

# SAMATA ENDLINE EVALUATION:

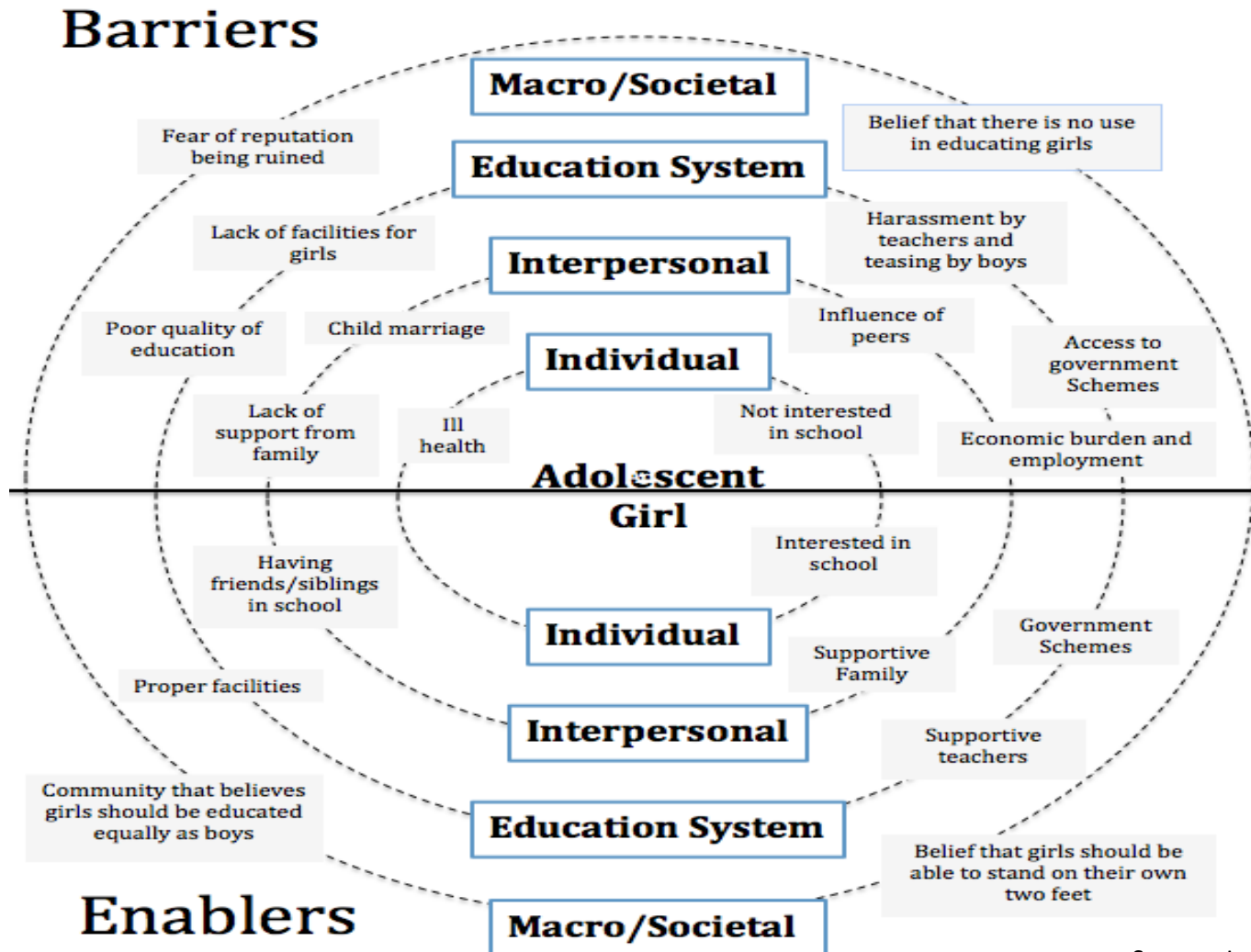
Key Findings on Primary and Secondary Outcomes  
April 17, 2018, STRIVE Learning Lab



