Evaluation of an intervention supporting adolescent girls from marginalized communities to stay in school, reduce early marriage, and delay entry into sex work

Tara Beattie[1], Calum Davey[1], Shajy Isac[2], Parinita Bhattacharjee[2], J Prakash[2], Sapna Nair[2], Martine Collumbien[1], BM Ramesh[2,3], Stephen Moses[3], Charlotte Watts[1], Lori Heise[1].

[1]London School of Hygiene and Tropical Medicine, 15-17 Tavistock Place, London EC1H 9SN

[2]Karnataka Health Promotion Trust (KHPT), IT Park, 5th Floor, #1-4, Rajajinagar Industrial Area, Behind KSSIDC Administrative Office, Rajajinagar, Bangalore 560 044, India.

[3]University of Manitoba, Department of Community Health Sciences, S113-750 Bannatyne Avenue, Winnipeg, Manitoba, Canada, R3E 0W3

NCT Number: NCT01996241

Date: 18th November 2014

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Summary

This document describes the protocol for evaluating an intervention to support adolescent girls from marginalised communities in northern Karnataka State, South India to complete secondary school, thereby reducing their vulnerability to HIV infection from early marriage and entry into sex work at young ages.

Overall purpose of the study

The purpose of this study is to evaluate the effectiveness of a multi-part intervention designed to influence adolescent girls (aged around 12-13) from Scheduled Castes and Scheduled Tribes in Northern Karnataka State, India, as well as their families, their schools and the communities in which they live. The intervention aims to improve multi-modal outcomes for these girls, especially the age at which they are married and the age at which they become active in sex work. While there are many pathways that the intervention aims to utilise to achieve these outcomes, the primary pathway is to keep girls in school.

Goal and objectives

The overall goals of the trial: to estimate the effect of a complex structural and behaviour change intervention on the percentage of adolescent girls who enter formal secondary education and the percentage of adolescent girls who complete standard 10. The effect will be estimated by randomizing village communities to either an intervention or a control arm and will use two cohort surveys of adolescent girls to measure the primary outcomes.

Study location

The trial will take place in Bijapur and Bagalkot districts in Northern Karnataka, India.

Study population

The main study population are SC/ST girls who have completed 7th standard, and will be approximately 13 years of age. Girls will be followed-up until they are approximately 16 years of age. Data will also be collected from the girls' parents and schools.

Study design

The study will use a cluster randomized trial design to estimate the effect of the intervention on the proportion of girls married before age 15, as well as other co-primary outcomes. The study will use a cohort of SC/ST girls as the primary data source for estimating effects, with a single endline follow up. Alongside the primary analysis, there will be extensive secondary analyses utilizing data collected in surveys of families and teachers, as well as qualitative data from a variety of stakeholders including boys in the community.

Existing literature on school drop outs and its consequences

There has been increasing recognition in recent years of the importance of keeping girls in school, both as a development objective, as well as meeting a range of health benefits. Previous research suggests a range of factors contribute to girls dropping out of school, including economic factors (such as poverty) and cultural factors (such as the prioritisation of boys' education over girls within households)[1][2][3][4][5][6][7][8][9]. Adolescent girls living in Northern Karnataka are at a high risk of dropping out of school, and this risk is likely to be highest among girls from scheduled castes and tribes. The *Sarva Shiksha Abhiyan* (SSA), a flagship programme of the Government of India, promotes education for all children aged 6-14 years. The SSA Karnataka report for 2010-2011[10] reported that 17% and 12% of all girls are lost from the schools between 7th and 8th standard in Bijapur and Bagalkot, respectively. This far exceeds the state average of 5%. Scheduled caste (SC)[11] girls are at the highest risk with the dropout rate reported to be 9% among those girls at the state level. Some of the barriers to entry and retention in secondary education include poor quality of education, low motivation and achievement, sexual harassment, low aspiration levels and too few role models[12].

Data from surveys of marginalized rural communities in northern Karnataka indicate that a high proportion of adolescent girls are "missing" from their households, due to early transition into adult roles via marriage or entry into sex work. This is in part related to the *devadasi* cultural tradition of sex work, where young girls are dedicated into sex work as part of a religious tradition. The educational needs of these adolescent girls are seldom prioritised among the mothers who grow up in the *devadasi* tradition. Illiteracy is widespread, reaching 80% among women who practice sex work. Karnataka Health Promotion Trust (KHPT) surveys indicate that 34% of girls from d*evadasi* families drop out from school by age 10[13].

Evidence clearly indicates that secondary education is particularly important for adolescent girls in enabling them to make informed life choices that can delay marriage or sexual debut, reduce fertility rates, improve child health and survival, and reduce the prevalence of HIV/AIDS and other diseases.[14] The Global Compact on Learning[15] cites evidence that investing in the knowledge, skills,

[1] Hallman K. HIV vulnerability of non-enrolled and urban poor girls in Kwa-Zulu Natal, South Africa. New York: Population Council, 2006.
[2] Jukes M, Simmons S, Bundy D. Education and vulnerability:the role of schools in protecting young women and girls from HIV in southern Africa. AIDS 2008; 22: S41–46.
[3] Hargreaves JR, Bonell CP, Boler T, et al. Systematic review exploring time trends in the association between educational attainment and risk of HIV infection in sub-Saharan Africa. AIDS 2008; 22: 403–14.
[4] Pettifor AE, Rees HV, Kleinschmidt I, et al. Young people's sexual health in South Africa: HIV prevalence and sexual behaviors from a nationally representative household survey. AIDS 2005;19: 1525–34.
[5] Baird S, Garfein R, McIntosh C, Ozler B. Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: a cluster randomised trial. Lancet. 2012;379(9823):1320_9.
[6] Cho H, Hallfors DD, Mbai II, Itindi J, Milimo BW, Halpern CT, et al. Keeping adolescent orphans in school to prevent human immunodeficiency virus infection: evidence from a randomized controlled trial in Kenya. J Adolesc Health. 2011;48(5):523_6.
[7] Hallfors D, Cho H, Rusakaniko S, Iritani B, Mapfumo J, Halpern C. Supporting adolescent orphan girls to stay in school as HIV risk prevention: evidence from a randomized controlled trial. Am J Public Health. 2011; 101(6):1082_8.
[8] Baird S, Chirwa E, McIntosh C, Ozler B. The short-term impacts of a schooling conditional cash transfer program on the sexual behavior of young women. Health Econ. 2009 November 27.
[9] Remme M, Vassall A, Lutz B, Watts C. Paying girls to stay in school: a good return on HIV investment? Lancet. 2012 Jun 9;379(9832):2150
[10] Education in Karnataka, 2010-11, an analytical report, *Sarva Shiksha Abhiyan.*
[11] Scheduled caste and scheduled tribe are the lowest castes (among thousands of castes) in India in terms of wealth, education and social status. In the 2001 census, they represented 22.7% (16.1% and 6.6%, respectively) of the population of Karnataka state.
[12] Government of India, Youth in India: Situation and Needs, 2006-07.
[13] Karnataka Health Promotion Trust. Rural assessment in selected villages in Bijapur and Bagalkot districts. 2013
[14] UNESCO Institute for Statistics, June 2012, No. 18, Reaching out-of-school children is crucial for development .
[15] Center for Universal Education at Brookings, June 2011, A Global Compact on Learning: Taking Action on Education in Developing Countries.

and competencies of young people ("education growth premium") has resulted in sustained high rates of growth in developing countries. For young people, education enhances their ability to lead happier, healthier, and more productive lives.

A global review of research and programmes conducted by the Population Council (2009)[16] on educating adolescent girls noted that "very few girl-friendly education programs have been evaluated…. Thus most approaches remain promising but unproven." Hence there is a need for interventions that not only address service-related gaps and socio-economic barriers, but also that generate evidence to serve as a basis for advocacy with policy makers on scaling up strategies to increase participation of girls in secondary education.

The communities and schools in the intervention sites will be engaged in participatory explorations to better understand the service-related gaps and the socio-economic barriers that contribute to girls from marginalized communities dropping out of school. These stakeholders will also be involved in the designing the specific activities to address these gaps and barriers.

The intervention

The intervention will test innovations to address both service-related gaps and socio-economic barriers to girls' completion of secondary school, and aims to reduce vulnerability to HIV and have long-term educational and livelihood benefits for adolescent girls.

The intervention is described in detail in Appendix 1. *Sabala Project Implementation Design.*

Usual care intervention: Girls in the control arm (73 high schools) will be provided with the standard level of care as currently provided by the government and other NGOs.

Enhanced intervention: In intervention communities, service-related gaps and socio-economic barriers to girl's schooling will be addressed by:

1. Reducing the economic pressure that households face to withdraw girls' from school by linking girls and their families to various government schemes and social entitlements;
2. Building appreciation and value of girls' education within families and their local communities;
3. Enhancing family and community accountability for school attendance by working with the School Development and Management Committees (SDMCs);
4. Empowering girls through their participation in Parivatan Plus, a mentor implemented life-skills and gender empowerment intervention; and
5. Engaging boys to decrease their sexual harassment of girls and to increase their support for girls' education.

School-based constraints will be addressed by:

1. Addressing gender-related and skill-based gaps among teachers
2. Improving girls' academic outcomes through providing tutoring;

[16] Lloyd, Cynthia B., 2009, *New Lessons: The Power of Educating Adolescent Girls*, Population Council.

Primary stakeholders will include teachers and students, especially adolescent girls in the school (7th to 10 the standard) from marginalized communities. Secondary stakeholders will include school development and management committees (SDMCs), families, boys and the communities that are served by the schools.

The intervention will cover 71 high schools[17] in Bagalkot and Bijapur districts. The intervention will be implemented in collaboration with the Department of State Educational Research and Training (DSERT), Karnataka; the Adolescent Education Cell, Government College of Teachers' Education (CTE), Jamkhandi; and the Institute for Advanced Studies in Education (IASE), Gulbarga.

Assumptions

The interventions have been developed following a set of assumptions, and the research will test whether addressing these factors will lead to the desired outcomes. The assumptions are;

- Existing gender norms and practices discourage girls from continuing education and encourage/ force early marriage and entry into sex work.
- Absence of a sense of agency (confidence, leadership, decision making) among adolescent girls contributes to poor health and schooling outcomes.
- Schools lack capacities and responsiveness to retain adolescent girls.
- Economic dependence of families on girls' labour within the home and outside, coupled with the low value ascribed to the girl child, affects the continuation of education among girls.

Study questions

The study aims to assess the impact of the intervention on levels of high school entry and retention by girls from marginalized communities (girls belonging to scheduled castes and scheduled tribes – SC/ST girls) and their risk and vulnerability to HIV. Specifically, the research aims to:

1. Assess the impact of the intervention on transition to and retention of SC/ST girls in schools and communities who have access to the intervention.
2. Assess the impact of the intervention on age at marriage, age at sexual debut and age of entry into sex work among adolescent SC/ST girls in schools and communities that have access to the intervention.
3. Explore how the intervention has affected the school and the communities' response to premature high school drop-out by SC/ST girls.
4. Investigate the processes and causal pathways through which positive changes occur in the following areas: support and value for education; self-esteem and confidence among adolescent girls; self-perceived safety and social status among adolescent girls and in their social networks; and culturally prescribed social expectations and gender norms.

Study components

This is a rigorous evaluation study that will be implemented by the Karnataka Health Promotion Trust (KHPT), based in Bangalore, Karnataka, in collaboration with the Social and Mathematical Epidemiology Group, London School of Hygiene and Tropical Medicine (LSHTM), and the Centre for

[17] Standards 8, 9, 10.

Global Public Health, University of Manitoba, Canada. The project uses a cluster randomized, controlled trial (RCT) design, and has three main components:

1. A quantitative assessment involving two sequential cohort studies, one initiated in year 1 and another initiated in year 2, of a sample of SC/ST girls and their families at baseline and following the intervention.
2. A qualitative assessment documenting the process of implementation and change using qualitative methods with:
    a. SC/ST girls
    b. Families
    c. Teachers
    d. Community leaders
    e. Policy makers
3. A robust monitoring system to monitor the intervention activities at school and community level.

Outcomes

Adolescent girls

This is a complex intervention which aims to act upon many modalities to affect change for SC/ST girls. For that reason we will be collecting a number of outcomes, many of which will be used to understand the effects observed in the primary and the secondary outcomes.

There are four **co-primary outcomes** on which the trial is sized:

1. Proportion of those enumerated in 7th standard (the study cohorts) who ENTER into grade 8th
2. Proportion of those in the study cohorts who complete 10th standard
3. Proportion of girls in the study cohorts who are married at end line.
4. Proportion of girls in the study cohorts who experienced first sexual intercourse at end line

The **secondary outcomes**:

1. Proportion of SC/ST girls in the cohort(s) who pass their matric/class 10 exam
2. Proportion of SC/ST girls in the study cohort who report a change in attitude around gender equality
3. Proportion of SC/ST girls in the study cohort who access available government schemes to assist SC/ST girls to complete secondary school
4. Proportion of SC/ST girls in the study cohort who access tuition classes and/or career counselling at school
5. Proportion of SC/ST girls in the study cohort who have experienced one or more incidents of harassment by boys in the last 3 months: in school; on the way to school; elsewhere in the community.

Process level outcomes

Process level outcomes are intended to understand the pathways from the intervention to the primary and secondary outcomes. They include data collected from the adolescent girls, their families, their schools, and communities:

Adolescent girls:

1. Awareness of the government schemes/subsidies that encourage their education
2. Attendance in tutorial classes
3. Participation in Parivartan Plus group sessions
4. Participation in career counseling to enhance options after school completion
5. Shifts in attitudes and perceived norms among SC/ST girls in the study cohorts and their parents about the value of completing secondary education for girls.
6. Shifts in attitudes and perceived norms among study girl parents about the wisdom of marrying girls before age 18.
7. Shift in attitudes and perceived norms among SC/ST girls in the study cohorts and their parents regarding [some measure of gender equality taken from Parivartan curriculum for boys]
8. Absences from school among the study cohort and proportion of adolescent girls who successfully pass into the next grade (the last element of this outcome would need to be measured using monitoring data for girls not in the cohorts).

