control, demonstrated leadership, egalitarian gender attitudes, reported social participation?
  - Greater reports of future plans, longer self-projected length of schooling, later self-projected age for marriage and for having first child, as well as ideal age for finishing school, getting married and having a baby

More detailed information about the Aflateen+ programme and the evolution of the impact evaluation design and methodology is available in the impact evaluation plan.[i] The current report contains an analysis of baseline data, with an assessment of the effectiveness of the randomization strategy in producing a balanced sample, interpretation of observed characteristics, and suggestions for future data collection.

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,[ii] 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[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[iii] were used as an approximation of independence.

Data collection

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 cleaning and analysis was conducted from December 2012 to April 2013.

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%.

[1] *Towards Improved Economic and Sexual Reproductive Health Outcomes for Adolescent Girls*

Results

Sampling

Randomisation 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,[iv] 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,[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

[2] 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.

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[v] 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.[vi] 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

	Cases				Control					
	N	Mean	SE	Median/ [Range]	N	Mean	SE	Median/ [Range]	p-value	ICC
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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.[vii] 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 The family planning (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.

Nutrition knowledge Responses to nutrition-related questions (Table 9) indicated that there was a general awareness of the importance of micronutrients, and Vitamin A in particular, as well as food and water hygiene. Girls were asked to name micronutrients of particular importance to children, adolescents and pregnant women: while 60% cited Vitamin A, only one out of five or six cited iron or iodine. While many micronutrients can be considered important to the demographic cited, one would have expected school curricula to teach about the top micronutrient deficiencies in Tajikistan.[viii] Respondents were most able to name at least one good source of iodine (73%), followed by Vitamin A (60%) and iron (24%). No difference in nutrition knowledge was observed between cases and controls.

Hand washing Table 6 shows the full results for hand washing questions, one of the few health behaviour areas that the Aflateen+ curriculum could potentially influence that could easily be assessed in the baseline survey. Almost all girls (94%) reported using soap the last time, and a large majority also reported washing hands before a meal (89%) and after using the toilet (89%). No difference in hand washing practices were observed between cases and controls.

Social connectedness and leadership One out of six girls (18%) reported being a member of an association, club or group that holds regular meetings (Table 11). Among these, 44% reported holding a leadership position (such as president, secretary, or treasurer), and 56% reported belonging to a Child-to-Child group, 24% to a school-related group, and 9% to a girls' council.

Three-quarters (76%) of girls reported that they feel comfortable discussing personal and private problems with at least one parent, while 61% said they have a friend with whom they feel comfortable discussing such issues with. Among those who reported having a friend they feel comfortable discussing personal and private problems with, about half (54%) reported having one such friend, 24% reported having two. Only 4% of girls reported ever having discussed sex with any friend. No differences were observed between cases and controls for responses to questions in this section.

Outlook toward the future: employment and entrepreneurship Table 12 summarises girls' responses to questions regarding their outlook toward the future. When asked at what grade they would like to complete their schooling, over one-third (38%) said college/university/technical diploma, one-third (34%) said 11th grade, while 23% said 9th grade. When asked at what grade they *thought* they would complete their schooling, the educational attainment levels cited were slightly lower (28% college/university/technical diploma; 30% 11th grade; 27% 9th grade).

Girls were also asked what their plans were for five years later: 59% planned to be in school, 4% planned to marry, and 6% planned to work.[3] Overall, 176 girls (14%) reported having plans for employment, while 5% reported having plans for starting a business, with no significant differences observed between cases and controls. Interestingly, a number of girls who did not originally report that they had plans for employment or for starting businesses also subsequently provided information on plans for work and businesses they are apparently interested in their responses to other questions. There could be a number of explanations that could account for this: interviewer coding error, respondents' lack of certainty on plans or evolving aspirations. Table 1 and Table 2 show the detail provided from both girls with explicitly expressed plans as well as the larger group that mentioned plans in the rest of the interview.

Among respondents who provided detail on employment plans, four out of five focused on three different employment plans. In decreasing order, they were: professions related to the health care industry, professions related to sewing, and teaching. Similarly, among girls that provided detail on businesses girls had, just under 60% focused on businesses related to either the sewing or the garment industry, health care industry, or commerce/retail.

Outlook toward the future: ideal and expected age for marriage Respondents believed that the ideal average age to get married was 20.8, with a median age of 20 and a range from 17 to 30. The average age respondents *expected* to be married was essentially the same age, or 21.2, with a median age of 20, and a range from 18 to 30. The mean age respondents believed was the ideal age to have a first child was 22.8, with a range from 18 to 30, while the mean age respondents *expected* to have a first child was 22.9, with a range from 19 to 30.

When asked who would choose the respondent's husband,[4] the top two answers were the respondent's father (69%) and her mother (62%), followed by the respondent herself (18%). There were no girls who said they alone would decide whom they would get married to, while 7% of girls stated that they would choose their husband in conjunction with both parents. Only three girls stated that other family members--not including their parents or themselves--would decide whom they would get married to. Girls were also asked *Will you be asked whether you want to marry him or not?* ie. a potential spouse; 70% of girls said they would be asked. This suggests that over two-thirds of the girls expected their opinion to be taken into consideration, even if they did not expect to be among the decision makers. No significant differences were noted between cases and controls for any of the aforementioned parameters.

Discussion

The main purpose of the baseline study report is to assess the randomisation process. If randomisation is successful, one would expect that distribution of outcomes of interest across intervention and control groups would be evenly distributed at baseline. If they are not evenly distributed, then changes observed in outcomes between intervention and control groups at end line could be due to differences between the groups observed at baseline, especially if statistical adjustment for such differences is not made. The last column of the tables in this report (p-value) show the results of statistical tests comparing intervention and control groups. A p-value < 0.05 suggests that the hypothesis that an outcome of interest is evenly distributed between the two groups can be rejected with 95% confidence, suggesting that there is an actual difference between the two groups

[3] These options were not mutually exclusive.
[4] Responses were not mutually exclusive.

In this context, the baseline study results indicated that overall, randomisation was successful in achieving balance across treatment groups with respect to main outcomes of interest. Mediating variables that were significantly different between cases and controls are listed below:

- total amount of money saved among girls who reported having saved money (saving behaviour)
- agreement with statement "It is better to send a son to school than it is to send a daughter" (gender attitudes)
- level of permission to go to a friend's home (gender attitudes and environment)
- reported familiarity with IUDs (reproductive health)

In the case of the first two variables, the difference between cases and controls is in the direction that would make it more difficult for the intervention to effect change, according to the Aflateen+ theory of change. In other words, cases were significantly likely to have saved *less* money, as well as *more* likely to agree that it is better to send a son to school, rather than a daughter. Thus, should evaluation results indicate that Aflateen+ participants save *more* money and are *less* likely to agree with preferential sending of sons to school at endline, this would be consistent with what one would expect to attribute changes to the Aflateen+ programme. On the other hand, in the case of the last two variables, should there be differences between cases and controls at end line, one would not be able to attribute changes to the Aflateen+ programme, due to the direction of the differences observed at baseline.