- Project SAMATA, implemented in Bagalkot and Bijapur districts of Karnataka, south India
- Predominantly rural districts, agriculture based economy, ranked 'C' category in development indicators
- Higher SC/ST population; 68% of SC/ST population in Bagalkot and 75% in Bijapur have low standard of living
- Secondary school drop out rates of girls exceed the state average
  - 14% in Bijapur & 8% in Bagalkot vs. 6% (DISE, 2014-15)
- Relatively higher dropout rates while transitioning from last year of primary to first year of secondary education
  - About 7% drop out rate among SC/ ST girls compared to 6% in other girls



## Barriers and Enablers to Girls' Education



## OVERALL GOAL

Improve the quality of life of adolescent girls from vulnerable and marginalized communities in Bijapur and Bagalkot districts of north Karnataka, by supporting entry into and retention of adolescent girls in secondary education, and by delaying age at marriage and entry into sex work



## About Samata

**Project Period:** 2013 to 2017

Implemented by KHPT in Bijapur and Bagalkot districts  
(rural areas with high proportion of SC/ST population)

- 3600 adolescent SC/ST girls,
- 1800 families in 119 villages, and
- 190 schools (69 HS & 121 HPS)

### Theory of Change

Project Samata proposes that:

- **reducing negative gender norms** in adolescent girls and boys
- **building girls' sense** of agency, confidence, self-esteem, voice, leadership, decision-making;
- **improving** girls' academic performance in school;
- **developing appreciation** of the value of girls' education within their families;
- **reducing families' economic dependence** on girls' labour within the home and outside; and
- **strengthening their schools' capacities** to be responsive to girls' needs and supportive of their success

will in combination reduce the drop-out of girls from school and delay their marriage.



## Intervention strategies

### GIRLS

- Facilitate access to scholarship and schemes
- Group reflection sessions (Parivartan Plus)
- Tuition classes
- Career counseling
- Leadership training
- Creation of public spaces
- Formation of Community Advisory Board

### BOYS

- Mentors training
- Reflection groups with sports (Parivartan)
- Tournaments
- Boys Champions
- Forums for interaction with girls

### FAMILIES/COMMUNITIES

- Family outreach
- Linkage to social entitlements
- Parents meeting
- Discussion forums



### SCHOOLS/SDMC

- Gender sensitization training
- School Development and Management Committee members training
- Gender Sensitive school plan
- Tracking girls through use of tool
- Safety committee

## Evaluation design and outcomes

A clustered randomized controlled trial (RCT) using village as unit of randomization, to estimate the intervention effect by adopting mixed method approach

### Primary outcomes

1. Proportion of girls who complete secondary school [sit 10th standard exam]
2. Proportion of girls who are married [by Trial end line]

### Secondary outcomes

1. Proportion of girls who enter into 8th standard [start secondary school]
2. Proportion of girls who pass 10th standard [pass 10th standard exam]
3. Proportion of girls who have sexual debut [by Trial end line]
4. Proportion of girls married and co-habiting with husband [by Trial end line]

## Power calculation at baseline

- Refusal and loss to follow-up are expected to be low, approximately 5-10%
- The between cluster variation in the outcomes is not known. Therefore, we reported sample sizes for 0.15, 0.2, and 0.25.
- Drop-out between 7th and 8th: We calculate cluster numbers for a range of drop-out proportions, from 9% (the State level drop-out proportion among SC/ST girls) to 17% (the dropout rate among all girls in Bijapur district).
- Drop-out by 10th: 30-40% of girls will have dropped out before standard 10



## Power calculation at baseline (continued...)

### Proportion married by age 15:

- DLHS-2007-08, 21% of women aged 18–25 married before the age of 15 years.
- 26% SC/ST women vs. 19.3% others.
- Therefore the proportion is likely to be around 25%.