Schools/SDMCs/Teachers:

1. Proportion of schools that have developed and implemented action plans to encourage entry and retention of girls in secondary school
2. Proportion of schools that have developed and implemented action plans to make schools safer for girls (anti-harassment, safe toilets, etc)
3. Proportion of surveyed teachers who feel that secondary school education is easily accessible for SC/ST girls in their community
4. Proportion of surveyed teachers who feel that SC/ST girls in their community have the opportunity to continue and complete their secondary
5. The proportion of schools (in the intervention villages) who have at least 70% of surveyed teachers trained in using the tools to track girls in their school
6. The proportion of schools (in the intervention villages) who effectively use the tracking tools for all the girls in their school
7. Proportion of surveyed teachers who report programmes in their school to build leadership among girls
8. Proportion of surveyed teachers who report positive attitudes on gender equality
9. Proportion of surveyed teachers who articulate positive attitudes towards girls completing secondary education.

Families of adolescent SC/ST girls:

1. Changes in gender norms around marriage and education of girls
2. Accessibility and expanded opportunities for girls to enter and continue in formal secondary education
3. Engagement and accountability of families for the education of adolescent girls
4. Awareness on the issues, schemes and options
5. Participation of family members in campaigns and discussions and problem solving
6. Number of families allowing the girls to attend special/ tuition class

7. Utilisation of entitlements / livelihood schemes
8. Understanding of the barriers to girls continuing secondary school and the solutions to those barriers

Communities served by the schools:

1. Change in gender *n*orms around marriage and education of girls
2. Engagement, support and accountability of communities for the education of adolescent girls
3. Accessibility and expanded opportunities for girls to enter and continue formal sec-ondary education
4. Awareness on the issue of school drop outs and its negative outcomes, schemes and option
5. Participation of community members in campaigns and discussions and problem solving
6. Understanding of the barriers and solutions to the issue
7. Vigilance among community groups on girl child marriage and school drop out

Policy impacts

Policy impacts act at the district, state, and national level and are not outcomes compared between arms of the trial but instead measure effects of the trial's impact on the wider policy environment. If the intervention is shown to be effective, policy impacts may include:

1. Government development of policies and guidelines based on this intervention model for scale up
2. Government understanding of why the intervention in important and government support for the intervention in government schools.

Evaluation design

Summary:

Study design

The study will employ a cluster randomized design. A cluster randomized design was chosen because the intervention is at a cluster level, i.e. many components of the intervention will not be delivered to specific individuals but to the schools and the communities where the individuals study and reside.

Site selection and cluster definition

The village is the unit of randomization. The village was chosen as the unit of randomization instead of the school so as to minimize the contamination between schools in the same village. In addition, some aspects of the intervention will act at the community level. In this setting, villages are sufficiently isolated so as to minimize contamination between villages.

Sampling of the adolescent girls

The project indicators for the SC/ST adolescent girls listed will be measured through two sequential cohort studies. Each SC/ST girl in the intervention and control clusters were profiled, This involved administering a brief questionnaire by trained outreach staff to the family of every listed SC/ST girl in

the study villages (control and intervention arms) to ascertain the girl's age, religion, family background and if they completed 7th standard. This information was used to help validate the denominator (ascertained through earlier mapping exercises) and to provide accurate data on the number of SC/ST girls attending and completing 7th standard school (the register lists provided by schools on SC/ST girls enrolled is frequently inflated). Girls will be invited to join the study at the end of 7th standard in year 1 (cohort 1) and year 2 (cohort 2), and each girl will be followed up until the start of year 4. By this point, most or all of the girls in both cohorts will have reached 15 years of age. By having two cohorts we can increase the available sample size and allow for the possibility that some of the intervention components will be more effective as they become established.

Sampling

Bijapur and Bagalkot district were pre-selected based on the high proportion of SC/ST girls in these districts, the programme rollout possibilities, existing infrastructure and rapport with the communities in these districts.

Enumeration of high schools

A high school enumeration was carried out by the existing project staff in these two districts. A standard format was developed to collect the information from these high schools with the following objectives;

- To collect information of the total number of students enrolled in 8th, 9th and 10th standards as per school records by sex and caste (SC/ST) for the current academic year and previous year.
- To collect details of teachers and school development and monitoring committees
- To get an overview of information about the school infrastructure, schemes and other services offered by the schools.

A one-day orientation was organised for project staff on the high school enumeration format. The list of high schools (schools having 8th, 9th and 10th classes) was collected from the education department and provided to the staff. The information on the high schools was collected from all the high schools in the list as per the existing records available in the schools. A team of two investigators (staff) visited the high schools and collected the information. This information was authenticated by the head master/headmistress (HMs).

The information on the school infrastructure, schemes and other services offered by the schools was collected through open ended interviews with the HMs and members of the School Development and Monitoring committee.

Three supervisors (staff) intensively monitored the field work on a day to day basis to help ensure the quality of information collected. During the field work, the team found that there were additional schools in the district which have an 8th standard, that were not included in the list provided by the education department. After enquiring with the department the team understood that that from this year (2012) onwards some of the higher primary schools[18] were allowed to initiate 8th standard. Hence, the team enumerated all these additional schools too.

[18] Schools with up to standard 7th

A total of 1075 high schools have been enumerated using the standard school enumeration format in the study districts (Bagalkot and Bijapur), located in rural and urban areas. Some of the key findings of the school enumeration exercise are given below (Table 1);

Summary of Schools Enumeration Data

	High Schools		Total girls enrolled		Total SC/ST girls enrolled		SC/ST girls enrolled in 8th std	
	No.	%	No.	%	No.	%	No.	%
Total	**1075**	**100**	**79502**	**100**	**15662**	**100**	**5445**	**100**
District Name								
BAGALKOT	475	44.2	38426	48.3	7479	47.8	2693	49.5
BIJAPUR	600	55.8	41076	51.7	8183	52.2	2752	50.5
Urban / Rural								
Urban	319	29.7	30928	38.9	5595	35.7	1835	33.7
Rural	756	70.3	48574	61.1	10067	64.3	3610	66.3
Type of school								
Government	555	51.6	35850	45.1	7439	47.5	2999	55.1
Private	520	48.4	43652	54.9	8223	52.5	2446	44.9
AID Status								
Aided	312	29.0	33202	41.8	6647	42.4	1933	35.5
Unaided	208	19.3	10450	13.1	1576	10.1	513	9.4
Govt	555	51.6	35850	45.1	7439	47.5	2999	55.1
School Category								
Secondary and above (8+ std)	727	67.6	64210	80.8	12532	80.0	3736	68.6
Upper primary and above (6+ std)	106	9.9	5015	6.3	1399	8.9	699	12.8
Primary and above (1+ std)	242	22.5	10277	12.9	1731	11.1	1010	18.5
Medium of teaching								
Kannada	902	83.9	66429	83.6	14333	91.5	4931	90.6
English	87	8.1	5172	6.5	926	5.9	388	7.1
Both Kannada & English	18	1.7	1732	2.2	336	2.1	110	2.0
Marathi	2	0.2	172	0.2	49	0.3	12	0.2
Urdu	66	6.1	5997	7.5	18	0.1	4	0.1
Education Type								
Only Girls	81	7.5	13762	17.3	2879	18.4	1130	20.8
Only Boys	27	2.5	0	0.0	0	0.0	0	0.0
Co-education	967	90.0	65740	82.7	12783	81.6	4315	79.2
Proportion of SC/ST girls among enrolled girls in AY-2012-13								
None	105	10.0	6858	8.6	0	0.0	0	0.0
<10 %	181	17.3	12169	15.3	736	4.7	236	4.3
10-24 %	423	40.4	38624	48.6	6461	41.3	2111	38.8
25+ %	339	32.3	21851	27.5	8465	54.0	3098	56.9
Number of facilities/infrastructure the school have								
None	9	0.8	413	0.5	113	0.7	32	0.6
1-3	35	3.3	1945	2.4	332	2.1	116	2.1
4-7	280	26.0	17548	22.1	3655	23.3	1292	23.7
8-10	751	69.9	59596	75.0	11562	73.8	4005	73.6
Number of schemes and other services								

offered by School								
None	11	1.0	599	0.8	124	0.8	49	0.9
<3	246	22.9	15363	19.3	2689	17.2	931	17.1
3-5	818	76.1	63540	79.9	12849	82.0	4465	82.0

Sampling frame

Schools

Based on practical and logistical considerations, the sample frame excluded schools in urban areas (319), schools that are private and unaided (87), schools that are only for boys (13) and schools in villages where the total number of SC/ST girls enrolled in 8th standard is less than 10 (431). Thus, the sample frame used for the selection of schools consisted of (225) high schools.

The village was chosen as the unit of randomization instead of the school so as to minimize the contamination between schools in the same village. In this setting, most villages are sufficiently isolated to minimize contamination between villages.

These 225 high schools are located in 121 villages. Thus, 121 villages were used for the final sampling frame. Villages were selected randomly for the intervention or control arm, using a systematic random sampling method.

Adolescent Girls

SC/ST girls will be enumerated and included in the cohort. We will conduct a complete-capture enumeration of all SC/ST girls in all trial sites, therefore, all SC/ST girls will be approached for inclusion in the trial.

Families

All families of SC/ST girls will be included in the cohort.

Sample size

The sample size calculations are based on the four co-primary outcomes:

1. Percentage of those enumerated in 7th standard (the study cohorts) who ENTER into grade 8th
2. Percentage of those in the study cohorts who complete 10th standard
3. Proportion of girls in the study cohorts who are married at end line.
4. Proportion of girls in the study cohorts who experienced first sexual intercourse at end line

The sample size calculations are based on the parameters shown in the table below. The baseline numbers are found in the KSS Karnataka report for 2010-2011, a rural assessment by KHPT in 2013, the district level household surveys (DLHS) from 2007-2008, and the Integrated Biological and behavioral Assessment (IBBA) conducted by KHPT from 2006-2011. Broadly speaking, the expected effect sizes are guided by the aim of the intervention to bring the outcomes among SC/ST girls in-line with all girls. Therefore, we have used the prevalence of the outcomes in these surveys to estimate plausible effect sizes.

Parameter	**Notes**
Harmonic mean cluster size	This is based on an enumeration carried out in the 225 high schools located in121 villages by KHPT. Approximately 15 SC/ST girls are available at each school
Refusal/loss to follow-up	Refusal and loss to follow-up are expected to be low, approximately 5-10% (14 girls per cluster is used in the calculation, multiplied by 2 to account for the two cohorts)
Between cluster variation (k)	The between cluster variation in the outcomes is not known. Therefore, we have reported sample sizes for a range of values.
Control arm proportions 1. Proportion transitioning 7-8th(actualized in terms of the proportion dropping out between 7th and 8th) 2. Proportion completing 10th (actualized in terms of the proportion dropping out between 7th and 10th) 3. Proportion married at end line 4. Proportion sexual intercourse at endline	1. For this we calculate sample size calculations for a range of drop-out proportions, from 9% (the State level drop-out proportion for SC/ST girls only) and 17% (the dropout rate among *all girls* in Bijapur district. These are conservative estimates since we expect that the effects of being SC/ST will augment the figure for the study districts (figures from SSA Karnataka report for 2010-2011). 2. The rural assessment in selected villages in Bijapur and Bagalkot districts by KHPT 2013 found drop out of 34% among *devdasi* girls. We have assumed 30-40% drop out before standard 10. 3. The District Level Household Surveys (DLHS-2007-08) collected data on age at marriage and has a reasonable sample size in each district. About 21% of the women aged 18-25 married before the age of 15 years. A higher percent of SC/ST women were married as compared to others (25.9% against 19.3%). Therefore the proportion is likely to be around 25% 4. Data from the IBBA among FSWs conducted in

	the district of Belgaum found 44.77% of the FSWs reported their first sex was before the age of 15 years. Given 25.9% of the SC/ST women married before the age of 15 years, the proportion who had their first sex before 15 years will likely be a number above this, but most likely less than 44.7%. The Polling Booth Surveys conducted in the rural areas of these districts in 2011 found that 8% of the unmarried females (15-24 years) had ever had sex, whereas 5.3% of the married females (15-24 years) had sex before marriage in Bijapur district. Therefore the proportion who had sex before 15 years is likely to be a number above 30%. We have assumed a conservative range from 20-35%.
Effect (risk ratio) 1. Proportion transitioning 7-8th 2. Proportion completing 10th 3. Proportion married at end line 4. Proportion sexual intercourse at endline	The risk ratios are guided by comparisons between the estimates of the outcomes in the SC/ST girls and outcome proportions in all girls. 1. We have reported a range of Risk Ratio minimum detectable effect sizes from 30-40%. This is considered to the be the most likely of the outcomes to be influenced by the intervention 2. We have reported a range of Risk Ratio minimum detectable effect sizes from 20-25%. The lower effect size than for outcome 1 reflects the perception that this will be harder to influence with the intervention as the barriers to staying in school increase over time 3. The intervention will target marriage directly through school and home based interventions. Therefore, we aim to decrease the proportion married before 15 by 25-30%. 4. The intervention will target sexual debut directly through school and home based interventions. Therefore, we aim to decrease the proportion married before 15 by 25-30%.
Type 1 error	We have set this at the 5% level
Power	We have set this at the 80% level

Transition from 7-8th Standard

These and further sample size calculations included estimations of variance of between-cluster differences when an unpaired t-test is used for final analysis, on the basis of calculations provided by Hayes and Betnett[19].