Screening Screening out respondents with certain characteristics is a method of making the intervention and control groups similar to each other with respect to the screening criterion. If screening is successful (eg. by including *only* girls who have never been married), then there would be no need for statistical adjustment for the screening criterion (ie. marital status). This would be desirable because the more characteristics that are adjusted for in a statistical model, the less power one has to detect a result (ie an effect of the Aflateen+ programme).

The fact that screening criteria were not followed as planned has implications for the endline. The fact that the study was not able to exclude girls who were already married, pregnant or already having had a first child means that the study carries the assumption that rates of marriage, age of first pregnancy and first child are assumed to be zero at baseline. Should this assumption be incorrect, for instance, if there were unreported marriages among girls at baseline, and in particular if marriage rates were distributed unevenly among cases and controls, this would bias endline results. The lack of exclusion of girls living with parents is unlikely to greatly influence results, due to the small number of such girls.

Of the original five screening criteria, intention to enrol in school the following September and birthdate later than 19/11/1998 were the two screening criteria that in particular will need to be re-examined at end line, even though baseline results found that both these criteria were distributed relatively evenly across intervention and control groups. These two criteria will be kept for analysis as potential confounders for the endline analysis. The consequence of the failure to apply the exclusion criteria is potentially reduced power. The final decision regarding whether to include girls outside the targeted age or girls not intending to enrol in school will be made at endline.

Sample size The original sample size power calculations targeted 650 girls in each group. The final sample sizes, without following original screening criteria, were 662 for cases and 559 for controls. If the original screening criteria for age and enrolment in school are applied, the intervention group would be reduced to 550, and the control group to 477.

The reduced sample size from the target sample sizes means that there is reduced power to detect potential changes resulting from the Aflateen+ programme. The original sample size calculation was based on an

estimated design effect[5] of 2,[ix] which, given that the study design included 23 girls in each cluster, corresponds to an intracluster coefficient[6] (ICC) of 0.045. The actual ICC of some of intermediate outcomes observed at baseline are reported in Table 2, Table 3, Table 6 (second part of table), Table 11, and Table 12. Most of these intermediate outcomes have ICC greater than the estimated 0.045, which suggests that a larger sample size than the targeted 650 would have been needed for 80% power to detect a 10% change in those outcomes.

Baseline result findings The reason for measuring levels of mediating variables or intermediate outcomes is to test the steps outlined in the Mercy Corps team's theory of change (see Figure 1). Changes observed among girls participating in the Aflateen+ programme between baseline and end line (ie mediating variables, intermediate and final outcomes) would help to establish which hypothesized effects of the Aflateen+ programme do and do not take place. In particular, we would expect such changes to be absent in the control group to help attribute results to the Aflateen+ programme.

Relatively high levels of certain mediating variables were observed at baseline, which may make an increase at end line more difficult to detect. Some of these mediating variables include hand washing behaviour, self-esteem, self-efficacy, internal locus of control, and measures of independence and self-confidence. On the other hand, there were a number of mediating variables that indicated that much room for improvement was possible. These included knowledge of family planning and HIV/AIDS, gender and saving attitudes, social connectedness, and involvement in IGAs.

The findings on girls' gender attitudes at baseline suggest that the relatively wide acceptance of girls' education and work opportunities for women in Tajikistan may well be a facilitating factor in helping the Aflateen+ programme—with its focus on IGAs, saving money, and making plans for the future--succeed in empowering girls. In addition, the relatively low levels of knowledge regarding family planning and HIV/AIDS —or low levels of comfort discussing these topics—suggest that improvement in these areas would be of general benefit to targeted participants, in addition to potentially leading to the distal outcome of reduced early marriage and early pregnancy.

[5] The design effect is the measure of how much the sample size in each group will have to be increased to achieve the same statistical power as would be obtained by individual level randomisation. Design effect = $1 + (n - 1)*ICC$ where n is the average number of individuals sampled per cluster and ICC is the intraclass correlation coefficient of the outcome.

[66] The intracluster correlation coefficient (ICC) is a measure of the degree of similarity (correlation) of responses within a given cluster. When ICC = 0, DE=1, and the responses within clusters are independent

Tables section

Table 1 Demographic characteristics of cases and controls

	Cases	Control	P-value
Total participants	662	559	
Hisor	264 (39.9%)	291 (52.1%)	
Mastchoh	398 (60.1%)	268 (47.9%)	
Enrolled in school in September			0.2140
No	91 (13.8%)	53 (9.5%)	
Yes	566 (85.5%)	500 (98.5%)	
No answer	5 (0.8%)	6 (1.1%)	
Lives with parents			0.1551
No	11 (1.7%)	4 (0.7%)	
Yes	648 (97.9%)	531 (95.0%)	
No answer	3 (0.4%)	24 (4.3%)	
Age *Inclusion birthdates 21/5/1994 to 19/11/1998*			
Under 14	98 (14.8%)	96 (17.2%)	0.3418
14.0-14.9	227 (34.3%)	179 (32.0%)	
15.0-15.9	204 (30.8%)	142 (25.4%)	
16.0-16.9	98 (14.8%)	96 (17.2%)	
17.0+	35 (5.3%)	46 (8.2%)	
Highest grade completed			0.1569
6th	2 (0.3%)[7]	3 (0.5%)	
7th	204 (30.8%)	170 (30.4%)	
8th	231 (34.9%)	198 (35.4%)	
9th	157 (**23.7%**)	93 (16.6%)	
10th	45 (6.8%)	74 (**13.2%**)	
11th	22 (3.3%)	19 (3.4%)	
No answer	1(0.2%)	2(0.4%)	
% speak or self-identify as Tajik			0.0978
Level of education of father			0.9941
None	6 (0.9%)	3 (0.5%)	
Primary	45 (6.8%)	42 (7.5%)	
Secondary	301 (45.5%)	238 (42.6%)	
Technical secondary	132 (19.9%)	117 (20.9%)	
Higher education	115 (17.4%)	102 (18.2%)	
Don't know	59 (8.9%)	51 (9.1%)	
No answer	4 (0.6%)	6 (1.1%)	
Level of education of mother			0.7384
None	27 (1.5%)	9 (1.6%)	
Primary	154 (25.4%)	142 (25.4%)	
Secondary+	379 (58.5%)	327 (58.5%)	
Technical secondary	38 (5.7%)	23 (4.1%)	
Higher education	23 (3.5%)	19 (3.4%)	
Don't know	40 (6.0%)	36 (6.4%)	
No answer	1 (0.5%)	3 (0.5%)	
Father's occupation			0.8236
Migrant worker	182 (27.5 %)	129 (23.1%)	
Shopkeeping/seller	62 (9.4 %)	58 (10.4%)	
Farming/gardening/agronomist/"*in the field"*/shepherd	99 (15.0 %)	80 (14.3%)	
Driver	66 (10.0%)	45 (8.0%)	
Does not work/divorced/separated/died	28 (4.2%)	38 (6.8%)	
Teacher/works at school	23 (3.5%)	22 (3.9%)	

[7] For significance testing, 6th graders were grouped with 7th graders, due to low frequency.