### Proportion sexual debut by age 15 years:

- FSW IBBA surveys in Belgaum district - 45% report first sex before 15.
- 26% of SC/ST women married before the age of 15 years.
- Polling Booth Surveys (2011) conducted in rural areas of these districts in 2011 found that 8% of unmarried females (15–24 years) had ever had sex, and 5.3% of married females (15–24 years) had sex before marriage in Bijapur district.
- **Therefore the proportion is likely to be >30%.**

## Analytical approach

- Understanding imbalances between socio-demographic characteristics and outcomes across the arms at baseline and presented as individual and cluster level summaries
- Cluster-level summaries (mean of the cluster-level means) by Trial arm for each primary and secondary outcome within endline data
- Multi-level logistic model with random effects adjusted for confounders using the individual-level data in the following way:
  - Outcome variables adjusted for at a cluster level using mean baseline summaries; other variables that strongly predict outcome adjusted at individual level using endline data
  - Sub-analysis at the district-level
  - A sensitivity analysis conducted for the selected outcomes on education and marriage including girls not interviewed at endline

# KEY FINDINGS

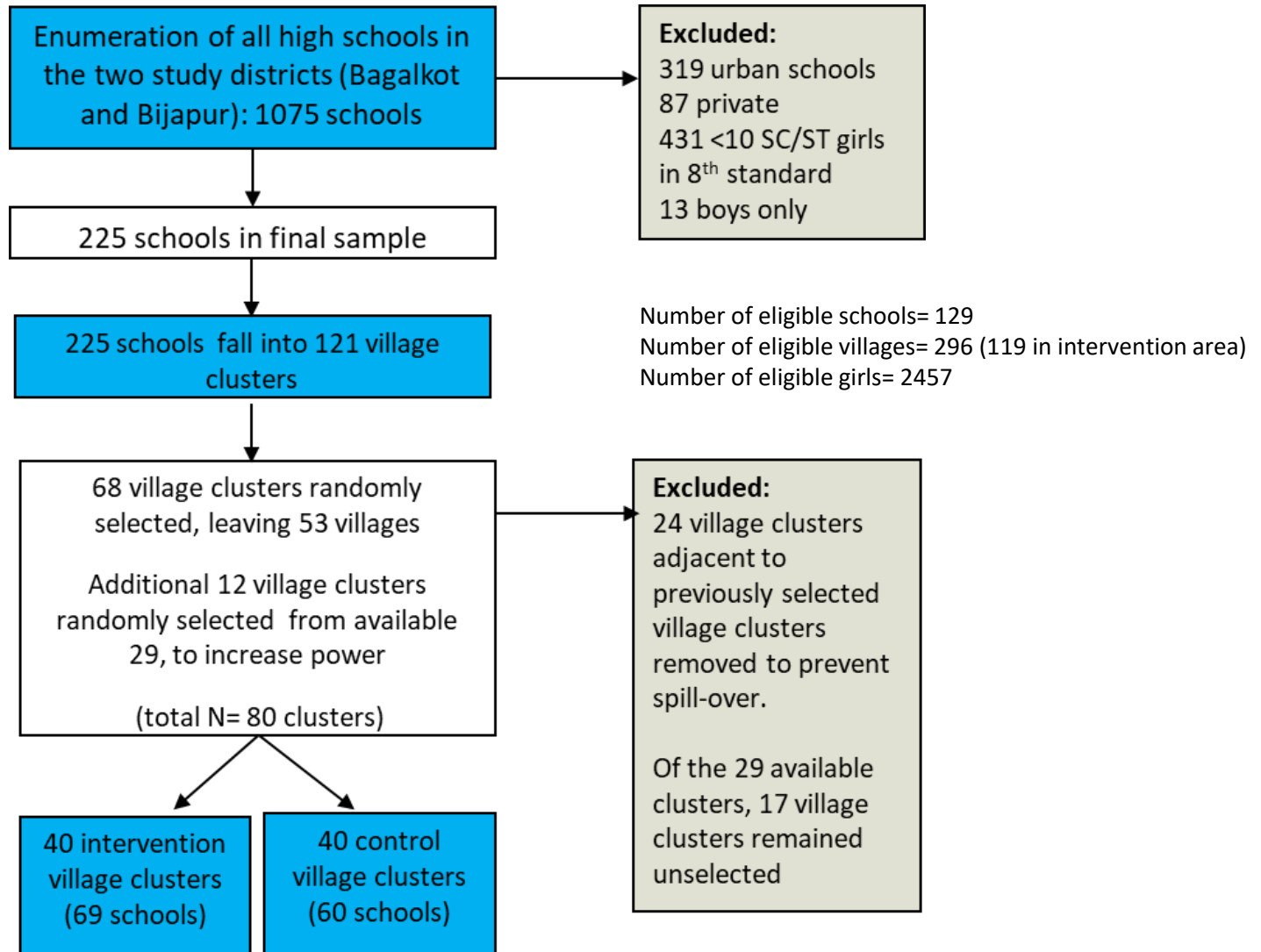


## Trial timeline

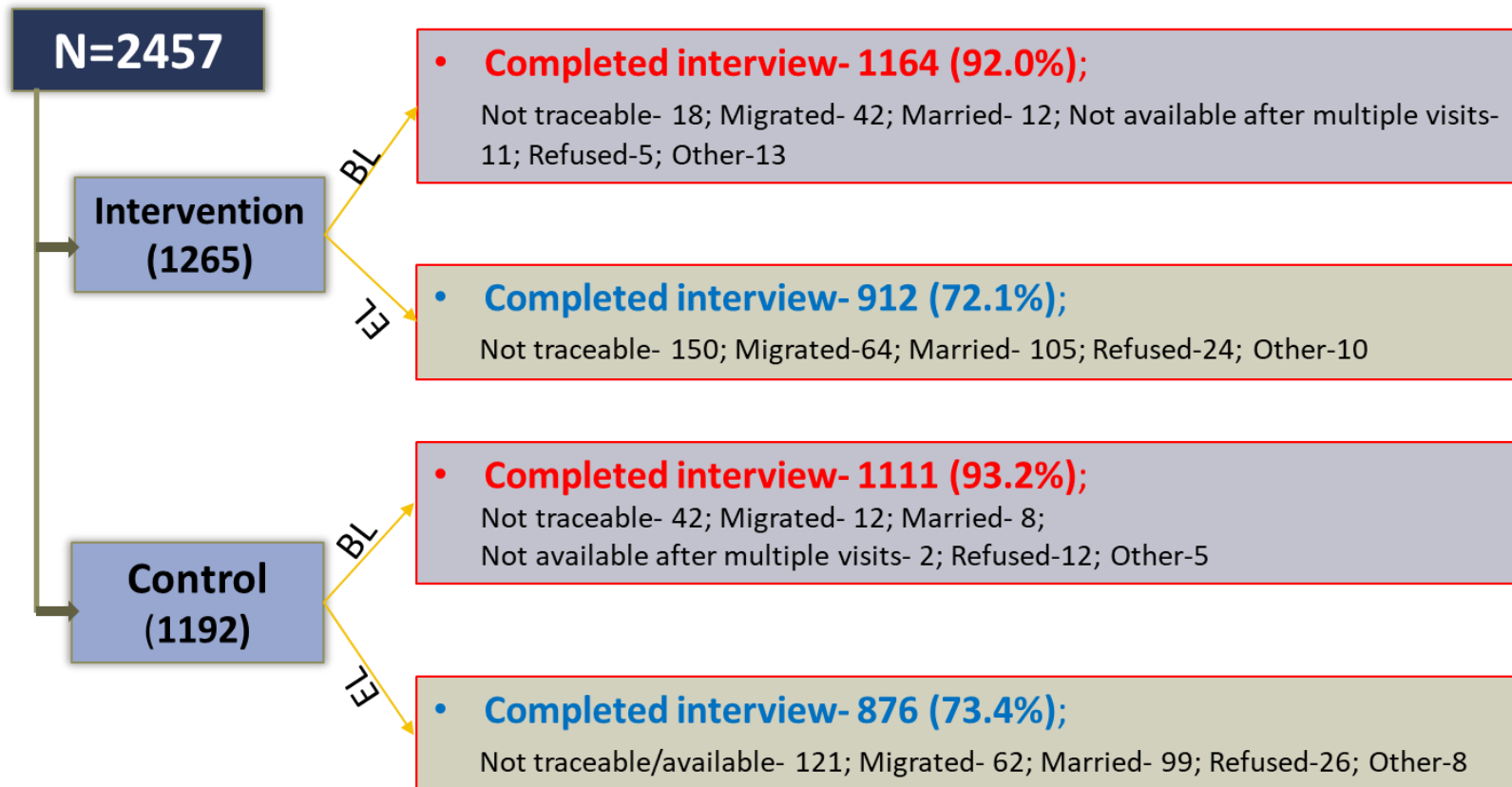
	2013				2014				2015				2016				2017		
	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep
<b>Girls leaving primary school in 2013 (Cohort 1)</b>		Finish Primary School (Year 7)	Enrol in Year 8		<b>Trial Start Survey</b>		Intervention activities start Enrol in Year 9				Enrol in Year 10		Year 10 exams	<b>Trial End Survey</b>					
<b>Girls leaving primary school in 2014 (Cohort 2)</b>						Finish Primary School (Year 7)	Intervention activities start Enrol in Year 8	<b>Trial Start Survey</b>			Enrol in Year 9				Enrol in Year 10		Year 10 exams	<b>Trial End Survey</b>	