Transition from 7-8th standard is considered to the be the most likely of the outcomes to be influenced by the intervention, and we have reported a range of minimum detectable effect sizes , with risk ratio of RR= 0.70-0.60.

The detectable effect sizes of RR=0.70-0.60 is assumed on the basis that the intervention aims to bring down the higher dropout rate among SC/ST girls to be in-line with the state average dropout rates among all girls. The *Sarva Shiksha Abhiyan Karnataka Analytical report 2010-11* (Education in Karnataka 2010-11) documents a dropout rate among SC/ST girls during higher primary grades of 9%, compared to 5.6% among all girls in the state (Table 18A). Therefore, the state average for dropout rates from higher primary grades among all girls is 38% less than the dropout rates of SC/ST girls, corresponding to a risk ratio of RR=0.62. Note that the dropout rates of SC/ST girls in transition from standard 7 to standard 8 are not available from the report at district level disaggregates, so we used the state averages for SC girls and all girls. On the basis of this uncertainty, and the event that the intervention is not able to fully bring SC/ST drop out during transition to the average among all girls, we have sized the trial to detect weaker risk ratio of 0.70 under certain, plausible, conditions.

1-type I	Power	Control p	Cluster Size	% reduction	Intervention p	K	# clusters per arm
0.95	0.80	17%	28	30%	11.9%	0.15	30.4
						0.20	32.7
						0.25	35.6
				33%	11.4%	0.15	24.9
						0.20	26.7
						0.25	29.1
0.95	0.80	13%	28	30%	9.1%	0.15	40.0
						0.20	42.3
						0.25	45.2
				33%	8.7%	0.15	32.7
						0.20	34.5
						0.25	36.9
0.95	0.80	9%	28	35%	5.9%	0.15	41.7
						0.20	43.3

[19] Hayes RJ and Bennett S, Simple sample size calculation for cluster-randomized trials, International Journal of Epidemiology, 1999: 28, 319-326

				45.4
			0.25	
				31.3
	40%	5.4%	0.15	
				32.4
			0.20	
				33.9
			0.25	

Retention in school

We have reported a range of Risk Ratio minimum detectable effect sizes of RR=0.75-0.70. The lower effect size than for outcome 1 reflects the perception that this will be harder to influence with the intervention as the barriers to staying in school increase over time.

The *Sarva Shiksha Abhiyan Karnataka Analytical report 2010-11* (Education in Karnataka 2010-11) shows a higher dropout rate of SC/ST girls (22.5%) in transition from standard 8 to standard 10 compared to all girls (16.5%) in the state: this transition is an important stage in ensuring retention until the end of standard 10 and is how the 'retention' outcome will be actualized. The minimum detectable effect sizes of RR=0.75-0.70 are assumed on the basis that the intervention aims to bring retention of SC/ST girls in line with with the state average among all girls. The ratio between SC/ST girls and all girls of the dropout rates during transition from standard 8 to standard 10 is 0.73. This ratio is used as a indicator for the plausible effect of the intervention on retention to standard 10.

1-type I	Power	Control p	Cluster Size	% reduction	Intervention p	K	# clusters per arm
0.95	0.80	40%	28	20%	32.0%	0.15	28.3
						0.20	33.9
						0.25	41.2
				23%	30.8%	0.15	21.3
						0.20	25.5
						0.25	30.8
0.95	0.80	30%	28	20%	24.0%	0.15	38.8
						0.20	44.4
						0.25	51.7
				23%	23.1%	0.15	29.1
						0.20	33.3
						0.25	38.6
0.95	0.80	20%	28	23%	15.4%	0.15	44.8
						0.20	48.9
						0.25	54.2
				25%	15.0%	0.15	37.7
						0.20	41.1
						0.25	45.5

Proportion married before age 15

The intervention will target marriage directly through school and home based interventions. Therefore, we aim to decrease the proportion married before 15 by 25-30%, corresponding to risk ratios of RR=0.75-0.70.

The *District Level Household Surveys* (DLHS-2007-08) collected data on age at marriage and has a reasonable sample size in each district. About 21% of the women aged 18-25 married before the age of 15 years. A higher percent of SC/ST women were married as compared to others (25.9% against 19.3%). Therefore, bringing the proportion in-line with all girls would result in a risk ratio of 0.75.

1-type I	Power	Control p	Cluster Size	% reduction	Intervention p	K	# clusters per arm
0.95	0.80	35%	28	25%	26.3%	0.15	20.8
						0.20	24.3
						0.25	28.7
			28	30%	24.5%	0.15	14.4
						0.20	16.7
						0.25	19.6
0.95	0.80	30%	28	25%	22.5%	0.15	24.6
						0.20	28.0
						0.25	32.4
			28	30%	21.0%	0.15	16.9
						0.20	19.2
						0.25	22.1
0.95	0.80	20%	28	25%	15.0%	0.15	37.7
						0.20	41.1
						0.25	45.5
			28	30%	14.0%	0.15	25.8
						0.20	28.0
						0.25	31.0

Proportion having had sexual intercourse before age 15

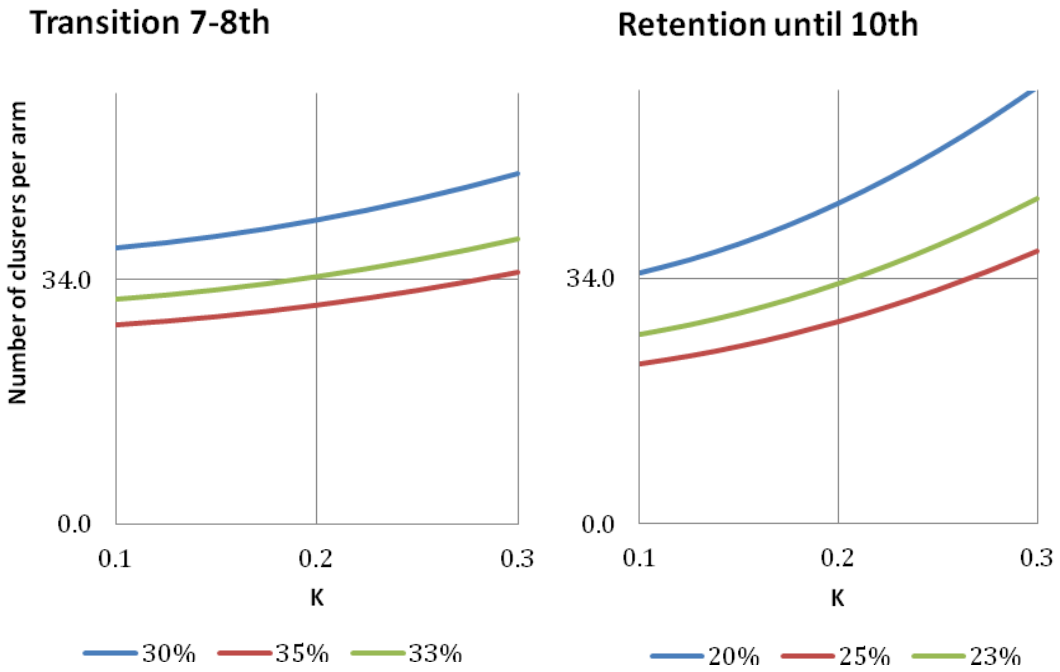
The intervention will target sexual debut directly through school and home based interventions. Therefore, we aim to decrease the proportion married before 15 by 25-30%. This is assumed to be equal to the previous indicator i.e. proportion married.

1-type I	Power	Control p	Cluster Size	% reduction	Intervention p	K	# clusters per arm
0.95	0.80	35%	28	25%	26.25%	0.15	20.8
						0.20	24.3
						0.25	28.7
				30%	24.50%	0.15	14.4
						0.20	16.7
						0.25	19.6
						0.15	34.1
0.95	0.80	30%	28	25%	22.50%		
						0.20	37.5
						0.25	41.9

						0.15	23.4
				30%	21.00%		
						0.20	25.6
						0.25	28.5
0.95	0.80	20%	28	25%	15.00%	0.15	37.7
						0.20	41.1
						0.25	45.5
				30%	14.00%	0.15	25.8
						0.20	28.0
						0.25	31.0

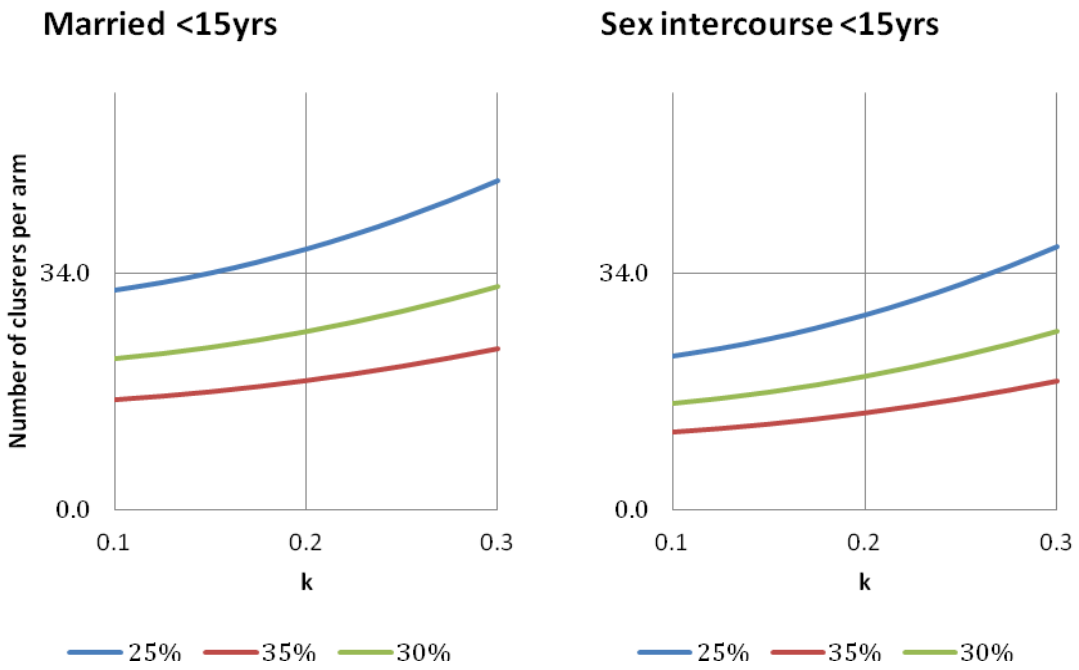
K and the number of clusters

We are uncertain about the value of k – the between school variation in the outcomes – and therefore explored the relationship between the number of clusters and the value of K for some central and realistic estimates of the above parameters. The relationship is shown for three different effect sizes: 30%, 33%, 35% for the effect on transition from 7-8th standard, and 20%, 23%, 25% for the retention until 10th standard. The power is 80%, type 1 is 5%, number of girls per cluster is 14 (accounting for loss to follow-up), and the proportion in the controls is 13% and 30% for transition and retention, respectively. We have included 34 clusters per arm as the reference line.



The graph on the left shows that for all values of K we will require more than 34 clusters per arm to detect an effect of 30%. A 33% reduction in the number of girls not transitioning from 7-8th standard will be detectable 80% of the time when K is less than 0.2. For all values of K up to 0.3 34 clusters per arm will be sufficient to detect an effect of 35%.

The graph on the right shows that for values of K above 0.1 the study will require more than 34 clusters to detect a risk ratio of 20% in the retention to 10th standard outcome. A 23% reduction will be detectable 80% of the time when K is less than 0.2. For values of K up to 0.27 the study with 34 clusters per arm will be able to detect a risk ratio of 25% with 80% power.

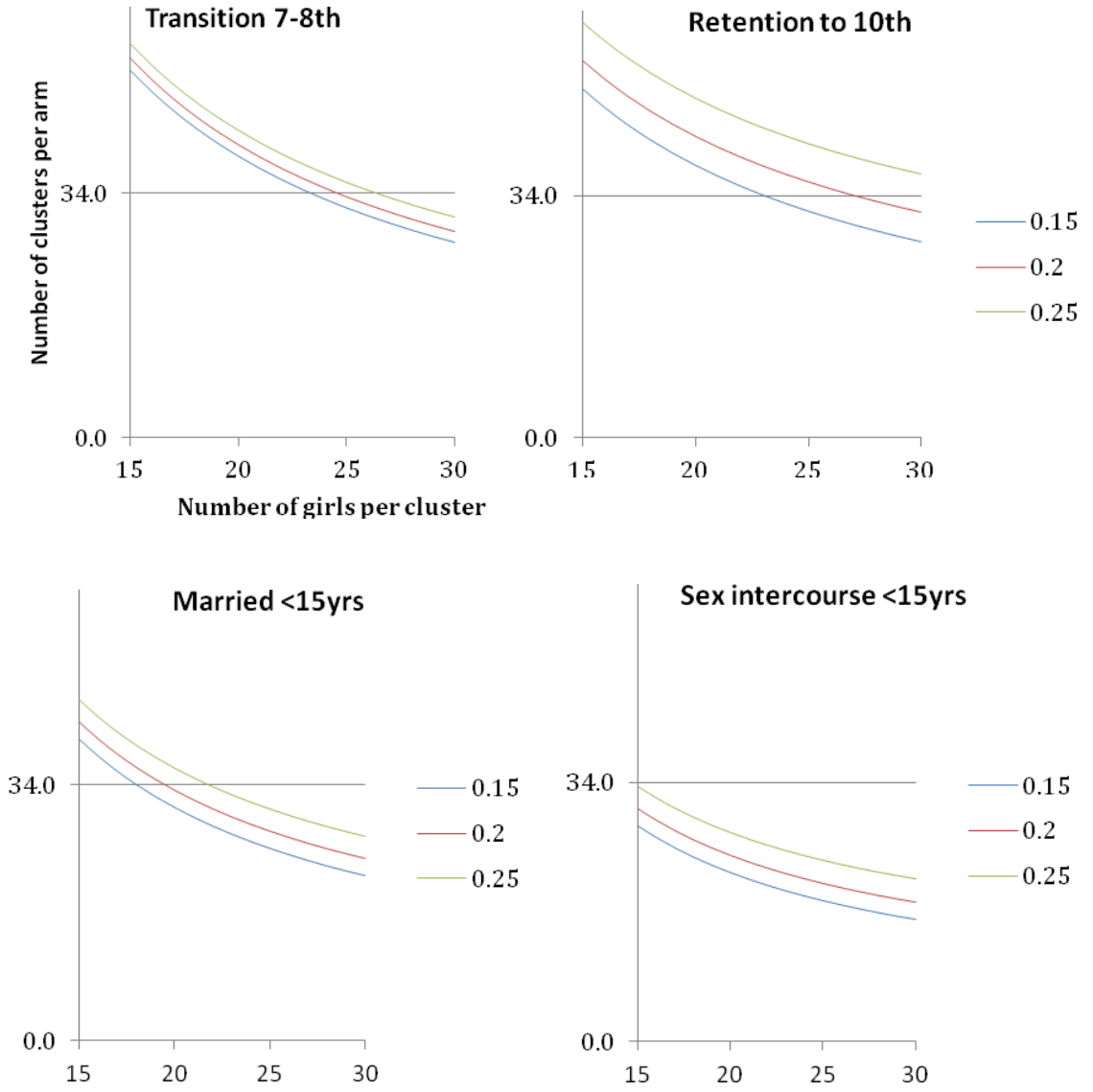


The graph on the left shows that for all values of K more than 0.13 we will require more than 34 clusters per arm to detect an effect on age of marriage of 25%. A 30% reduction in the proportion of girls married before 15 will be detectable 80% of the time when K is less than 0.3.