Other[8]	165 (24.9 %)	144 (25.8%)	
Don't know	21 (3.2 %)	18 (3.2%)	
No answer	16 (2.4 %)	25 (4.5 %)	
Location of father at time of interview			0.5443
Tajikistan	434 (65.6 %)	387 (69.2 %)	
Russia	164 (24.8 %)	117 (20.9 %)	
Other	4 (0.6 %)	4 (0.7 %)	
Died	6 (0.9 %)	2 (0.4 %)	
No answer	54 (8.2 %)	49 (8.8 %)	
Mother's occupation			0.8509
Migrant worker	5 (0.8%)	1 (0.2%)	
Shopkeeping	3 (0.4%)	7 (1.2%)	
Farmer	4 (0.6%)	2 (0.4%)	
Housewife	536 (81.0%)	460 (82.3%)	
Other	103 (15.6%)	82 (14.7%)	
Don't know/No answer	11 (1.7%)	7 (1.2%)	
Location of mother at time of interview			0.7203
Tajikistan	635 (95.9 %)	516 (92.3 %)	
Russia	3 (0.5 %)	1 (0.2 %)	
Died	1 (0.2 %)	1 (0.2 %)	
No answer	23 (3.5 %)	41 (7.3 %)	

[8] Some of the most frequent remaining answers included manager/director (1.8%), "master" (2.1%), construction/welder/ironsmith/woodworker (3.1%), "repairer"/mechanic (3.0%). Percentages indicated are not stratified by case/control status.

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[9]	ICC[10]
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[11]	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

[9] Ho: = mean(diff) = 0; Ha: mean(diff) ~= 0
[10] ICC = intracluster correlation coefficient
[11] Total possible score: 40

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 %)		

Table 4 Comparison of cases and controls: Attitudes about saving

Saving attitudes	Cases	Controls	P-value
Saving money is not necessary if you live at home with your family.			0.1390
Strongly Disagree	56 (8.5 %)	21 (3.8 %)	
Disagree	205 (31.0 %)	188 (33.6 %)	
Agree	336 (50.8 %)	296 (53.0 %)	
Strongly Agree	65 (9.8 %)	50 (8.9 %)	
No answer		4 (0.7 %)	
It's better to spend money today than to save it for use in the future			0.1775
Strongly Disagree	43 (6.5 %)	43 (7.7 %)	
Disagree	358 (54.1 %)	303 (54.2 %)	
Agree	188 (28.4 %)	174 (31.1 %)	
Strongly Agree	70 (10.6 %)	34 (6.1 %)	
No answer	3 (0.5 %)	5 (0.9 %)	
Saving is for adults only			0.8201
Strongly Disagree	68 (10.3 %)	59 (10.6 %)	
Disagree	267 (40.3 %)	243 (43.5 %)	
Agree	242 (36.6 %)	177 (31.7 %)	
Strongly Agree	82 (12.4 %)	69 (12.3 %)	
No answer	3 (0.5 %)	11 (2.0 %)	
Every time I get money I put away some money for saving			0.8389
Strongly Disagree	16 (2.4 %)	13 (2.3 %)	
Disagree	101 (15.3 %)	99 (17.7 %)	
Agree	402 (60.7 %)	335 (59.9 %)	
Strongly Agree	142 (21.5 %)	102 (18.3 %)	
No answer	1 (0.2 %)	10 (1.8 %)	
If there was a money box at school that everyone could use and that was locked and that everyone was responsible for keeping, would you save your money in the box?*			0.6264
Strongly Disagree	71 (10.7 %)	75 (13.4 %)	
Disagree	293 (44.3 %)	253 (45.3 %)	
Agree	251 (37.9 %)	198 (35.4 %)	
Strongly Agree	47 (7.1 %)	28 (5.0 %)	
No answer		5 (0.9 %)	
Importance of saving money			0.4465
Very important	392 (59.2%)	278 (49.7%)	
Somewhat important	158 (23.9%)	141 (25.2%)	
Not important	29 (4.4%)	39 (7.0%)	
Don't know	73 (11.0%)	87 (15.6%)	
Refused	7 (1.1%)	9 (1.6%)	
No answer	3 (0.5%)	5 (0.9%)	

Table 5 Comparison of cases and controls: Saving behaviour and IGA experience

	Cases	Controls	P-value
Has money saved			0.1610
No	492 (74.3%)	449 (80.3%)	
Yes	166 (25.1%)	106 (19.0%)	
No answer	4 (0.6%)	4 (0.7%)	
Among those who reported having saved money, total amount saved.			**0.0479**
Mean	150 ± 434	495 ± 1777	
Median	50 Somoni	62.5 Somoni	
Average frequency of money saving			0.6634
Daily	30 (4.5%)	19 (3.4%)	
Weekly	47 (7.1%)	26 (4.7%)	
Monthly	47 (7.1%)	48 (8.6%)	
Occasionally	123 (18.6%)	97 (17.4%)	
Rarely	185 (28.0%)	129 (23.1%)	
Never	222 (33.5%)	226 (40.4%)	
No answer	8 (1.2%)	14 (2.5%)	
Among those who saved money, where money is saved			0.6732
Home	420 (63.4%)	309 (55.3%)	
family	3 (0.5%)	2 (0.4%)	
School	1 (0.2%)	1 (0.2%)	
Bank	1 (0.2%)	3 (0.5%)	
Other	11 (1.7%)	5 (0.9%)	
No answer	226 (34.1%)	239 (42.8%)	
Ever engaged in income generating activity			0.1768
No	503 (76.0%)	461 (82.5%)	
Yes	157 (23.7%)	93 (16.6%)	
No answer	2 (0.3%)	5 (0.9%)	
Currently engaged in income			0.0578
No	176 (26.6%)	172 (30.8%)	
Yes	124 (18.7%)	44 (7.9%)	
No answer	362 (54.7%)	343 (61.4%)	