- Girls enrolled in two cohort waves, one academic year apart
- Secondary school starts in Standard 8
- Cohort 1 exposed to 18 months of intervention activities – starting in Standard 9
- Cohort 2 exposed to 30 months of intervention activities – starting in Standard 8
- Endline surveys conducted at the end of Standard 10 (end of secondary school)

## Trial profile



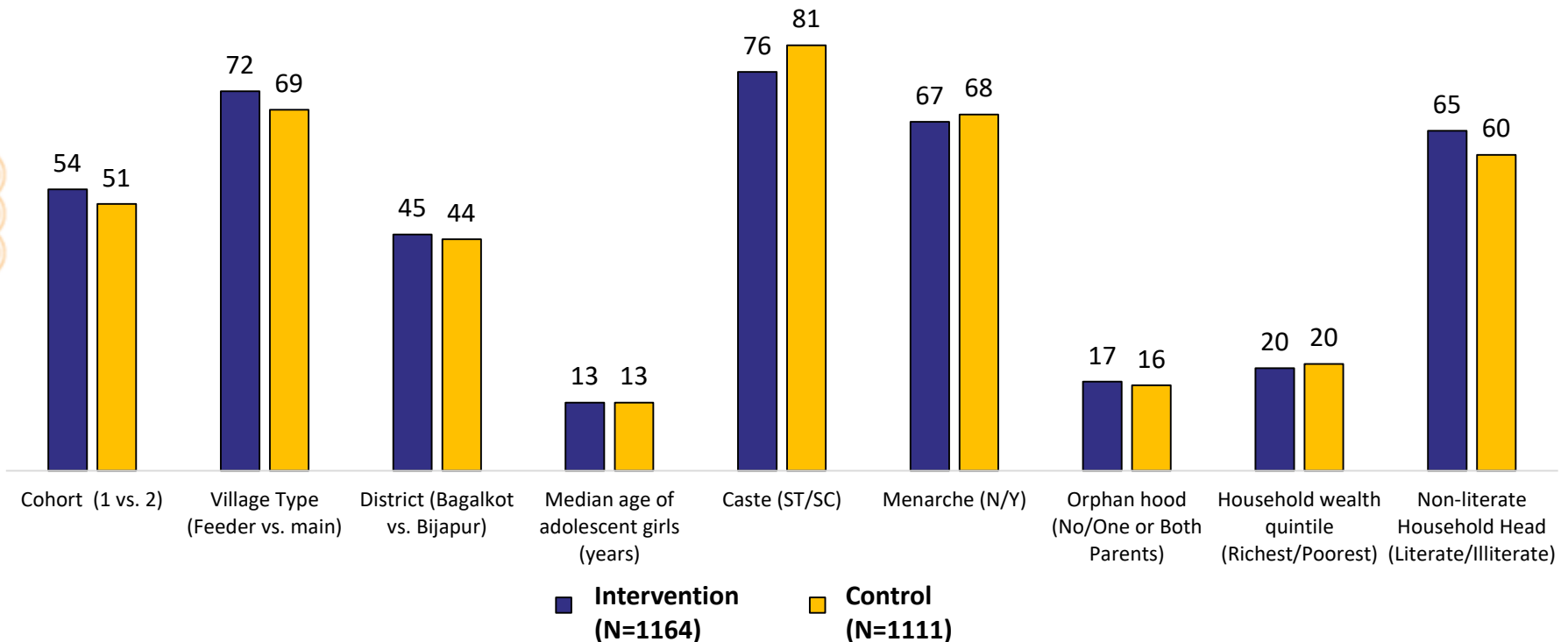
## Recruitment of participants (girls)