The graph on the right shows that for values of K below 0.26 the study will require fewer than 34 clusters to detect a risk ratio of 25% in the proportion having sexual intercourse before aged 15.

Cluster size – loss to follow-up and refusal

We show here how the sample size is affected by a reduction in the number of girls in each cluster. These analyses are shown to give a 'lower bound' for acceptable levels of loss to follow-up. These are calculated with a risk difference of 35% for transitioning and 23% for retention to 10th standard.



The graph on the top- left shows that between 22 and 27 girls per cluster will be required to be followed up to ensure that there is 80% power to detect a risk ratio of 35% between proportion transitioning from 7th to 8th, depending on the value of K. The graph on the top-right shows that for lower values of K we will require follow-up of an average of at least 22 girls per cluster to detect differences in retention to 10th standard, but that for higher levels of K the requirements for follow-up are more severe. The lower left and lower right graphs show the equivalent calculations for marriage before 15 and sexual intercourse before 15, respectively.

Summary of the sample size calculation results

The study will have 40 clusters per arm.

There will be 13 girls, on average, enumerated for each of two sequential cohorts in each intervention and control cluster. In effect, 26 girls will be enrolled in each cluster, 1 year apart, corresponding to a total sample of 1050 girls in the control arm and 1050 girls in the intervention arm. We assume that there is minimal loss to follow-up and that 28 girls are followed-up at the endline. With these data we will have 80% power to detect a ratio of around 33% for the transition from 7-8th standard and a 25% ratio for retention until 10th standard. We have included conservative estimates of the control outcome proportions, and reported calculations for a range of K from 0.1 to 0.25.

In order to measure the medium- and short-term outcome indicators for families, the families of the SC/ST adolescent girls recruited in both arms will be interviewed. To facilitate intervention at the family level, each SC/ST adolescent girl in both the arms will be profiled and the main decision maker will be identified. These decision makers will form the sampling frame to recruit the respondents at the family level.

The sample sizes for the girls are summarized in Table 3.

Table 3: Summary of sequential cohort study design

	May 2013	May 2014	February 2017	February 2018
Intervention site, cohort 1	525 girls completed 7th standard and their families		Follow-up interviews	
Control site, cohort 1	525 girls completed of 7th standard and their families		Follow-up interviews	
Intervention site, cohort 2		525 girls completed 7th standard and their families		Follow-up interviews
Control site, cohort 2		525 girls completed 7th standard and their families		Follow-up interviews

Allocation of clusters to intervention and control arms

68 villages were selected using systematic random sampling from the sample frame of 121.

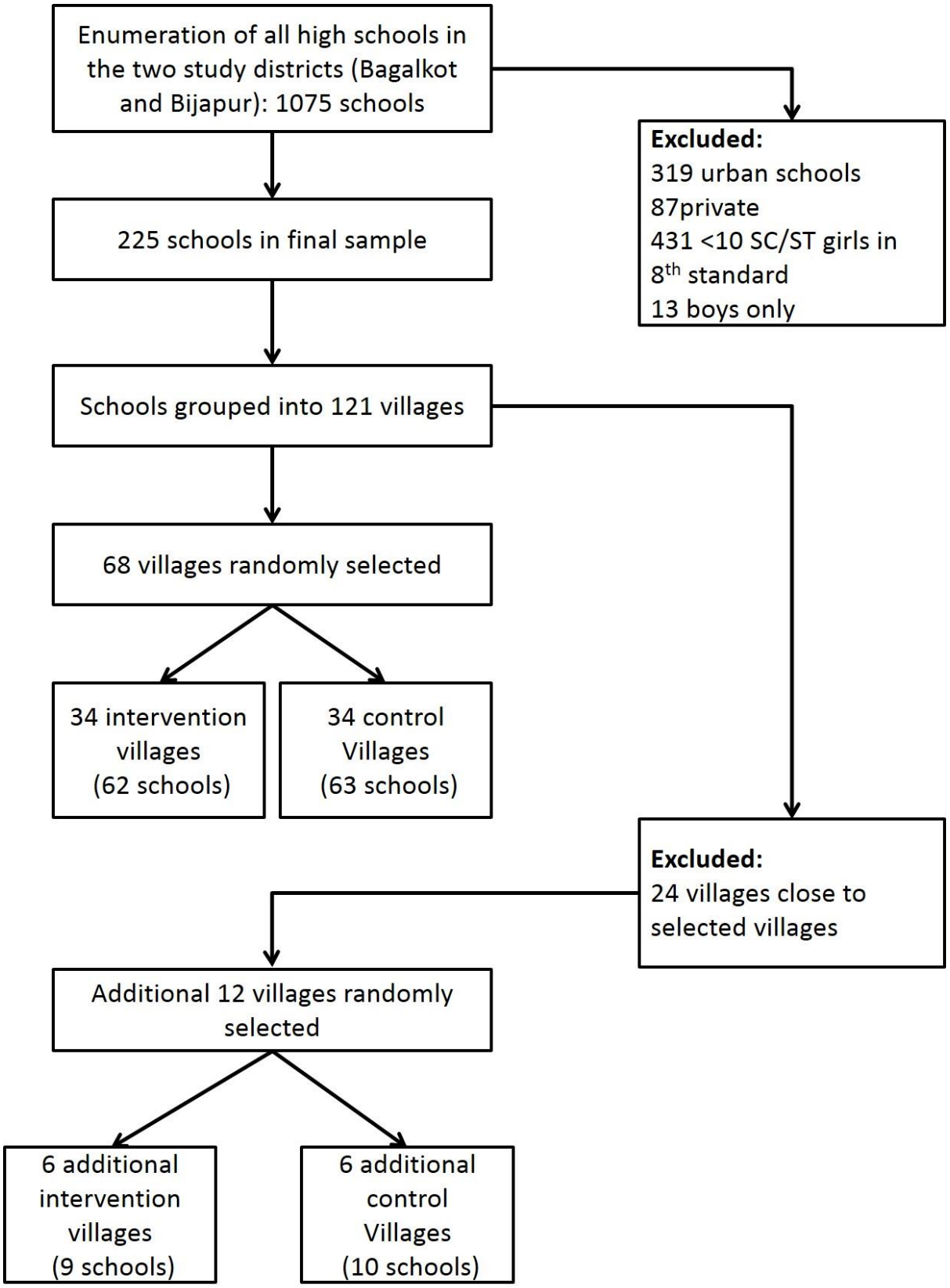
Schools were allocated randomly to either receive the intervention immediately (experimental condition) or at a later date (waitlist control group). The villages were randomised into intervention and control arms so that 34 villages (62 high schools) in intervention and 34 villages (63 high schools) in control arms. This was done by initially selecting 34 villages randomly from the selected 68 villages using STATA 11. These selected 34 villages were allocated into intervention arm and the remaining 34 villages were allocated into control arm.

Accounting for potential contamination

After allocating the villages to intervention and control arms, there were 12 villages where there was a possibility of contamination because these villages were contiguous with a village in a different arm of the study. To compensate for potential loss of statistical power due to contamination we therefore selected an additional 12 villages (6 intervention and 6 control arm) for inclusion in the study as follows: Of the 53 villages remaining in the sampling frame, we excluded 24 due to their close proximity to villages which had already been selected for the study. From the remaining 29 villages in the sampling frame, an additional 12 villages (6 intervention arm and 6 control arm) with 19 high schools (9 intervention arm and 10 control arm) were randomly selected to be included in the study.

Thus a total of 80 villages (40 in each arm) with 144 high schools (71 intervention arm and 73 control arm) will be included in the study (see diagram below).

Summary diagram



Data collection

In each of the intervention and control villages, quantitative and qualitative assessments will be carried out, both at baseline and following the intervention, among the target groups listed in Table 1.

Closed-ended questionnaires (used in the sequential cohort studies among adolescent girls and their families) have been developed based on a review of available measurement tools. Questionnaires are in Appendix 2. All instruments will initially be developed in English, translated into *Kannada* (the local language), pretested and piloted and revised, and then back-translated. Tables 4, 5 and 6 provide summaries of the different major domains and sub-domains under each indicator that will be measured in these sequential cohort surveys among the adolescent girls and their parents, respectively.

Table 4: Indicator domains and sub-domains that will be measured in sequential cohort studies of SC/ST adolescent girls in control and intervention villages, using a structured behavioural questionnaire

Major domains	Minor domains
Impact and long-term outcomes	
Demographics	Geographic location, school, age, caste, age at menarche, number of siblings in the family (male and female), parents' living status, their education, occupation, land holdings and household income, whether anyone in the family is a Devadasi/sex worker, and relationship to the adolescent girl
Marriage	Current marital status, if married: (a) age at marriage (b) whether cohabiting with the husband, (c) if cohabiting, age at cohabitation
Sexual debut	Whether ever had sex, if yes, age at first sex
Entry into sex work	Whether ever received money in direct exchange for sex; if yes, age at first commercial sex
Entry into secondary school	School enrolment status
Continuation in secondary school	School attendance status, and school enrolment into 9th and 10 standards
Quality education	Whether passed the previous standard
Medium-term outcomes	
Accessibility and expanded opportunities to enter and continue formal secondary education and job market	Respondents' perception of the availability and accessibility of secondary school education (cost, infrastructure, transport, distance, school environment, attitudes of teachers/schools) Respondents' perceptions of opportunities to secondary education (parents' support, support from the community/peers, livelihood and economic opportunities/job market after secondary education)
Sense of agency	Self esteem, self confidence, self-perceived safety and social status and increased social network
Short-term outcomes	
Aware of and access government schemes and subsidies	Whether aware of each of the existing government schemes/subsidies to encourage education; whether currently availing them, reasons for not availing the services
Attendance in tutorial classes	Whether aware of the mentoring and tutorials at school, and whether currently availing these services, reasons for not availing the services
Participation in group sessions of life skill education	Whether aware of group sessions conducted, whether they attended sessions and completed sessions

Participation in career counseling to enhance options after school completion	Whether aware of the career counselling, livelihood and life skill training at school, and whether currently availing these services, reasons for not availing the services

Table 5: Indicator domains and sub-domains that will be measured in the families of SC/ST adolescent girls at baseline and follow-up survey rounds in control and intervention villages, using a structured behavioural questionnaire.

Major domains	**Minor domains**
Demographics	Geographic location, relationship to adolescent girl, age, caste, number of children (male and female), current marital status, education, occupation, land holdings and household income, whether anyone in the family is a Devadasi/sex worker, if yes, relationship to the adolescent girl
Medium-term outcomes	
Accessibility and expanded opportunities to enter and continue formal secondary education	Respondents' perception of the availability and accessibility of secondary school education (cost, infrastructure, transport, distance, school environment, attitudes of teachers/schools) Respondents' perceptions of opportunities to secondary education (extended family support, support from the community/neighbourhood, livelihood and economic opportunities after secondary education)
Engagement and accountability for education of adolescent girls	Support and value for education, engagement with school/neighbourhood/project staff on adolescent girl education, perceived economic/social benefits/burdens of girls' education to the family Number of visits to the school, reason, number of times enquired with daughter on syllabus or performance or school activities, appreciation, allocating time Decision and barriers
Changes in gender norms around education and marriage of girls	Respondents' perception and attitude on relative education and marriage of boys and girls, Number of years a girl and a boy to be educated. Perception about age at marriage of boys and girls, How soon the girls and boys to be get married, Perception about girls roles in household chores in relation to education and in relation to boys
Short-term outcomes	
Aware of issues, schemes and option	Whether aware of girls issues; whether aware of each of the existing government schemes/subsidies to encourage education; whether aware of various options available; whether their girl is currently availing them, reasons for not availing the services
Participation in campaigns and discussions and problems solving	Whether families participate in campaign addressing girls education and marriages; do they discuss the issues; with whom they discuss and how are they solving their problem
Allowing girls to attend special/tution classes	Whether aware of the special/tuition classes for girls at school; whether their girl is currently availing these services; reasons for not availing; discuss subject matter with girl and tuition teachers;
Utilization of entitlements/livelihood options	Whether aware of the girls entitlements; whether availing such services; reasons for not availing entitlements/livelihood options
Understanding of the barriers and solutions to the issue	Whether aware of the barriers the girls experience in school drop outs; what are the barriers and solutions; whether their girl child experience similar issues

Survey of schools

The Medium- and short term outcomes among schools will be measured through surveys of schools and teachers in intervention and control sites at baseline and follow-up. All Principals and 2 teachers (1 male and 1 female) per school in each of the 144 schools will be randomly selected from the list and interviewed at the beginning of year 1 and the beginning of year 4, using a questionnaire on the expected medium- and short-term outcomes among schools. In addition 2 SDMC members will be interviewed per school except where one SDMC committee covers 2 schools. In these cases, 2 SDMC members will be interviewed.