Table 6 Comparison of cases and controls: Gender attitudes and environment

Gender-related environment and gender attitudes	Cases	Control	P-value	ICC
# of wives father has			0.7209	
0	6 (0.9%)	9 (1.6%)		
1	611 (92.3%)	516 (92.3%)		
2	33 (5.0%)	26 (4.6%)		
3	5 (0.8%)	1 (0.2%)		
4	1 (0.2%)	1 (0.2%)		
No answer	6 (0.9%)	6 (1.1%)		
Does your family sit separately during meals?			0.2586	
No	33 (5.0%)	18 (3.2%)		
Yes	621 (93.8%)	526 (94.1%)		
No answer	8 (1.2%)	15 (2.7%)		
Are you usually permitted to go to the following places on your own, only if someone accompanies you or not at all?				
Permitted to go to market …			0.6348	
Not alone	510 (77.0 %)	443 (79.3 %)		
Alone	40 (6.0 %)	23 (4.1 %)		
Never	101 (15.3 %)	86 (15.4 %)		
No answer	11 (1.7 %)	7 (1.3 %)		
Permitted to go to health center …			0.9161	
Not alone	549 (82.9 %)	455 (81.4 %)		
Alone	36 (5.4 %)	33 (5.9 %)		
Never	62 (9.4 %)	58 (10.4 %)		
No answer	15 (2.3 %)	13 (2.3 %)		
Permitted to go to friend's home …			0.0001	
Not alone	237 (35.8 %)	325 (58.1 %)		
Alone	339 (51.2 %)	171 (30.6 %)		
Never	53 (8.0 %)	46 (8.2 %)		
No answer	33 (5.0 %)	17 (3.0 %)		
Permitted to go to village or school events…			0.2565	
Not alone	513 (77.5 %)	403 (72.1 %)		
Alone	105 (15.9 %)	109 (19.5 %)		
Never	24 (3.6 %)	34 (6.1 %)		
No answer	20 (3.0 %)	13 (2.3 %)		
What do you think about family matters?				**ICC**
The important decisions in the family should be made only by the men of the family.			0.8432	0.1063
Agree	284 (42.9%)	227 (40.6%)		
Somewhat Agree	196 (29.6%)	160 (28.6%)		
Disagree	182 (27.5%)	167 (29.9%)		
No answer		5 (0.9%)		
If the wife is working outside the home, then the husband should help her with household chores.			0.4042	0.1022
Agree	353 (53.32%)	328 (58.7%)		
Somewhat Agree	200 (30.21%)	156 (27.9%)		
Disagree	107 (16.16%)	68 (12.2%)		
No answer	2 (0.30%)	7 (1.2%)		

A married woman should be allowed to work outside the home if she wants to.			0.1723	0.0975
Agree	395 (59.67%)	359 (64.2%)		
Somewhat Agree	175 (26.44%)	149 (26.6%)		
Disagree	89 (13.44%)	43 (7.7%)		
No answer	3 (0.45%)	8 (1.4%)		
The wife has a right to express her opinion even when she disagrees with what her husband is saying.			0.8384	0.0824
Agree	302 (45.62%)	243 (43.5%)		
Somewhat Agree	118 (17.82%)	94 (16.8%)		
Disagree	239 (36.10%)	215 (38.5%)		
No answer	3 (0.45%)	7 (1.2%)		
A wife should tolerate being beaten by her husband in order to keep the family together.			0.4534	0.1018
Agree	387 (58.46%)	304 (54.4%)		
Somewhat Agree	123 (18.58%)	92 (16.5%)		
Disagree	151 (22.81%)	156 (27.9%)		
No answer	1 (0.15%)	7 (1.2%)		
It is better to send a son to school than it is to send a daughter.			0.0047	0.0596
Agree	77 (11.63%)	32 (5.7%)		
Somewhat Agree	31 (4.68%)	55 (9.8%)		
Disagree	549 (82.93%)	462 (82.6%)		
No answer	5 (0.76%)	10 (1.8%)		
Women have the same right as men to study and work outside the home.			0.6498	0.2014
Agree	355 (53.63%)	295 (52.8%)		
Somewhat Agree	236 (35.65%)	214 (38.3%)		
Disagree	65 (9.82%)	37 (6.6%)		
No answer	6 (0.91%)	13 (2.3%)		

Table 7 Comparison of cases and controls: Health knowledge in family planning

Health knowledge: Family planning	Cases	Control	P-value
How does a woman become pregnant?			0.2153
Sex	81 (12.2 %)	43 (7.7 %)	
Other	9 (1.4 %)	13 (2.3 %)	
Don't know	571 (86.3 %)	495 (88.6 %)	
No answer	1 (0.2 %)	8 (1.4 %)	
Have you heard of any methods in which a woman			0.0620
No	562 (84.9 %)	506 (90.5 %)	
Yes	73 (11.0 %)	35 (6.3 %)	
No answer	27 (4.1 %)	18 (3.2 %)	
What type of methods have you heard of ?			
IUD	67 (10.1 %)	24 (4.3 %)	0.0176
Lactational Amenorrhea	7 (1.1 %)	9 (1.6 %)	0.6128
Pill	18 (2.7 %)	21 (3.8 %)	0.3781
Depo/injection	12 (1.8 %)	11 (2.0 %)	0.8804
Condom	6 (0.9 %)	6 (1.1 %)	0.8374
Withdrawal	4 (0.6 %)	5 (0.9 %)	0.6994
Traditional methods	2 (0.3 %)	3 (0.5 %)	0.6823
Other	2 (0.3 %)	1 (0.2 %)	0.6648
Please tell me if you agree or disagree:			**P-value**
Traditional methods of birth control are very effective			0.5537
Disagree	3 (0.5%)	8 (1.4%)	
Agree	38 (5.7%)	32 (5.7%)	
Don't know/No answer	621 (93.8%)	519 (92.8%)	
Douching or washing after sex reduces the likelihood of pregnancy			0.5114
Disagree	13 (2.0%)	5 (0.9%)	
Agree	23 (3.5%)	15 (2.7%)	
Don't know/No answer	626 (94.6%)	539 (96.4%)	
Children born to adolescent girls are more likely to be born weaker and have a higher risk of illness and congenital defects.			0.1502
Disagree	51 (7.7%)	25 (4.5%)	
Agree	297 (44.9%)	218 (39.0%)	
Don't know/No answer	314 (47.4%)	316 (56.5%)	
Teenage pregnancy carries risks to the mother such as miscarriage, complications during and after delivery, and maternal death.			0.6956
Disagree	32 (4.8%)	20 (3.6%)	
Agree	295 (44.6%)	233 (41.7%)	
Don't know/No answer	335 (50.6%)	306 (54.7%)	

Table 8 Comparison of cases and controls: Health knowledge in STDs and HIV/AIDS

Health knowledge: STDs and HIV/AIDS	Cases	Control	P-value
Have you heard of diseases that can be transmitted through sexual relations?			0.6551
No	602 (90.9%)	494 (88.4%)	
Yes	42 (6.3%)	43 (7.7%)	
Don't know/No answer	18 (2.7%)	22 (3.9%)	
Many sexually transmitted infections are curable	12 (1.8%)	22 (3.9%)	0.2385
Disagree	20 (3.0%)	12 (2.2%)	
Agree	630 (95.2%)	525 (93.9%)	
Don't know/No answer			
Your doctor prescribed medicine for a sexually transmitted disease to be taken for 10 days. If after 5 days your symptoms have disappeared, you can stop taking the medication			0.9370
Disagree	33 (5.0%)	25 (4.5%)	
Agree	10 (1.5%)	7 (1.3%)	
Don't know/No answer	619 (93.5%)	527 (94.3%)	
Have you heard of HIV?			0.3082
No	579 (87.5%)	472 (84.4%)	
Yes	79 (11.9%)	78 (14.0%)	
Don't know/No answer	4 (0.6%)	9 (1.6%)	
Please tell me if you agree or disagree:			**P-value**
Even though there are treatments to slow the progression of HIV/AIDS, there is no cure.			0.3250
Disagree	30 (4.5%)	32 (5.7%)	
Agree	25 (3.8%)	38 (6.8%)	
Don't know/No answer	607 (91.7%)	489 (87.5%)	
HIV/AIDS can cause death			0.3308
Disagree	2 (0.3%)		
Agree	78 (11.8%)	92 (16.5%)	
Don't know/No answer	582 (87.9%)	467 (83.5%)	
Only people who do immoral things like prostitution can get infected with HIV			0.3995
Disagree	17 (2.6%)	26 (4.7%)	
Agree	60 (9.1%)	64 (11.5%)	
Don't know/No answer	585 (88.4%)	469 (83.9%)	
A healthy looking person can be infected with the HIV virus			0.5364
Disagree	14 (2.1%)	19 (3.4%)	
Agree	58 (8.8%)	62 (11.1%)	
Don't know/No answer	590 (89.1%)	478 (85.5%)	