- Overall loss-to-follow-up ~24%
- Data considered for EL analysis=**1788 (912+876)**

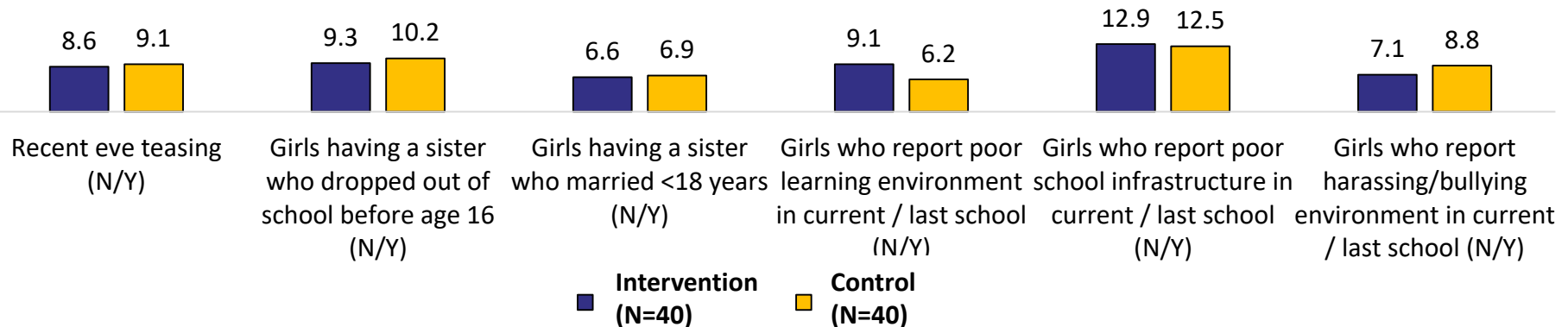
# No striking imbalance in profile of girls across trial arms at the baseline

**Imbalances in socio-demographic characteristics at baseline  
(individual-level)**



## No major differences in sibling and school level characteristics across trial arms at the baseline

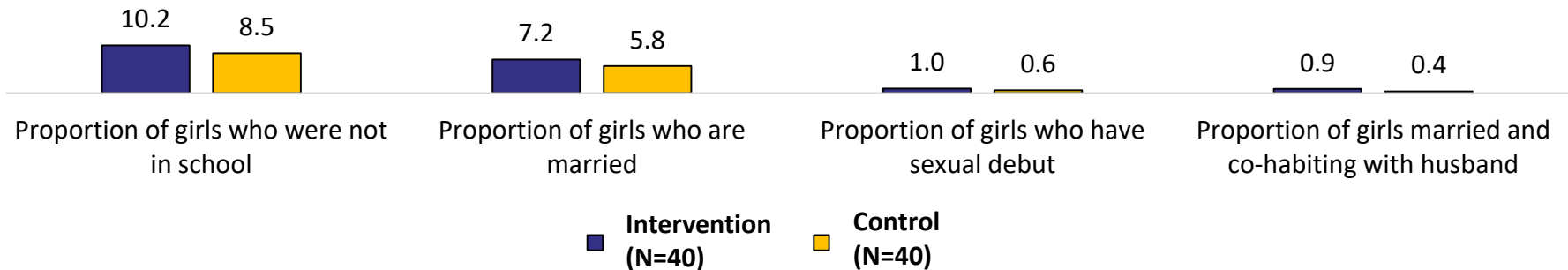
### Imbalances in sibling and school level characteristics at baseline (cluster-level)