Table 6 provides a summary of the different major and sub-domains under each indicator that will be measured among the school principals and SDMC members.

Table 6: Indicator domains and sub-domains that will be measured in surveys of school principals, SDMC members and Teachers

Major domains	**Minor domains**
Identification details	Geographic location, type of school, aid status, school category, medium of teaching, education type, number of teachers (male and female), facilities and infrastructure, schemes and services available
Medium-term outcomes	
Accessibility and expanded opportunities to enter and continue formal secondary education	Respondents' perception of the availability and accessibility of secondary school education (cost, infrastructure, transport, distance, school environment, attitudes of teachers/schools) Respondents' perceptions of opportunities to secondary education (support from girls' family, support from the community/neighbourhood, livelihood and economic opportunities after secondary education)
Improved capacities and accountability to be responsive and facilitate the retention of girls in school	Whether the school finds it necessary to track the girls for entry, continuity and completion How many girls have been tracked? How has the school improved entry, continuity and completion of secondary school among girls? Does the school have any community outreach activities to facilitate girls' entry and retention in schools?
Short-term outcomes	
Effective tracking of girls in schools	Whether the school is using any tool to track and monitor school entry, continuity and completion What are the tools, their experiences of using these tools, benefits and challenges; Current mechanisms of tracking, Current number of girls being tracked Does the school conduct parent meetings?, how frequently, does the school contact families of students Did anybody from the school contacted girl/family members regarding girls education, follow-up, discussed girls performance, number of visits
safety and gender equitable environment in schools	Does the school have safety policies for adolescent girls, what are they, what has been their experiences with these policies; whether gender difference exists in safety is concerned
leadership programs for girls	Does the school have leadership programs for adolescent girls, what are they, what has been their experiences with these programs
Understanding of gender issues by	Gender equitable men scale (GEMS)

school staff, SDMC	

Qualitative research

Case studies using lifelines will be conducted to investigate how *Sabala* has affected the adolescent girls and their families in addressing school dropout, early marriage, sexual debut and entry into sex work. Additionally, in-depth interviews will be done with girls, parents and various community stakeholders to examine changes in the community, and changes in the levels of appreciation and support from government towards these interventions. Methods are described briefly in terms of the target groups, number, frequency and the general content. All qualitative research will be equally divided between Bijapur and Bagalkot districts, except where otherwise mentioned.

Case studies

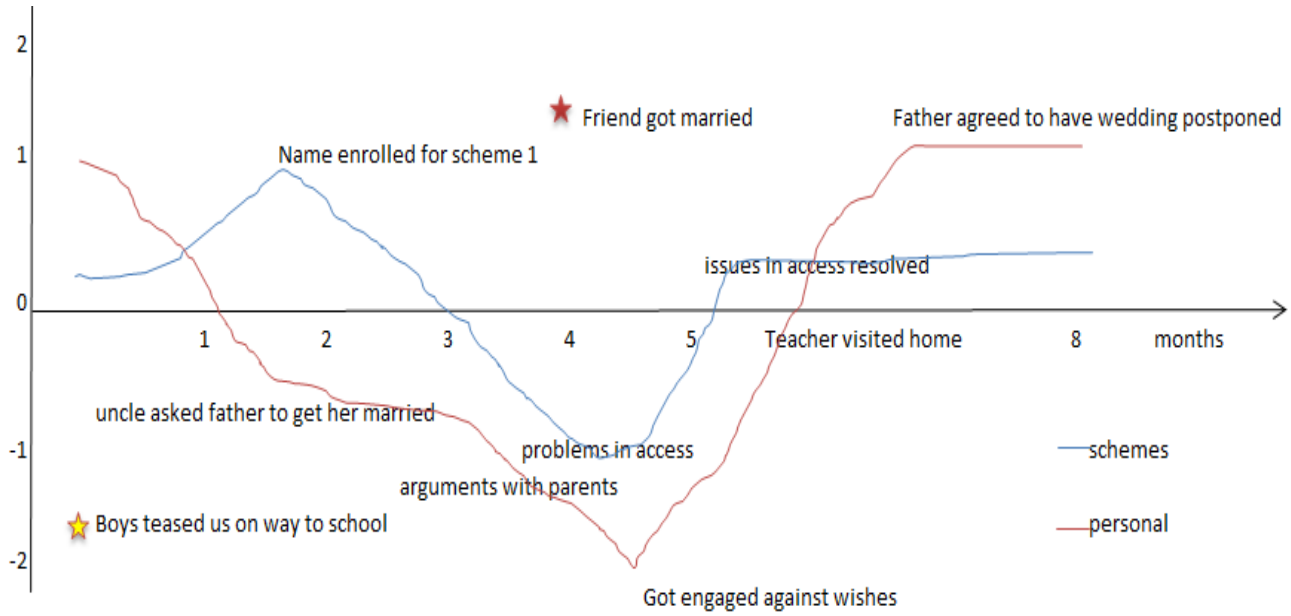
The lifeline case study approach provides an opportunity to gain meaningful insight into the lives of participants, and the impact that *Sabala* is having or has had upon their lives. During annual in-depth interviews the girls will engage in participatory lifeline mapping to explore events and experiences in the participants' life before and during the intervention period.

The specific objectives of the case studies are:

- To map changes in individuals and family contexts over time, providing detailed accounts of key events that affect the girls schooling
- To identify common problems faced by girls and how the intervention could (or could not) provide support
- Compare how girls in intervention areas overcome challenges differently from those in the control areas

Thirty girls enrolled in 8th standard at the start of the intervention will be selected and followed for a period of 3 years: 20 girls in the intervention area and 10 girls in control areas. Sampling will be purposive based on Devadasi background, academic performance, and/or socioeconomic status as reported in the baseline questionnaire. If routine tracking data indicates that the girl is at risk of dropout (eg. in case of impending marriage there is a possibility that she leaves the area) the next interviews will be brought forward. In order to gain sufficient in-depth understanding of what leads to dropout and could not be prevented during the Sabala intervention, extra respondents will be recruited purposively among girls who recently dropped out of school in the intervention area: 5 girls in the 2nd year and 5 girls in the 3rd year. This is required as dropout in 8th, 9th and 10th is estimated at about 6% each year.

The lifeline tool will consist of time marked in weeks and months on the x-axis and events, marked on the y-axis according to a five point scale indicating positive or negative perceptions of the event. Different colours and symbols will be used to represent the intervention, school attainment, government schemes such as financial incentives for staying in school, and personal experiences.



The lines will begin as and when the girl starts reporting an event, for example, when she starts availing schemes. Each of the lines can move to positive or negative on the y-axis depending on whether the girl perceives it as a positive or negative life event. Questions and triggers will be incorporated based on the short and medium term process indicators. The interviews will be guided by the topics participants wish to discuss and are expected to include sexual and reproductive changes, health issues including mental health, educational attainments or crises, schemes and services availed and personal issues. Emerging themes will be conceptualized and compared over time in an anonymous aggregate manner rather than case to case basis and be used to evaluate the progress of the intervention.

The first interview will be preceded by two introductory meetings: the first one will concentrate on explaining the study and getting written consent from the parent (or guardian) and the girl. The girl will then be invited for a second meeting in order to introduce and explain the lifeline tool in a playful way using mock examples of the life of a chicken or the tale of the Ramayana. This will allow rapport building in a non-threatening way and the interviewer may continue the process of assent by reiterating the issues around confidentiality and anonymity. For this and all subsequent meetings oral consent will be taken from the girl and parent. In all subsequent meetings, the interviewer will explore each lifeline in detail and why the girl perceives the event as positive or negative and how she describes her experiences. The lifelines will provide cues for the discussion. One sheet of paper will be used to record the lifeline for the year, although the lifeline will be constructed annually. The conversations will be recorded, transcribed by the interviewers and translated by the research assistant.

A more detailed guide to the life line case study can be found in the Appendix 3.

In-depth interviews

Semi-structured interviews with open–ended questions will be conducted in year one and four with adolescent girls (10 school going and 10 non school going), 10 families (either father/mother or guardian), 10 teachers, 20 adolescent boys (from the SC/ST community neighbourhood) and 20 community leaders/champions from the community. At the end of the project, policy makers at state-level (n=2), district (n=4) and sub-district level (n=11) will also be interviewed. All sample sizes

are assumed to be sufficient to reach saturation of new themes and findings. In case saturation has not been reached, numbers may be increased and new groups/ subgroups may be added based on the findings from the initial interviews.

In depth Interviews with adolescent girls and their parents, boys, teachers and SDMC members

The main groups of respondents will be adolescent girls and individuals associated with the identified girls including her parents and other family members, teachers/instructors of adolescents in school. Two categories of adolescent girls will be sampled for the study: (i) girls enrolled and attending school/college/educational institution including some admitted to 8th and someone who passed 10th, (ii) girls who are currently not enrolled and not attending any educational institution including some who dropped out recently and some who dropped out two years back. The parent or guardian may include mother, father or other guardian in case the adolescent lives with guardian. The boys included in the study will be from the same villages from the SC/ST neighbourhood where the adolescent girls are sampled, purposively selected based on school/college going status and geography (district).

Interviews will focus on prevailing norms on gender, education and marriages, reasons for schools drop out and in year four experiences and reflections on the Sabala intervention.

In-depth interviews with community leaders/ champions

'Champions' who will be identified and trained as a part of the intervention and natural leaders within the intervention community, including panchayat[20] members, caste based leaders etc, will be selected as participants for the study. They will be chosen in the early part of the intervention based on their influence in the general community, their interest in the issues of education of girls and early marriage, and their ability to speak on these issues. These are the individuals who will be involved in intervention strategies to create a supportive environment for dialogue and action on the education of girls and early marriage, and to improve the levels of awareness on these issues in the community.

These interviews will measure medium-term outcomes at the community level. The tool used for data collection will be a semi-structured interview guide. The leads and probes will be developed around the changes in the general community as perceived by the champions linked to the intervention activities. Intervention activities will include folk shows and street plays conducted in all intervention villages once a year incorporating issues around educating girls and the consequences of early marriage for girls, community events like rallies and campaigns conducted in association with the intervention on issues such as the rights of girls to education and the adverse effects of early marriage.

In-depth interviews with policymakers

'Policy makers' are state, district and sub district level officials of various Government departments who will be identified as part of the intervention. These officials will be selected for participation in the study during the course of the intervention based on their ability to change or influence policies at the state, district and sub-district level, on the education of girls and early marriage.

[20] The Panchayat is the smallest unit of government institution in India and usually serves one or two villages.

In the 4th year a total of 17 participants will be chosen from the list of policy makers identified at each level. The tool used for data collection will be a semi-structured interview guide. The leads and triggers will be developed around 1) knowledge on the goals, objectives, reach and strategies of the intervention; 2) the level of support in word and action from officials towards these intervention activities; 3) perceptions on applicability of intervention strategies for scale up; and 4) the description of any move by any government body to develop policies and guidelines based on this intervention model for scale.

Probe lists for all in-depth interviews are included in appendix 4

Intervention monitoring

A robust monitoring system will be used to monitor the activities at the school and community level as follows:

(i) An individual tracking system which tracks individual girls will be developed to monitor inputs, outputs and certain outcome level indicators. The project will facilitate schools to track the girls from marginalized communities during the project period to monitor school achievement and ensure efficient identification of drop-outs, so that the issues related to drop outs can be effectively addressed.

(ii) Within the communities, project activities such as linkages to the government schemes, school-to-community contact programs, support for tutorials/remedial classes etc. with adolescent girls and their families will be monitored.