Using condoms can prevent one from getting HIV			0.5889
Disagree	4 (0.6%)	7 (1.3%)	
Agree	26 (3.9%)	30 (5.4%)	
Don't know/No answer	632 (95.5%)	522 (93.4%)	
HIV can be transmitted among IV drug users who share needles			0.2677
Disagree	2 (0.3%)	5 (0.9%)	
Agree	69 (10.4%)	87 (15.6%)	
Don't know/No answer	591 (89.3%)	467 (83.5%)	
Women and girls are more vulnerable to HIV infection than men and boys			0.2283
Disagree	18 (2.7%)	17 (3.0%)	
Agree	31 (4.7%)	47 (8.4%)	
Don't know/No answer	613 (92.6%)	495 (88.6%)	
Tell me if you agree or disagree with each statement on how HIV COULD be transmitted			
A person injects drugs with a needle that someone else already used.			0.3956
Disagree	13 (2.0%)	16 (2.9%)	
Agree	63 (9.5%)	75 (13.4%)	
Don't know/No answer	586 (88.5%)	468 (83.7%)	
A mosquito bites a person on the leg.			0.3410
Disagree	24 (3.6%)	27 (4.8%)	
Agree	38 (5.7%)	51 (9.1%)	
Don't know/No answer	600 (90.6%)	481 (86.1%)	
A baby is born to a woman who does not know her HIV status			0.2186
Disagree	7 (1.1%)	9 (1.6%)	
Agree	42 (6.3%)	60 (10.7%)	
Don't know/No answer	613 (92.6%)	490 (87.7%)	
A person has sex with another person who has never taken the HIV test			0.3721
Disagree	12 (1.8%)	12 (2.2%)	
Agree	38 (5.7%)	50 (8.9%)	
Don't know/No answer	612 (92.5%)	497 (88.9%)	
A person shares food with someone who is infected with HIV			0.2613
Disagree	34 (5.1%)	40 (7.2%)	
Agree	17 (2.6%)	27 (4.8%)	
Don't know/No answer	611 (92.3%)	492 (88.0%)	
Statements on how to protect yourself from being infected with HIV by sexual transmission			
Avoid sex			0.3066
Disagree	9 (1.4%)	9 (1.6%)	
Agree	42 (6.3%)	57 (10.2%)	

Don't know/No answer	611 (92.3%)	493 (88.2%)	
Wash yourself after having sex.			0.5022
Disagree	17 (2.6%)	14 (2.5%)	
Agree	22 (3.3%)	31 (5.6%)	
Don't know/No answer	623 (94.1%)	514 (92.0%)	
Use a condom every time when having sex with someone whose HIV status is unknown			0.3841
Disagree	3 (0.5%)	9 (1.6%)	
Agree	16 (2.4%)	19 (3.4%)	
Don't know/No answer	643 (97.1%)	531 (95.0%)	
Have sex with only one person who is faithful and not infected with HIV			0.5441
Disagree	4 (0.6%)	8 (1.4%)	
Agree	34 (5.1%)	31 (5.6%)	
Don't know/No answer	624 (94.3%)	520 (93.0%)	
What is the only family planning method that also provides protection against HIV/AIDS?			0.7917
Condom	17 (2.6%)	26 (4.7%)	
Any other response	2 (0.3%)	2 (0.4%)	
Don't know	61 (9.2%)	71 (12.7%)	
No response	582 (87.9%)	460 (82.3%)	
Do you know of a place where you could get tested to see if you have been infected with HIV?			0.5472
No	37 (5.6%)	36 (6.4%)	
Yes	40 (6.0%)	49 (8.8%)	
Unsure/Don't know	5 (0.8%)	10 (1.8%)	
No response	580 (87.6 %)	464 (83.0%)	

Table 9 Comparison of cases and controls: Health knowledge in nutrition

Health knowledge: Nutrition	Cases	Control	P-value
What are some micronutrients that are particularly important for children, adolescents and pregnant women?			
Vitamin A	415 (63.0 %)	327 (58.6 %)	0.4376
Iron	116 (17.5 %)	111 (19.9 %)	0.5886
Iodine	99 (15.0 %)	95 (17.0 %)	0.6553
Other vitamins (B, C, D, E)	164 (24.8%)	158 (28.3%)	0.5506
Fruits and vegetables	10 (1.5%)	21 (3.8%)	0.5506
Indicate whether the following statements are true or false:			
Micronutrient deficiency is the leading cause of mentally disability (lowered IQ) in the world and in Tajikistan			0.9315
False	27 (4.1 %)	24 (4.3 %)	
True	488 (73.7 %)	417 (74.6 %)	
Don't know	146 (22.1 %)	114 (20.4 %)	
No answer	1 (0.2 %)	4 (0.7 %)	
Diarrhea is often caused by eating fatty foods or beans.			0.1690
False	286 (43.2 %)	190 (34.0 %)	
True	228 (34.4 %)	228 (40.8 %)	
Don't know	146 (22.1 %)	137 (24.5 %)	
No answer	2 (0.3 %)	4 (0.7 %)	
Micronutrient deficiency can cause birth defects			0.8192
False	19 (2.9 %)	19 (3.4 %)	
True	513 (77.5 %)	414 (74.1 %)	
Don't know	129 (19.5 %)	120 (21.5 %)	
No answer	1 (0.2 %)	6 (1.1 %)	
Micronutrient deficiency weakens immune systems leading to illness and sometimes death.			0.9238
False	14 (2.1 %)	13 (2.3 %)	
True	527 (79.6 %)	435 (77.8 %)	
Don't know	112 (16.9 %)	103 (18.4 %)	
No answer	9 (1.4 %)	8 (1.4 %)	
Drinking water from rivers without filtering or boiling it can lead to diarrhea and cholera			0.5262
False	36 (5.4 %)	27 (4.8 %)	
True	534 (80.7 %)	468 (83.7 %)	
Don't know	76 (11.5 %)	49 (8.8 %)	
No answer	16 (2.4 %)	15 (2.7 %)	