## 'Balanced' outcomes at the baseline across trial arms

### Imbalances in outcomes at baseline: schooling, marriage and sexual debut (cluster-level)



## Cluster-level summaries of primary and secondary outcomes at the endline

Outcomes	Cluster Level Summary		Risk Difference (95% CI)
	Control N=40	Intervention N=40	
<b>A. Primary outcomes</b>			
Proportion of girls who complete secondary school [sit 10 <sup>th</sup> standard exam]	74.1	73.3	0.8 (-6.5, 8.0)
Proportion of girls who are married [by Trial end line]	8.4	11.1	-2.7 (-6.6, 1.1)
<b>B. Secondary outcomes</b>			
Proportion of girls who start secondary school [enter into 8 <sup>th</sup> standard]*	91.3	92.8	-1.5 (-6.0, 2.9)
Proportion of girls who pass secondary school final year exams[pass 10 <sup>th</sup> standard exam]	59.7	56.6	3.1 (-4.9,11.0)
Proportion of girls who have sexual debut [by Trial end line]	5.9	7.1	-1.2 (-4.0, 1.7)
Proportion of girls married and co-habiting with husband [by Trial end line]	4.8	5.3	-0.5 (-3.2, 2.3)
*Control arm: 39 cluster in BL cohort-2			

## Overall, no significant difference in education or marriage outcomes between arms

Outcomes	Summary Statistics		Intervention effect*			
	Control	Intervention	Basic Model		Adjusted model	
	N (%)	N (%)	OR (95% CI)	p-value	AOR (95% CI)	p-value
<b>N</b>	<b>876</b>	<b>912</b>	<b>1788</b>	-	<b>1788</b>	-
<b>Primary outcomes</b>						
Proportion of girls who complete secondary school [sit 10 <sup>th</sup> standard exam]	658 (75.1)	680 (74.6)	0.99 (0.70,1.41)	0.987	1.01 (0.73,1.38)	0.961
Proportion of girls who are married [by Trial end line]	84 (9.6)	92 (10.1)	1.09 (0.76,1.56)	0.658	1.00 (0.71,1.41)	0.978
<b>Secondary outcomes</b>						
Proportion of girls who start secondary school [enter into 8 <sup>th</sup> standard]#@	516 (91.2)	580 (92.8)	1.26 (0.72,2.20)	0.414	1.32 (0.75,2.31)	0.331
Proportion of girls who pass secondary school final year exams [pass 10 <sup>th</sup> standard exam]	530 (60.5)	518 (56.8)	0.90 (0.66,1.22)	0.504	0.83 (0.60,1.15)	0.264
Proportion of girls who have sexual debut [by Trial end line]	53 (6.1)	64 (7.0)	1.17 (0.80,1.71)	0.411	1.05 (0.71,1.55)	0.793
Proportion of girls married and co-habiting with husband [by Trial end line]	46 (5.3)	43 (4.7)	0.92 (0.55,1.55)	0.766	0.83 (0.51,1.34)	0.447

\*Individual level logistic regression with random effects; # N in summary statistics for Intervention=625 & Control=566. @N in basic and adjusted model=1191

Note: Basic models are adjusted for village strata and cluster. The adjusted models are adjusted for cluster level baseline means of sibling and school level characteristics & schooling, marriage and sexual debut variables imbalanced at baseline. Models are also adjusted for individual level variables imbalanced at the baseline using individual level data at endline.