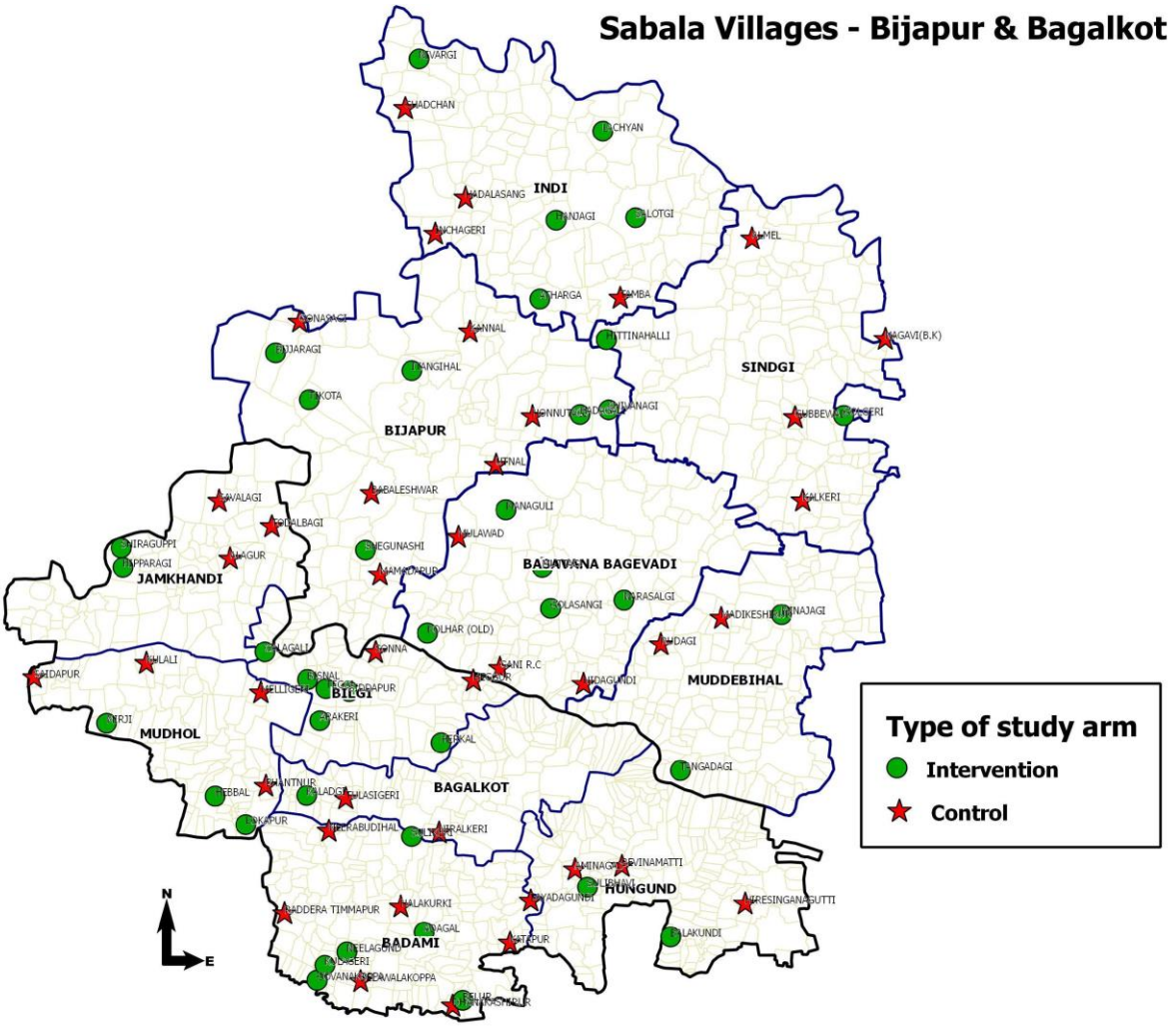


Figure 1: Allocation of clusters. A total of 80 villages, each randomly allocated into intervention and control arm. Figure 1 illustrates the distribution of control and intervention clusters in the selected districts.

Time period

The total study period will be 4 years: 9 months of start-up activities and baseline assessments, 30 months of intervention, and another 9 months of final assessments and analyses.

During the start-up period, the baseline data collection instruments and protocols will be developed and finalized, and the data collection teams will be recruited and trained. The following three months will be devoted to baseline data collection. The last 9 months of the project will be devoted to end line data collection (three months), analyses and reporting (six months), and dissemination of the findings to the local communities, to Indian policymakers, and to the international community. Interim analyses will be conducted on a semi-annual basis, and a final report submitted upon completion of the project.

The diagram below shows when key study activities will take place (greyed boxes).

Year		2013		2014				2015				2016				2017				2018	
Quarter		3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Quantitative Studies																					
Cohort-1: Intervention & Control site																					
1	Girls																				
2	Family members of girls																				
Cohort-2: Intervention & Control site																					
1	Girls																				
2	Family members of girls																				
3	Principals, teachers and SDMC members																				
Qualitative Studies																					
1	Case studies (1st cohorts of girls from intervention and control, 2nd and 3rd cohort drop-outs from intervention)																				
2	IDI with girls, families, teachers, boys (intervention)																				
3	IDI- Champions																				
4	IDI- Policymakers																				
Intervention in intervention clusters																					

Ethical issues

Interviews will be conducted in private settings in a sensitive and non-judgmental manner. Since some of the participants will be minors, we will seek both written informed consent from the girl's parent or legal guardian (if she is unmarried) and informed assent of the girls. We will seek independent informed consent from girls who are married and living with their husband.

Girls who are illiterate will be asked to assent in front of a literate witness of their choice (but not a parent or guardian). The girl will acknowledge her assent with a thumbprint and the witness will sign the document. The Kannada/English version of the consent/assent form will be given to the participants to read and also read out and explained before the beginning of the interviews. As part of the consenting/assenting procedure, participants will be assured that their participation is voluntary, and their decision to participate will not affect any benefits they receive from the school or the intervention. The consent and assent forms can be found in Appendix 5.

The main potential area of distress for girls relates to answering sensitive questions around sex, harassment or sexual coercion. To limit embarrassment and encourage disclosure, sensitive questions will be asked through an anonymous pen and paper questionnaire, administered at the end of the face to face interview. If girls cannot read, the interviewer will read the questions aloud and allow the girls to tick the appropriate box privately on the paper. After completing the sensitive questions, girls will fold the paper ballot and place it in a see-through bag with the answers from many other respondents.

The paper questionnaire asks about eve teasing, transactional sex, sex work and sexual coercion, but it does not collect information on who is responsible for harassing or sexually abusing the girl. Interviewers will be trained how to respond if the girl becomes upset while answering these questions or at any other time during the interview. All interviewers will carry with them contact numbers and addresses of the Santhwana Centres operated at the sub-district level under the State Department of Women and Child Development. Prior to the beginning of the field work, the study team will contact these Centres to brief them on the study and alert them that they may receive referrals of girls in need for support or counseling. Girls who become distressed will be offered referral to the closest centre, including transportation if necessary.

Anonymity will be maintained by using proxy names on interview transcripts and in any publication that quotes a participant. Consent for recording will be taken in advance from the girl and her family and also before each set of data collection.

Survey data will be anonymised and a unique participant identification number will be used to link survey rounds. The identity of the participants and the information shared by them will not be revealed to anyone who does not work in the research study. At no time will any of the information given by individual participants be shared with anyone outside the primary research team, except for MSc students at LSTHM who may assist with data analysis. All questionnaires will be stored in locked filing cabinets in the KHPT offices in Bangalore after the data has been computerised. The computer data will be password protected and only the statisticians working as part of the research teams will be authorized to open/use the data. Unique identifying numbers will be used to identify the questionnaires; no identifying names will be entered with the computer data. Paper copies of

the data will be kept for 5 years after completion of the end of the study before being shredded. Computer data will become publicly available two years after completion of the study.

The purpose of the study will be introduced to the adolescent and his/her family before seeking appointments for the initial interviews. The interviewee will be administered an informed consent (assent in case of adolescents) form before the interview for collecting written or witnessed consent/assent. As part of the consenting/assenting procedure, participants will be assured that their participation is voluntary, and their decision to participate will not affect any benefits they receive from the school or the intervention. The consent and assent forms can be found in Appendix 5.

As this study will take place in government schools, in order to get the necessary permissions and directives for the schools in the study villages, KHPT has successfully advocated with the Department of Education at the State Level. The State Commissioner for the Department of Education has agreed to the intervention study and written to the education administrators at the district level in the two study districts, instructing them to support the study. They in turn will issue guidance and directives to all government schools in their districts to support the study, which includes directing that all teachers in the intervention schools attend training as part of the intervention. These government directives will help overcome the effects of any change in school administration during the course of the intervention. The co-operation of the school administration, staff and the SDMC is also being sought during the planning phase of the intervention..

For the case studies, at the end of the each session the interviewer will summarise the events lifeline with the help of the girl. In the next set of interviews the previous lifelines could be looked at the end of the session.

The study has excluded certain schools considering various technical and logistical aspects. The private and unaided schools were excluded from the study in order to ensure maximum reach to the intended communities, given the project resource constraints, and because they may not be amenable to external interventions. For the same reason urban and residential schools and schools with less than 10 SC/ST adolescent girls were also excluded. In order to ensure equity to all schools enrolled in the trial, we are applying for funding to enable the school based interventions be provided in these schools at the end of the intervention period.

As described above, the intervention is being carefully designed in order to ensure that it does not cause any unintended harm and that the changes in the community and the schools are sustained beyond the intervention period. The design has been finalized after many rounds of discussions with stakeholders at different levels. The design has attempted to take into consideration the existing structures, the regulatory environment and the cultural practices, and after ensuring buy-in of the major stakeholders, including the government.

We consider that the current intervention evaluation merits using an RCT to effectively test the impact of the intervention as the intervention is novel and untested and we therefore do not know if it will be successful or not. The intervention attempts to address the structural drivers of HIV in the presence of multiple contextual factors and we feel there is sufficient equipoise about the impact to warrant an RCT design.

The target population of the intervention are the most marginalised communities in India, who are also the target population of other government led developmental work. We plan to document the effect of the intervention and the contextual changes in both arms to carefully look at the impacts.

Data entry and analysis

The quantitative survey data will be double entered and cleaned using CSPro.

Assessing baseline balance

Cluster randomized trials need to balance the design by having identical treatment group means for all variables to be included in the analysis. We expect that the trial will be largely balanced for the reasons that follow, and that any deviation from the balanced design will be assessed during the analysis stage. First, by virtue of its design, the trial has a relatively large number of clusters and individual respondents, which will likely help balance covariates across groups. Secondly, the design also accounted for the geographical unit where the school is located when randomizing the clusters in the trial. Third, as government schools, the schools included in the design are more or less of similar character. Although measures were taken to minimize imbalance, any remaining imbalances at baseline will be addressed as described below.

We will consider two criteria, first is the criterion of the variance of the treatment effect and the second is a criterion of assessing change in treatment effect as defined as the difference between the crude and adjusted treatment effect. We plan to analyze both the variance of the estimated treatment effect and the extent to which the estimated treatment effect changes by adjusting for covariates (Raab and Butcher, 2001)[21]. The approach that will be used in this trial is to assess the extent to which the adjustment of covariates will affect the estimated treatment effect. If the allocation of treatments to units is imbalanced, it is likely to produce a substantial difference between the unadjusted and adjusted estimates of the treatment effect. Using the following general expressions, which Raab and Butcher (2001) developed, this will be overcome as follows.

The estimate of the treatment effect, without any adjustment for covariates, becomes a difference in weighted cluster means of the outcome as;

$$y_{..2} - y_{..1} = \frac{\sum_{j:t=2} w_j y_{.j}}{\sum_{j:t=2} w_j} - \frac{\sum_{j:t=1} w_j y_{.j}}{\sum_{j:t=1} w_j}$$

where the weights are $w_j = s^2 m_j/(s^2 + t^2 m_j)$ and s^2 and t^2 are the estimates of between- and within-cluster variances as noted respectively τ^2 and σ^2, mj be the number of members in the jth cluster, y_{ij} be the outcome of i^{th} member of the j^{th} cluster and t be the different trial arms (intervention or control) as denoted by 1 or 2.

The variance of the estimated treatment effect can be estimated by

$$s^2 [1/(\sum_{j:t=1} w_j) + 1/ (\sum_{j:t=2} w_j)]$$

[21] Gillian M. Raab_;*y* and Izzy Butcher (2001), Balance in cluster randomized trials, Statistics In Medicine, Statist. Med. 2001; 20:351{365

The study will be estimating the change in treatment effect, when adjusted for the covariates using

$$\sum_{K=1,2.,,,p} \beta k \, (x_{k..2}-x_{k..1})$$

Where β k is the estimate of regression coefficient for predicting y from the k^{th} covariate and $x_{k..t}$ is the weighted mean of the cluster means for treatment t for the k^{th} covariate, with weights w_j as defined above and p the number of covariates.

Analysis of primary outcomes

At project completion, we will assess whether, at follow up, there are significant differences between the intervention and control girls in the key indicators of entering 8th standard, completing tenth standard, being married, having sexual debut and entering into sex work. In the course of the analysis we will present simple cluster summaries for the primary outcomes. We will perform statistical tests, using the t-statistic, to assess the significance of and differences observed between the arms.

The final analysis will assess whether the intervention and control schools, adolescent girls and their families significantly differ in terms of the intermediate and short-term outcomes. As recommended by Hayes and Moulton[22], given the large number of clusters and because of reasons related to statistical efficiency, individual-level regression methods will be used to test for significant differences in outcomes between intervention and control arms. For each outcome of interest (e.g., the proportion of girls married at the end of the study period, the proportion of girls passing to 10th Standard, etc.), multivariable logistic regression models using generalized estimating equations (GEE)[23,24] to address clustering at the school level will be estimated. Stata 11 will be used for all analyses. Similar methods will be used to compare short- and medium-term outcomes among SC/ST girls and their families between intervention and control arms.

Qualitative data analysis

The qualitative data will be transcribed and translated into English. Qualitative analysis packages (eg., NVivo9, ATLAS TI) will be used to identify key issues and themes emerging over time. These findings will be used along with the quantitative findings to understand the impact of the intervention.

Addressing confounding factors, selection bias, spill over effect and impact heterogeneity

The RCT design will reduce problems associated with confounding factors and selection bias, and there is sufficient geographic dispersion of the villages (Figure 1) to minimize spill-over effects. Further, the large sample size will help reduce the risk of missing a true effect. The comparability of the intervention and control samples will be assessed at baseline, and any differences controlled for in the final analysis. Impact heterogeneity will be addressed by examining the intensity of exposure to the intervention among the adolescent girls, their families, boys in the neighbourhood, and the associations between intensity of exposure and the outcomes of interest.

[22] Hayes RJ, Moulton LH. Cluster Randomized Trials. Boca Raton: Chapman & Hall; 2009.
[23] Liang KY, Zeger SL. Longitudinal analysis using generalized linear models. Biometrika 1986;73:12-22.
[24] Zeger SL, Liang KY. Longitudinal data analysis for discrete and continuous outcomes. Biometrika 1986;42:121-30

Potential biases (selection, interviewer and recall biases) will be assessed and addressed in the trial as follows:

Selection bias will be largely addressed as a result of the careful process of randomization and selection of subjects. There are chances of selective loss to follow-up which can lead to a bias in the cohort. This is planned to be addressed with negative case analyses to look into reasons for dropout and triangulation of qualitative and quantitative data. The self-selection bias with those adolescent girls and families likely to drop out or refusing to participate is planned to be countered by the trust created by a careful informed consent process.