Children and pregnant and breast feeding women are most vulnerable to micronutrient deficiency			0.8538
False	16 (2.4 %)	13 (2.3 %)	
True	489 (73.9 %)	395 (70.7 %)	
Don't know	149 (22.5 %)	140 (25.0 %)	
No answer	8 (1.2 %)	11 (2.0 %)	
Diarrhea is caused by eating unwashed fruit			0.8163
False	12 (1.8 %)	7 (1.3 %)	
True	621 (93.8 %)	523 (93.6 %)	
Don't know	21 (3.2 %)	16 (2.9 %)	
No answer	8 (1.2 %)	13 (2.3 %)	
What are some good sources of iron? *Unprompted*			
Leafy greens	152 (23.0 %)	137 (24.5 %)	0.7609
Liver	128 (19.3 %)	120 (21.5 %)	0.6869
Beans/Lentils	151 (22.8 %)	127 (22.7 %)	0.9842
Red meat	172 (26.0 %)	149 (26.7 %)	0.5309
Other good sources of iron cited (beet, chocolate, fish, potato, buckwheat, greens, pistacchio, nut)	16 (2.4%)	23 (4.1%)	0.1585
What are some good sources of Vitamin A? *Unprompted*			
Carrots	390 (58.9 %)	338 (60.5 %)	0.7780
Spinach	61 (9.2 %)	62 (11.1 %)	0.5487
Vitamin A supplement	126 (19.0 %)	133 (23.8 %)	0.3640
Other good sources of vitamin A cited[12] (apricot, pumpkin, greens, tomato, peach, fish, watermelon)	36 (5.4%)	28 (5.0%)	0.8318
What are some good sources of iodine?			
Salt	481 (72.7 %)	413 (73.9 %)	0.9149
Other sources of iodine cited (fish, persimmon, beets, milk, yogurt, cabbage)	50 (7.6%)	33 (5.9%)	0.5535

[12] Foods mentioned by girls that contained Vitamin A but that were not a particularly "good" source of Vitamin A were not included in the frequency count. These included such suggestions as cucumbers and apples. It would require around 20 apples (about 100 IU of Vitamin A per apple) to reach the US Recommended daily allowance of Vitamin A (about 2000 IUs depending on gender and age).

Table 10 Comparison of cases and controls: Handwashing

Handwashing	Cases	Control	P-value
Used soap last time washed hands	620 (93.7 %)	527 (94.3 %)	0.6933
Usually washes hands… (*unprompted*)			
before a meal	574 (86.7 %)	511 (91.4 %)	0.1071
before preparing a meal	369 (55.7 %)	313 (56.0 %)	0.9629
after using toilet	593 (89.6 %)	498 (89.1 %)	0.8774
after helping younger sibling use toilet	182 (27.5 %)	148 (26.5 %)	0.8674
after touching animals	407 (61.5 %)	347 (62.1 %)	0.9142
when hands are soiled or dirty/after house work/after coming from field or farm work	402 (60.7 %)	344 (61.5 %)	0.8834
before feeding a younger sibling	141 (21.3 %)	111 (19.9 %)	0.8131
before prayer	12 (1.8 %)	3 (0.5%)	0.2762

Table 11 Comparison of cases and controls: Social connectedness and leadership

Social relationships	Cases	Control	P-value	ICC
Member of association, group or club which holds regular meetings	106 (16.0 %)	110 (19.7 %)	0.2619	0.0615
Type of association			0.8375	
School related	30 (4.5%)	25 (4.5%)		
Child to child	63 (9.5%)	64 (11.5%)		
Girls Council	14 (2.1%)	13 (2.3%)		
Social	1 (0.2%)	1 (0.2%)		
Other	3 (0.4%)	8 (1.4%)		
No answer	551 (83.2%)	448 (80.1%)		
Hold leadership position in social groups	56 (8.5 %)	61 (10.9 %)	0.3883	
Feels comfortable discussing personal and private problems with parent	483 (73.0 %)	447 (80.0 %)	0.0559	0.0822
Has friend with whom feels comfortable discussing personal and private problem personal and private	409 (61.8 %)	338 (60.5 %)	0.8833	0.1008
If yes, how many friends can you talk about personal and private matters?			0.7954	
1	228 (55.8%)	166 (49.1%)		
2	90 (22.0%)	90 (26.6%)		
3	48 (11.7%)	38 (11.2%)		
4	17 (4.2%)	20 (5.9%)		
5 or more	10 (2.4%)	15 (4.4%)		
No answer	16 (3.9%)	9 (2.7%)		
Has discussed sexual matters with friend	33 (5.0 %)	15 (2.7 %)	0.0995	0.0404

Table 12 Comparison of cases and controls: Attitudes about future

Looking to the future	Cases	Control	P-value	ICC
In what grade would you like to complete your schooling?			0.2524	0.0966
College/Uni	209 (31.6 %)	171 (30.6 %)		
Tech diploma	54 (8.2 %)	35 (6.3 %)		
11th grade	195 (29.5 %)	225 (40.3 %)		
10th grade	4 (0.6 %)	3 (0.5 %)		
9th grade	172 (26.0 %)	110 (19.7 %)		
7th or 8th grade	2 (0.3%)	3 (0.5%)		
Does not want to go to school	7 (1.1%)			
Other	19 (2.9%)	8 (1.4 %)		
No answer		4 (0.7 %)		
In what grade do you think you will complete your schooling?			0.3747	0.1972
College/Uni	153 (23.1 %)	188 (33.6 %)		
Tech diploma	53 (8.0 %)	50 (8.9 %)		
11th grade	188 (28.2 %)	171 (30.6 %)		
10th grade	5 (0.8 %)	6 (1.1 %)		
9th grade	211 (31.7 %)	115 (20.6 %)		
7th or 8th grade	2 (0.3%)	5 (0.9%)		
Does not want to go to school	21 (3.2%)	6 (1.1%)		
Other	22 (3.3 %)	12 (2.2 %)		
No answer	9 (1.4 %)	6 (1.1 %)		
Plans for 5 years from now (*unprompted*)				
Work/career	45 (6.8 %)	30 (5.4 %)	0.4785	0.0575
More education	376 (56.8 %)	341 (61.0 %)	0.4915	0.1847
Marriage	23 (3.5 %)	22 (3.9 %)	0.7632	0.0504
Have plans for employment	99 (15.0 %)	76 (13.6 %)	0.7175	0.1249
Have plans to start a business	34 (5.1 %)	30 (5.4 %)	0.8997	0.0526
Ideal age to get married				
Mean ± standard deviation	20.7 ± 1.9	20.9 ± 2.1	0.3227	0.1556
<18	1 (0.2 %)	1 (0.3 %)	X^2 0.9745	0.1595
18-19	73 (18.2 %)	53 (16.1 %)		
20-21	215 (53.6 %)	167 (50.6 %)		
22-23	74 (18.4 %)	73 (22.1 %)		
24-25	34 (8.5 %)	31 (9.4 %)		
26+	4 (1.0%)	5 (1.5%)		
Age expect to get married				
Mean ± standard deviation	21.0 ± 2.0	21.4 ± 2.2	0.2983	0.1506
18-19	34 (13.9 %)	30 (17.3 %)	X^2 0.2057	0.1532
20-21	126 (51.6 %)	60 (34.7 %)		
22-23	50 (20.5 %)	57 (33.0 %)		
24-25	28 (11.5 %)	20 (11.6 %)		
26+	6 (2.5%)	6 (3.5%)		