Interviewer biases will be addressed to a large extent by rigorous training of the research investigators. The training will include both class room sessions and field practices and will help ensure uniform understanding among all the interviewers and limit variations between interviewers as far as their understanding of questions, questioning and recording of questions and responses are concerned. Further, the interviewers will be masked of the study arms to avoid any biases. Biases might also occur on responses of sensitive indicators of sexual behaviours and experiences of harassments/violence, which largely will be addressed by introducing a self-complete questionnaire, linked to the rest of the questionnaire by a serial number, where the respondent will answer the questions using a pen and drop the completed questionnaire into a sealed box. This method has proven effective when administering sensitive questions on sexual behaviours, violence etc. in previous KHPT studies.

Recall biases are expected in some questions in the survey related to age of menarche, frequency of home visits, parents meetings etc and these will be adjusted after piloting. Recall biases will be addressed by the careful design of questionnaires, building a very good rapport with the respondents and motivating the respondents to correctly recall the responses, which plays critical roles and are under the control of investigators. The training would address these aspects to minimize recall biases, if any. The recall issues in case studies are addressed as the lifelines will be used as cues to recall events. Further, the monitoring system under the intervention would be collecting critical services provided as well outputs and key outcomes, which will be used to verify any recall biases that might exist.

The other biases, which might occur, will be as a result of transfers of girls from out of the study arms in which they are enrolled. The possible transfers includes, transfer of a girl from an intervention to a control and vice-versa and transfer from study arms to other schools out of study arm area, within or outside district. In the second scenario of transfers from study arm (intervention/control) to a school outside the trial, the monitoring system under the intervention will track the movement and will retain them in their respective study arms. It may be mentioned here that we do not expect such transfers of girls, particularly from an intervention to control or vice-versa as the schools in both these arms are government schools and characteristics remains more or less same.

Process evaluation analysis

The monitoring system will include individual tracking of adolescent girls and their families with unique identifiers by schools as part of the intervention. Along with recording all the services provided to each participant, it will also monitor school attendance, drop out, marriage, academic

scores etc, as well as mobility of each participant either as a result of migration, marriage, sex work etc.

While the monitoring system will track all the participants in the intervention arms on specific input, output and certain outcome indicators, in the control arms, the monitoring system will be limited to tracking only a few outcome indicators (e.g. school drop-out; marriage). This decision was taken so as not to influence the outcomes in the control arm through the effect of direct observation and data collection.

In the intervention arm, the monitoring data will be analysed and used to understand school attendance, drop-out rates, the proportion of girls marrying and the quality of education (academic scores), which again will be compared with the cohort survey data to triangulate the outcomes of interest. There will be a unique identifier in the monitoring system to flag all the survey participants so that the monitoring data pertaining to survey participants are compared with the survey findings.

In the control arm, we will be visiting each cohort member every 6 months, with the particular aim to validate their availability in the villages, so as to minimise the loss to follow up in the endline survey. The girls might have migrated as a result of family migration, marriage etc and information regarding the location of migration will be recorded and kept so that the interviewers can go to their new location to administer the questionnaire at the endline survey.

Appendix 1. *Sabala Project Implementation Design.*

See separate PDF document.

Appendix 2. *Quantitative baseline behavioural questionnaires.*

See separate documents: Girls questionnaire, Families questionnaire, Schools questionnaire.

Appendix 3. *Interviewer's Guide for Lifeline studies*

Interviewer's Guide for Lifeline

The following is a guide to be used for the case studies using lifeline methods in the *Sabala* (Adolescent girl) programme which Karnataka Health Promotion Trust is implementing as a part of the STRIVE project to support adolescent girls from marginalised communities in northern Karnataka.

The lifeline case study approach provides an opportunity to gain meaningful insight into the lives of participants, and the impact that Sabala is having or has had upon their lives. During annual in-depth interviews you will engage with selected adolescent girls in participatory lifeline mapping to explore events and experiences in her life before and during the intervention period.

Process

1st meeting

The first part of the data collection interview will be introduction to the study and the informed consent procedure. Written consent will be obtained from both the parent (or guardian in case the parent is not available) and the girl. The girl will then be invited to a practice session.

2nd meeting

This will essentially be a training session for the girl to familiarise her with the research technique and the lifeline tool. Mock sessions with the lifelines can be done using examples like a universally known story like the Ramayana or the life of a chicken in their village. The interviewer will continue with imaginary situations until she is convinced that the girl has understood the concept. This can be the forum to provide assurance about confidentiality, anonymity and of being non-judgmental.

The consent for her first life line interview can be taken deciding on a comfortable venue and date.

Introduction to the lifelines

We will be drawing the events and experiences that happen in an individual's life during a period of time with the help of a graph. We list down events according to how people feel about them. Events that make you feel good and happy we will mark in the region above the horizontal line and those you don't feel so good about, below the horizontal line.

I will show you a sample graph here to you. (Show the graph) Have you used these kinds of graphs at school? This graph is about the life of (Sri Rama) in his lifetime. (Explain sample graph). As you can see in this example each person can have different facets of their life and positive or negative events may happen in it across a period of time. Your feelings about the event can range from feeling really terrible or sad about it, in which case we place it at -2, to not feeling good or just sad, in which case it will be somewhat above at -1. You may chose to place events at any place in between. Similarly for events which make you happy. Events that are neither happy nor sad can be place on the line. We can at the end draw lines to connect these dots.

Let us do a practical session about the life of your dog or your chicken. Let us do one example graph and then you can draw on your own. We can use pens of different colours for making out four different sets of events. (Go through a practical discussion of the lifelines created)

Next time we meet we will do a similar exercise representing events in your own life using four colours. I can tell you now how this will work but not to worry – we will do this together next time. We will try to make four different lines using these.

- One line for school in red and for events at school including test marks, assignments, school atmosphere, teasing, ragging, teacher scolding or praising etc.
- One for how you feel about yourself in green in the family atmosphere like happy events in family, praise from parents, visits by relatives and when something good or bad for you life is discussed.
- The third line in blue will denote the schemes that you get from the government through the school with up and downs depicting receipt or completion or difficulties.
- We will also put other important events which are not linked to the lines marked with stars or dots or the stickers here (which one do you like?) anywhere here again according to how you feel about it: positive or negative. These can be anything you like to add marriage or betrothal of close friends, social/cultural event, etc.

(You could give them a sample sheet if they want it, but would let her draw it again in your presence)

When is the most convenient time for the next meeting?

Where do we meet?

(Suggest the place as discussed during the initial meeting involving the parents)

3rd and subsequent meetings

The main interview will be conducted in the place and time suggested by the participant. The mapping will be done by the interviewer and the girl together in a participatory manner with the interviewer marking the events on the paper as indicated by the girl herself and not

directed by the interviewer.

The interviewer will try to explore each lifeline in detail and why the girl perceives the event as positive or negative and how she describes these events. The lifelines will provide cues for the discussion. The conversations will be recorded and transcribed by the interviewers.

- Different lines will be marked different coloured pens to avoid confusion. One sheet of paper will be used to record the lifeline for the year, although the lifeline will be constructed semi annually. The school outcomes line in red can include performance in internal tests, school atmosphere, events of teasing, positive or negative feedback/issues with teachers, etc.
- The schemes line in green may include availing schemes with up and downs depicting receipt or completion or difficulties.
- The family support line in blue may include positive vents like appreciation of parents on performance, pressures from extended family on getting her engaged or married.
- There can also be independent events marked with a star or circle in the positive or negative quadrant along the line depicting events that are not directly linked to lifelines but may be perceived as important event by the girl in her life. This may include marriage or betrothal of close friends, social/cultural event, etc.

Consent for recording will be taken in advance from the girl and her family and also before each set of data collection. At the end of the second session the interviewer will summarise the events lifeline with the help of the girl. In the next set of interviews the previous lifelines could be looked at the end of the session.

Developing the lifelines

We will use the technique we discussed last time to think and discuss about your life.

Step 1: Review of lifeline drawn

Have you tried to draw your lifeline as I suggested last time? (If yes skip to step 3. Review with participant and if satisfied move to next step. If not complete then go to step 2. If not drawn, go to step 2.)

Step 2: Listing and drawing

What we will do is list down events according to how you feel about them. Events you feel good and happy about, we will mark in the region above the horizontal line and those you don't feel so good about below the line. Your feelings about the event can range from feeling really terrible or sad about it, in which case we place it at -2, to not feeling good or just sad, in which case it will be somewhat above at -1. You may chose to place events at

any place in between. Similarly for events which make you happy. Events that are neither happy nor sad can be place on the line.

Do you want to mark events yourself? Or would you be interested in pointing out and instructing me to draw? I will show you a sample graph here to you. (Show and explain sample graph)

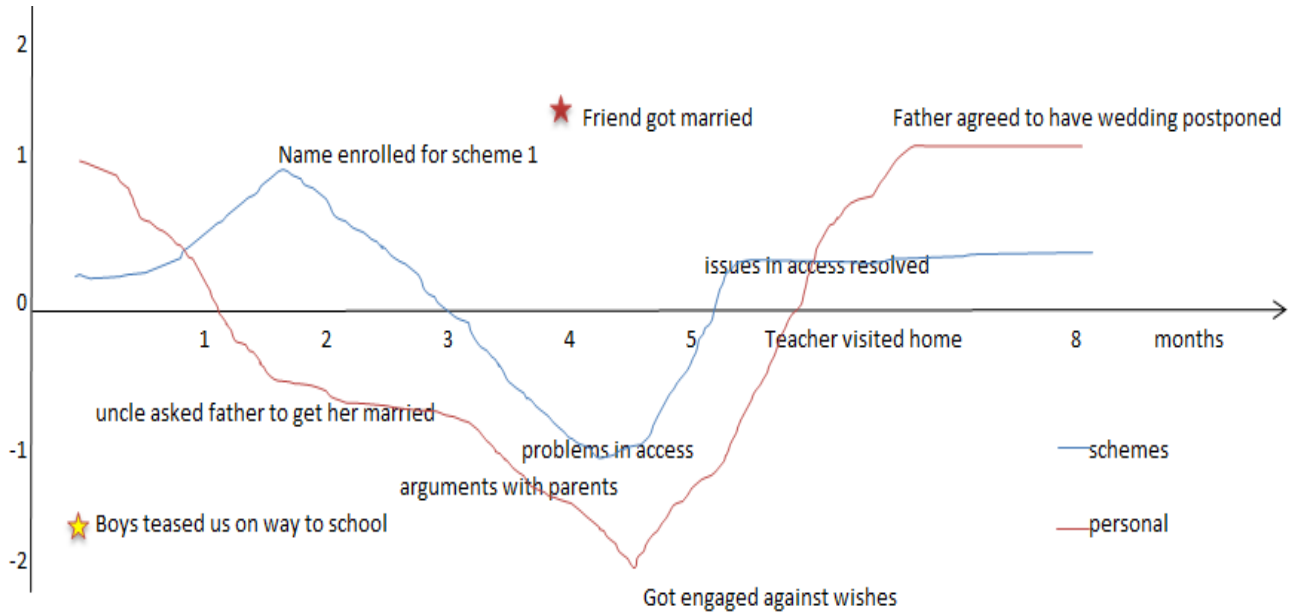
I have pens with four different colours here for making out four different sets of events in your life. We will try to make four different lines using these.

Step 3: Detailing out

We will now go through all the events that you have marked on the lifeline one by one.

Could you tell be why you have marked _____ event here? (pointing out each line and event one after the other)

How did this event affect you? Could you describe your experiences in detail? What are the changes that have happened since the last time we met? (from second meeting onwards)



Step 4: Looking at the future

We will also look at your hopes for the future few months and future years. We can put your hopes for near future in dotted lines on the graph and discuss your progress when we meet next.

Could you tell me where you would wish this line should be moving next? (pointing out to one line after the other)

Step 5: Review

Are you happy with the way your lifeline is looking now? Are there any changes that you would like to make, especially based on what you have spoken in the interview?

Step 6: Reviewing previous lifeline

(For the second interview onwards)

Let us now look at the lifeline you drew last time to see how your life has changed in these months.

(Here the interviewer can look at the key moments and probe for things like “Oh, your sister was having a baby, how is that?” or try to get the changes she perceives in her own words with- “Wow, look how your life has changed in these months.”)

Debrief

Is there anything that you would like to add to the lifeline or any other detail that you would like to speak about?

If you think of anything later that you want to change, or want to add we can do that. You have my phone number and you can feel free to call me and we will talk about the changes you want to make. I will show you the changes when I come to see you again in a few months.

Appendix 4. *Guides for In-depth Interviews*

Tools for data collection: Guides for in-depth Interviews

General information:

Identification #:

Interview location:

Name of Interviewer:

Date:

Start time:

End time:

Interview 1: Questions for In- school Adolescent girls (In-depth Interviews)

Participant: Adolescent girl currently attending school

Approximate time required: 1 hour

Introductory questions:

What is your name?

How old are you?

What is your caste or tribe?

What is the highest level of education you completed?

Are you engaged/married?

Who is the head of your family?

How many siblings do you have? Sex, and age?

Main questions:

Decision making

Increasingly girls are able to stay at school, but sometimes girls have to leave. Could you please tell me a bit about what happens in your family? Who is involved in making major decisions about your life, such as whether you stay at school, or get married? Probe: explore role of men and women in the family in decision making.

Education

Many girls in your community do not get a chance to go beyond class 7, how did you stay on to study beyond class 7th? Probe: Motivations and barriers.