Looking to the future	Cases	Control	P-value	ICC
Who will choose your husband, when you will be married?				
Respondent	120 (18.1%)	100 (17.9%)	0.9546	0.1300
Respondent and husband jointly	13 (2.0%)	17 (3.0%)	0.2896	0.0155
Respondent's father	454 (68.6%)	387 (69.2%)	0.8695	0.0613
Respondent's mother	411 (62.1%)	348 (62.2%)	0.9717	0.0976
Husband's family	50 (7.6%)	35 (6.3%)	0.5696	0.1212
Don't know				
Others				
Will you be asked whether you want to marry him or not?				
Yes	474 (71.6%)	385 (68.9%)	0.5371	0.0926
No	188 (28.4%)	174 (31.1%)		
Ideal age to have first child				
Mean ± standard deviation	22.7 ± 2.1	22.9 ± 2.1	0.5017	0.2354
18-19	7 (1.1 %)	4 (0.7 %)	X^2 0.5359	0.0656
20-21	65 (9.8 %)	38 (6.8 %)		
22-23	74 (11.2 %)	55 (9.8 %)		
24+	516 (78.0 %)	462 (82.7 %)		
Age expect to have first child				
Mean ± standard deviation	22.9 ± 2.1	22.9 ± 2.0	0.9495	0.1975
18-19	3 (0.5 %)	3 (0.5 %)	X^2 0.9637	0.0556
20-21	46 (7.0 %)	33 (5.9 %)		
22-23	59 (8.9 %)	51 (9.1 %)		
24+	554 (83.7 %)	472 (84.4 %)		

Table 13: Plans for employment

	Among girls who stated having plans for employment	Among *all* girls who made reference to plans for employment during interview
Doctor/medic/nurse/teacher at medical university	51 (29.1 %)	75 (30.9%)
Teacher	18 (10.3 %)	24 (9.9%)
Seamstress/weaver/dressmaker	38 (21.7 %)	98 (40.3%)
Shop/selling/merchant	6 (3.4 %)	8 (3.3%)
General job description[13]	9 (5.1 %)	14 (5.8%)
Farmer/field	7 (4.0 %)	7 (2.9%)
Journalist/TV/writer/translator	7 (4.0 %)	8 (3.3%)
Bank/accountant	4 (2.3 %)	5 (2.1%)
Other	1 (0.6 %)	3 (1.2%)
References to business	4 (2.3 %)	1 (0.4%)
No additional detail provided	30 (17.1 %)	
	175 (100%)	243 (100%)

Table 14 Plans for starting social or business enterprises

	Among girls who stated having plans to start a business	Among *all* girls who made reference to plans to start a business during interview
Hospital/clinic/pharmacy/dental business	8 (15.7%)	8 (12.5 %)
Sewing-related or garment business	25 (49.0%)	23 (35.9 %)
Commerce/shop	8 (15.7%)	7 (10.9 %)
Gardening/aviculture/'of fruit'	3 (5.9%)	3 (4.7 %)
General description	2 (3.9%)	2 (3.1 %)
Possible misunderstanding of concept of business[14]	5 (9.8%)	5 (7.8 %)
No additional detail provided		16 (25.0 %)
	51 (100%)	64 (100%)

[13] Some responses grouped in this category included references to the following terms: company, factory, assistant, profession, traveller, business traveller, good job, cleaner, family-owned teahouse, own work.
[14] Responses in this section included “public works,” “public affairs,” and “Learn the art”

Appendix 1. Impact evaluation sample size calculation for the baseline and endline surveys

The sample size for the number of girls to include in the evaluation was calculated by going through the following steps.

First, we used the following equation for calculating differences between two group proportions:

Formula

$N_1 = \{[(\text{sqrt meanp*meanq } *(1+1/k))*Z_{1-\alpha/2}] + [\text{sqrt } p_1q_1 + p_2q_2/k*Z_{1-\beta}]\}2/ (p_1-p_2)^2$

With $N_1 = N_2$, k was equal to 1

Description

N_1 and N_2 = sample size for group 1 (intervention) and group 2 (control)

$K = N_1/N_2$; because we are drawing equal samples from both groups, $N_1 = N_2$, k was equal to 1;

p = estimated proportion of girls with the outcome of interest (e.g. good 'agency') in the area under study. Not knowing this proportion apriori, we set it equal to 0.5.

q = 1-p;

$\text{Meanp} = (p_1 + p_2)/2$; Meanq = 1 – meanp

$Z_{1-\alpha/2}$ = confidence level at 95% (standard value of 1.96)

$Z_{1-\beta}$ = power (standard value of 0.84 for 80% power)

The sample size was calculated to detect a 10% change in the proportion of girls with the outcome(s) of interest (e.g. good agency) post intervention. The resulting calculations yielded a sample size of 387 girls per group.

Second, we corrected this sample by applying the finite population correction for samples drawn from a known, finite population (in this case, we used the total population who will receive the intervention, or 2030 girls) using the following equation:

$N_{final} = (N_{obtained} * N_{population})/N_{obtained} + (N_{population} - 1)$

This yielded a final sample of 325 per group.

Third, we took into consideration the design effect created by the cluster random sample design, with school as the unit of randomization. Not knowing the within school correlation, we are unable to appropriately calculate the exact design effect. However, a number of studies that have used similar 2-layered cluster design (randomly select group, and then randomly select individuals within each group) have published estimations of the design effect[15] to be 2 (Turner, 2003). We therefore estimate that this design also has a design effect of 2, and to adjust for this in the sampling, we used the following equation:

$N_{finalAdjusted}$ = design effect * N_{final}

This yielded a sample size of 650 per group.

Fourth, we estimated a 5% contingency to account for any lack of response and/or human error in data collection or entry.

This yielded a final sample of 683. We rounded this number to 690 per group.

Fifth, and final step, we divided 690 by 30 schools, resulting in the need to select 23 girls per school to be included in the evaluation. In each school, these girls will be selected randomly from the universe of eligible girls who are attending that school.

[15] The design effect (DE) is a measure of how much the sample size in each group have to be increased to achieve the same statistical power as would be obtained by individual level randomization (ie as opposed to randomization of clusters). DE = 1+ ρ(m-1) where ρ is the intercluster correlation and m is the cluster size.

Appendix 2 Rosenberg Self-Esteem Scale[x]

The scale is a ten-item Likert scale with items answered on a four point scale - from strongly agree to strongly disagree.

Instructions: Below is a list of statements dealing with your general feelings about yourself. If you strongly agree, circle **SA**. If you agree with the statement, circle **A**. If you disagree, circle **D**. If you strongly disagree, circle **SD**.