Is there any form of help that would enable you to stay in school for longer?

Do you know of the government schemes in your school? Do you think that the ones you availed help you stay in school?

Do girls in your community seek higher education – up to 12th, college? What happens if girls get higher education up to 12th or college? What happens when girls do not get higher education or drop out from school?

Do you believe girls should be encouraged to get higher education? Up to 12th, Up to college or above? Do you believe boys should be encouraged to get higher education?

Do you think others in the community believe girls should be encouraged to get higher education? Probe: Who are these important people? Do you think others in the community believe boys should be encouraged to get higher education?

Do you know about the laws/ policies supporting girl child education?

Marriage

Do girls in your community get married early? Who are the people in the community (or family) who take decision on a girl's marriage?

What do you think is the right age for a girl to get married? Probe: Why do you think so? What is the earliest age you would want to get married? Do you believe others in the community expect girls to get married early? Probes: What happens to girls who do not get married early in your community? What happens to girls who get married early in your community?

Sex work

Do girls in your community drop out of school because they get dedicated to Devadasi (muttu ceremony)? Do you know what circumstances made them into a Devadasi's?

Do you believe that girls should be dedicated to Devadasi tradition and drop out of school early?

Do you believe others in the community expect girls to be dedicated to the Devadasi tradition and drop out of school? What do you think will happen if the girl is not dedicated

Entry into workforce

What do you want to become when you grow up? Probe: Do you want to work or be at home? What kind of work do you think you will like to do? What support do you need to fulfill this dream of yours?

Will your family be happy with your choice of work? Probe: what does your father, mother, brother, uncle, grandparent want you to do when you grow up?

How common is it for a girl of your age to be working? Sub questions: Are they your friends? What do you think will be the kind of work that these girls might get into at their age?

Wrap up questions:

Many thanks for all of your help. Is there any other information about you that you think would be useful for me to know? For example, on girls education, marriage or work?

Do you have any suggestions or recommendations to the AG program so as to reach more AG?

Interview 2: Questions for out-of-school Adolescent girls (In-depth Interviews)

Participant: Adolescent girl currently not attending school

Approximate time required: 1 hour

Introductory questions:

What is your name?

How old are you?

What is your caste or tribe?

What is the highest level of education you completed?

Are you engaged/married?

Who is the head of your family?

How many siblings do you have? Sex, and age?

Main questions:

Decision making

Increasingly girls are able to stay at school, but sometimes girls have to leave. Could you please tell me a bit about what happens in your family? Who is involved in making major decisions about your life, such as whether you stay at school, or get married? Probe: explore role of men and women in the family in decision making.

Why did you leave school? Can you please tell me what happened?

Probes: support at school? Home/ resources? Commute?

In the end, who had most influence over this decision?

Education

Thinking back, do you think it was/is right time for you to leave school? Probe: Is there any form of help that would have helped you to stay in school for longer?

Are you aware of government schemes in your school? Did you avail these schemes? Do you think these schemes are attractive/ would have helped you stay in school?

Have you ever considered going back to school? What would help you to go back to school?

Have most of your friends of your age stayed in school, or left? Why do you think this is? Are these girls married?

How has your situation changed, now that you have left school? How do you usually spend your day?

Do girls in your community seek higher education – up to 12th, college? What happens if girls get higher education up to 12th or college? What happens when girls do not get higher education or drop out from school?

Do you believe girls should be encouraged to get higher education? Up to 12th, Up to college or above? Do you believe boys should be encouraged to get higher education?

Do you think others in the community believe girls should be encouraged to get higher education? Probe: Who are these important people? Do you think others in the community believe boys should be encouraged to get higher education?

Do you know about the laws/ policies supporting girl child education?

Marriage

Do girls in your community get married early? Who are the people in the community (or family) who take decision on a girl's marriage?

What do you think is the right age for a girl to get married? Probe: Why do you think so? What is the earliest age you would want to get married? Do you believe others in the community expect girls to get married early? Probes: What happens to girls who do not get married early in your community? What happens to girls who get married early in your community?

Sex work

Do girls in your community drop out of school because they get dedicated to Devadasi (muttu ceremony)? Do you know what circumstances made them into a Devadasi's?

Do you believe that girls should be dedicated to Devadasi tradition and drop out of school early?

Do you believe others in the community expect girls to be dedicated to the Devadasi tradition and drop out of school? What do you think will happen if the girl is not dedicated

Entry into workforce

What do you want to become when you grow up? Probe: Do you want to work or be at home? What kind of work do you think you will like to do? What support do you need to fulfill this dream of yours?

Will your family be happy with your choice of work? Probe: what does your father, mother, brother, uncle, grandparent want you to do when you grow up?

How common is it for a girl of your age to be working? Sub questions: Are they your friends? What do you think will be the kind of work that these girls might get into at their age?

Wrap up questions:

Many thanks for all of your help. Is there any other information about you that you think would be useful for me to know? For example, on girls education, marriage or work?

Do you have any suggestions or recommendations to the AG program so as to reach more AG?

Interview 3: Questions for parents/guardians of adolescent girls (In-depth Interviews)

Participant: Parents/guardians, either or both together, of adolescent girls

Approximate time required: 1 hour

Introductory questions:

What is your name?

How are you related to the girl (if not her parents)

How many boys and how many girls do you have?

How old are they?

What is your caste or tribe?

Can you read and/or write?

What is the highest level of education you completed?

Main questions:

Decision-making

In your home, who is involved in making major decisions about things like education and marriage for your children?

How many of your children are of school age? Have you faced any problems in keeping them in school? Have you been able to overcome any of the barriers/challenges?

Are the problems the same for your boys and your girls? Probe: How do you try to resolve these?

Education

What do you think are the main concerns in continuing education for adolescent girls in your locality? Have you had or seen any such experiences that you may want to share with us?

What are other problems girls of your daughter's age have that may affect their studies? (Maybe like health, alcoholism, and lack of entertainment areas etc)

Do you know of any government education schemes in the schools? Does your daughter avail these? Do you think these schemes are any good in keeping girls in school?

Do girls in your community seek higher education – up to 12^{th}, college? What happens if girls get higher education up to 12^{th} or college? What happens when girls do not get higher education or drop out from school?

Do you believe girls should be encouraged to get higher education? Up to 12th, Up to college or above? Do you believe boys should be encouraged to get higher education?

Do you think others in the community believe girls should be encouraged to get higher education? Probe: Who are these important people? Do you think others in the community believe boys should be encouraged to get higher education?

Do you know about the laws/ policies supporting girl child education?

Do you think your daughter should study till that age? Why do you think so? How would you feel if your daughter wished to study till college? What do you think your family and community will think?

Marriage

Do girls in your community get married early? Who are the people in the community (or family) who take decision on a girl's marriage?

What do you think is the right age for a girl to get married? Probe: Why do you think so? At what age will you want your daughters to be married?

Do you believe others in the community expect girls to get married early? Probes: What happens to girls who do not get married early in your community? What happens to girls who get married early in your community?

Sex work

Do girls in your community drop out of school because they get dedicated to Devadasi (muttu ceremony)? Do you know what circumstances made them into a Devadasi's?

Do you believe that girls should be dedicated to Devadasi tradition and drop out of school early?

Do you believe others in the community expect girls to be dedicated to the Devadasi tradition and drop out of school? What do you think will happen if the girl is not dedicated

Entry into workforce

What do you want your daughter to do when she grows up? Probe: Do you want her to work or be at home? What kind of work do you think she will like to do? What support do you need to fulfill this dream of hers?

Will your family be happy with your choice of work? Probe: what does your father, mother, brother, uncle, grandparent want you to do when you grow up?

How common is it for a girl of your daughter's age to be working? Sub questions: What do you think will be the kind of work that these girls might get into at their age?

Wrap up questions:

Many thanks for all of your help. Is there any other information about you that you think would be useful for me to know?

Do you have any suggestions or recommendations to the AG program so as to reach more AG?

Interview 4: Questions for teachers (In-depth Interviews)

Participant: School teachers of adolescent girls or girls and boys

Approximate time required: 1 hour

Introductory questions:

What is your name?

Where do you teach?

How old are the kids that you teach? How many girls/boys are in your class?

What subjects do you teach?

Have you been given any training for life skills education or gender sensitization?

Main questions:

Decision-making

Thinking about children in your school, who is it who makes the decisions about whether girls or boys stay or continue in school?

Do you think girls have a say on whether or not they stay in school, or the age they get married at?

Education

What do you see as being the main factors that lead to girls leaving school early? Probe: problems in school? Family problems?

Is the situation very different for girls, than for boys? Probes: support at school? finances/ resources? Tuitions? Eve-teasing? Distance? Commute?

Probe: Can you please give me an example?

Are other problems that girls in your school area have that may affect the education of these girls? (maybe like health, alcoholism, and lack of entertainment areas etc) (Sub question: Why/Why not?

How does your school try to overcome the challenges? Probe: Can you please give me an example?

Do you know of any government education schemes in the schools? Do you think these schemes are any good in keeping girls in school?

Do you have any suggestions about how girls could be helped to stay on in school?

Do girls in your community seek higher education – upto 12th, college? What happens if girls get higher education up to 12th or college? What happens when girls do not get higher education or drop out from school?

Do you believe girls should be encouraged to get higher education? Upto 12th, Upto college or above? Do you believe boys should be encouraged to get higher education?

Do you think others in the community believe girls should be encouraged to get higher education? Probe: Who are these important people? Do you think others in the community believe boys should be encouraged to get higher education?

Do you know about the laws/ policies supporting girl child education?

Marriage

Do girls in your community get married early? Who are the people in the community (or family) who take decision on a girls marriage?

What do you think is the right age for a girl to get married? Probe: Why do you think so? Do you believe others in the community expect girls to get married early? Probes: What happens to girls who do not get married early in your community? What happens to girls who get married early in your community?

Sex work

Do girls in your community drop out of school because they get dedicated to devadasi (muttu ceremony)? Do you know what circumstances made them into a Devadasi's?

Do you believe that girls should be dedicated to Devadasi tradition and drop out of school early?

Do you believe others in the community expect girls to be dedicated to the devadasi tradition and drop out of school? What do you think will happen if the girl is not dedicated?

Entry into workforce

What do you want your girl students to do when they grow up? Probe: What kind of work do you think they will do and are able to do?

Do you speak to them about this?

When do you think your girl or boy should start working? Sub questions: Do you know children that are working? What works do they do? What do you think will be the kind of work that these girls might get into at their age?

Wrap up questions:

Many thanks for all of your help. Is there anything else that you would like to add? Any particular opinions on leaving education? Marriage or working?

Do you have any suggestions or recommendations to the AG program so as to reach more AG?

Interview 5: *Questions for Adolescent boys*

Participant: Adolescent boys currently residing in the intervention villages

Introductory questions:

What is your name?

How old are you?

What is your caste or tribe?

What is the highest level of education you completed?

Are you engaged/married?

Who is the head of your family?

How many siblings do you have? Sex, and age?

Main questions:

Decision making

Thinking about adolescent girls and boys in your locality, who is it who makes the decisions about whether girls or boys stay or continue in school?

Do you think girls have a say on whether or not they stay in school, or the age they get married at? How does it happen in your family?

What about boys? Do they have a say about staying in school? When and whom to marry?

If different from girls, how do you explain this (why do you think this is?)

Do you think boys/girls should be involved in decision making?

Education

Many girls in your community do not get a chance to go beyond class 7 (while more boys do), what do you think will be the reasons for this? Probe: Motivations and barriers.

Is the situation very different for girls than for boys? Can you please give some examples? (If nothing forthcoming) Probe: support at school? finance/ resources/ tuition/ distance of commuting?

Do girls in your community seek higher education – up to 12th, college? Do you know any? How are they different from girls who do not continue or drop out from school?

Do you believe girls should be encouraged to get higher education? Up to 12th, Up to college or above? Do you believe boys should be encouraged to get higher education? Explain a little more

Who in the community (and family?) would encourage higher education for boys/girls? Who in the community/family would want to oppose this?

What would change for boys if more girls would go for higher education (or when girls are treated in the same ways as boys in terms of education)? Anything positive? Any negative consequences for boys?

What level of education do you think you will attain? (Up to 12th? College? Who will decide? Will you have a say in that)

What level of education do you think your sister (cousin sister) will achieve? Up to 12th? College? Who will be involved in deciding this?

Do you know girls in your community who drop out of school because they get dedicated to Devadasi (muttu ceremony)? How were they different from other girls? Do you know what circumstances made them into a Devadasi's?

Have you heard about any laws/ policies supporting girl child education?

Marriage

At what age do girls in your community get married? What do you think is the right age for a girl to get married? Why do you think so?

Do you believe others in the community expect girls to get married early (before18)? Probes: What happens to girls who do not get married early in your community? What happens to girls who get married early in your community?

Thinking about your future and when you will get married. Would you like your future wife to be educated? upto 12th? College? Tell me why you think this?

Support

I would like to understand how boys and girls in your locality relate. Are boys supportive of girls? Do you think boys can support girls? How can they do that?

What do you see your role is as a brother? (consider sisters, if no sisters, ask about cousin sisters). Can you think of a situation where they needed your support? What was it? What did you do?

Do you you feel a duty to 'protect' your sister? Would they support them not to get married?

In your locality, do boys tease girls? Which girls in particular?

Will boys tease their sisters and cousin sisters? Will boys tolerate their sisters being teased by other boys? Can you tell me about yourself and your sisters? Can you protect her in any way not to be teased? How? What would you do?

Entry into workforce

When do you think a girl or boy should start working (for money)? Sub questions: Do you know adolescent boys or girls that are working? What kind of work do they do? What do you think will be the kind of work that these girls might get into at their age?

Appendix 5. *Consent and Assent forms*