1.	On the whole, I am satisfied with myself.	SA	A	D	SD
2.*	At times, I think I am no good at all.	SA	A	D	SD
3.	I feel that I have a number of good qualities.	SA	A	D	SD
4.	I am able to do things as well as most other people.	SA	A	D	SD
5.*	I feel I do not have much to be proud of.	SA	A	D	SD
6.*	I certainly feel useless at times.	SA	A	D	SD
7.	I feel that I'm a person of worth, at least on an equal plane with others.	SA	A	D	SD
8.*	I wish I could have more respect for myself.	SA	A	D	SD
9.*	All in all, I am inclined to feel that I am a failure.	SA	A	D	SD
10.	I take a positive attitude toward myself.	SA	A	D	SD

Scores are calculated as follows:

- *For items 1, 2, 4, 6,* and *7:*
  - Strongly agree = 3
  - Agree = 2
  - Disagree = 1
  - Strongly disagree = 0
- *For items 3, 5, 8, 9,* and *10* (which are reversed in valence):
  - Strongly agree = 0
  - Agree = 1
  - Disagree = 2
  - Strongly disagree = 3

The scale ranges from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem.

Appendix 3 General Self-Efficacy Scale (GSE)[xi]

Response format: 1 = Not at all true 2 = Hardly true 3 = Moderately true 4 = Exactly true

1) I can always manage to solve difficult problems if I try hard enough.
2) If someone opposes me, I can find means and ways to get what I want.
3) It is easy for me to stick to my aims and accomplish my goals.
4) I am confident that I could deal efficiently with unexpected events.
5) Thanks to my resourcefulness, I know how to handle unforeseen situations.
6) I can solve most problems if I invest the necessary effort.
7) I can remain calm when facing difficulties because I can rely on my coping abilities.
8) When I am confronted with a problem, I can usually find several solutions.
9) If I am in trouble, I can usually think of something to do.
10) No matter what comes my way, I'm usually able to handle it.

Scoring: Responses are made on a 4-point scale. Sum up the responses to all 10 items to yield the final composite score with a range from 10 to 40. No recoding.

Appendix 4 Levenson Multidimensional Locus Of Control scale[xii]: Internality, Powerful Others, and Chance Scales

	Strongly Disagree -3	*Disagree -2*	*Slightly Disagree -1*	*Slightly Agree +1*	*Agree +2*	*Strongly Agree +3*
1. Whether or not I get to be a leader depends mostly on my ability.	-3	-2	-1	+1	+2	+3
2. To a great extent my life is controlled by accidental happenings.	-3	-2	-1	+1	+2	+3
3. I feel like what happens in my life is mostly determined by powerful people.	-3	-2	-1	+1	+2	+3
4. Whether or not I get into a car accident depends mostly on how good a driver I am.	-3	-2	-1	+1	+2	+3
5. When I make plans, I am almost certain to make them work.	-3	-2	-1	+1	+2	+3
6. Often there is no chance of protecting my personal interests from bad luck happenings.	-3	-2	-1	+1	+2	+3
7. When I get what I want, it's usually because I'm lucky.	-3	-2	-1	+1	+2	+3
8. Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.	-3	-2	-1	+1	+2	+3
9. How many friends I have depends on how nice a person I am.	-3	-2	-1	+1	+2	+3
10. I have often found that what is going to happen will happen.	-3	-2	-1	+1	+2	+3
11. My life is chiefly controlled by powerful others.	-3	-2	-1	+1	+2	+3
12. Whether or not I get into a car accident is mostly a matter of luck.	-3	-2	-1	+1	+2	+3
13. People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.	-3	-2	-1	+1	+2	+3
14. It's not always wise for me to plan too far ahead because many things turn out to be a matter of good or bad fortune.	-3	-2	-1	+1	+2	+3

	Strongly Disagree -3	*Disagree -2*	*Slightly Disagree -1*	*Slightly Agree +1*	*Agree +2*	*Strongly Agree +3*
15. Getting what I want requires pleasing those people above me.	-3	-2	-1	+1	+2	+3
16. Whether or not I get to be a leader depends on whether I'm lucky enough to be in the right place at the right time.	-3	-2	-1	+1	+2	+3
17. If important people were to decide they didn't like me, I probably wouldn't make many friends.	-3	-2	-1	+1	+2	+3
18. I can pretty much determine what will happen in my life.	-3	-2	-1	+1	+2	+3
19. I am usually able to protect my personal interests.	-3	-2	-1	+1	+2	+3
20. Whether or not I get into a car accident depends mostly on the other driver.	-3	-2	-1	+1	+2	+3
21. When I get what I want, it's usually because I worked hard for it.	-3	-2	-1	+1	+2	+3
22. In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.	-3	-2	-1	+1	+2	+3
23. My life is determined by my own actions.	-3	-2	-1	+1	+2	+3
24. It's chiefly a matter of fate whether or not I have a few friends or many friends.	-3	-2	-1	+1	+2	+3

Internality Subscale: Items 1, [4][ж], 5, 9, 18, 19, 21, 23
Powerful Others Subscale: Items 3, 8, 11, 13, 15, 17, [20][ж], 22
Chance Subscale: Items 2, 6, 7, 10, [12][ж], 14, 16, 24

Directions for scoring: Add up the eight responses for each scale. Add a constant of 24 to each scale (to eliminate negative sums). Each respondent receives three scores (from 0-48) indicating his/her relative standing on each of the three dimensions.

[ж]The Levenson Multidimensional LOC scale was adjusted for this baseline survey to exclude questions related to driving (ie questions 4, 12, 20) since most adolescent girls in Tajikistan do not drive (ie at least one of the questions was not relevant: *Whether or not I get into a car accident depends mostly on how good a driver I am.*). Baseline survey results confirmed low car ownership among survey participants. Accordingly, to compute each subscale the constant of 21 was added to each scale (rather than 24), leading to a possible range of 0 to 42.

[i] Mercy Corps Aflateen+ Impact Evaluation Plan, 2012. Mercy Corps/Tajikistan.
[ii] 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.
[iii] 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
[iv] Mercy Corps Aflateen+ Impact Evaluation Plan, 2012. Mercy Corps/Tajikistan.
[v] http://www.parqol.com/page.cfm?id=142
http://www.wwnorton.com/college/psych/psychsci/media/rosenberg.htm
[vi] http://userpage.fu-berlin.de/~health/faq_gse.pdf
[vii] Adapted from Demographic Health Survey questionnaire
[viii] Some publications include: UNICEF Taijikistan Health and Nutrition Issue Summary http://www.unicef.org/tajikistan/health_nutrition_4676.html , UNICEF Vitamin & Mineral Deficiency: Damage Assessment Report http://www.micronutrient.org/vmd/CountryFiles/TajikistanDAR.pdf
[ix] Turner, AG. ***Sampling Strategies***. Expert Group Meeting to Review the Draft Handbook on Designing of Household Sample Surveys 3-5 December 2003. UNITED NATIONS SECRETARIAT ESA/STAT/AC.93/2; Statistics Division 03 November 2003
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