## In Bijapur district, intervention associated with significant increases in secondary school entry and completion

Outcomes	Summary Statistics		Intervention effect*			
	Control	Intervention	Basic Model		Adjusted model	
	N (%)	N (%)	OR (95% CI)	p-value	AOR (95% CI)	p-value
<b>N</b>	<b>360</b>	<b>393</b>	<b>753</b>	-	<b>753</b>	-
<b>Primary outcomes</b>						
Proportion of girls who complete secondary school [sit 10 <sup>th</sup> standard exam]	261 (72.5)	301 (76.6)	1.43 (0.87,2.33)	0.155	1.54 (1.02,2.34)	0.042
Proportion of girls who are married [by Trial end line]	28 (7.8)	30 (7.6)	0.97 (0.56,1.69)	0.921	0.79 (0.45,1.38)	0.406
<b>Secondary outcomes</b>						
Proportion of girls who start secondary school [enter into 8 <sup>th</sup> standard] <sup>#@</sup>	226 (90.0)	253 (96.3)	3.27 (1.27,8.40)	0.014	3.58 (1.36,9.44)	0.010
Proportion of girls who pass secondary school final year exams [pass 10 <sup>th</sup> standard exam]	221 (61.4)	228 (58.0)	0.98 (0.62,1.57)	0.941	0.92 (0.60,1.42)	0.709
Proportion of girls who have sexual debut [by Trial end line]	23 (6.4)	30 (7.6)	1.18 (0.67,2.08)	0.559	1.05 (0.58,1.89)	0.869
Proportion of girls married and co-habiting with husband [by Trial end line]	18 (5.0)	18 (4.6)	0.97 (0.39,2.39)	0.949	0.75 (0.31,1.79)	0.514

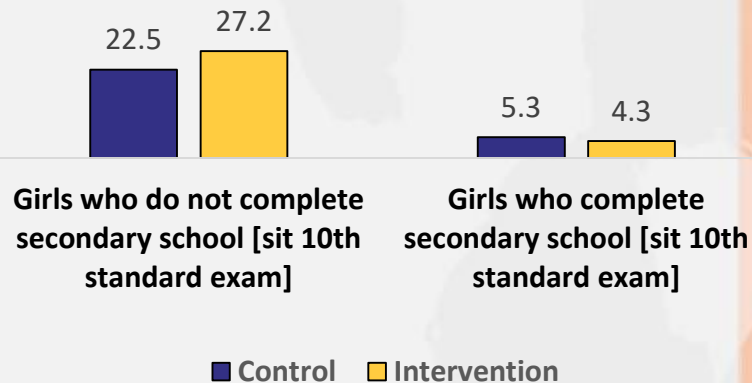
\*Individual level logistic regression with random effects; #N in summary statistics for Bagalkot (Intervention=366 & Control=315) and Bijapur (Intervention=259, Control=251). @N in basic and adjusted model=1191

Note: Basic models are adjusted for village strata and cluster. The adjusted models are adjusted for cluster level baseline means of sibling and school level characteristics & schooling, marriage and sexual debut variables imbalanced at baseline. Models are also adjusted for individual level variables imbalanced at the baseline using individual level data at endline.

No intervention effect was observed in Bagalkot

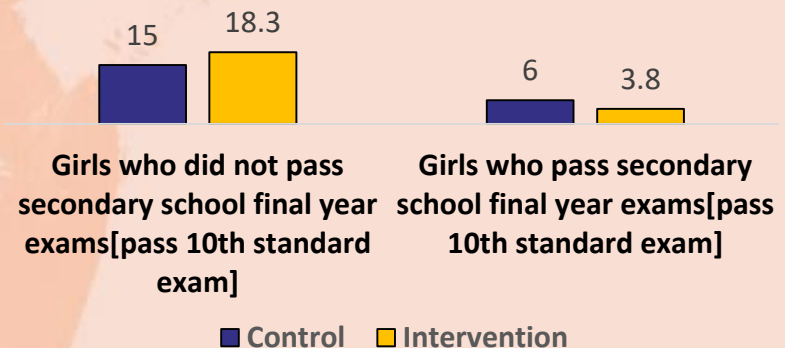
## Association between schooling and marriage at the overall level

Proportion of girls married by Trial endline by their attendance in secondary school exam, Overall



Likelihood of marriage among those who sit in secondary school exam (AOR, CI):  
0.69 (0.37-1.29); p-value: **0.247**

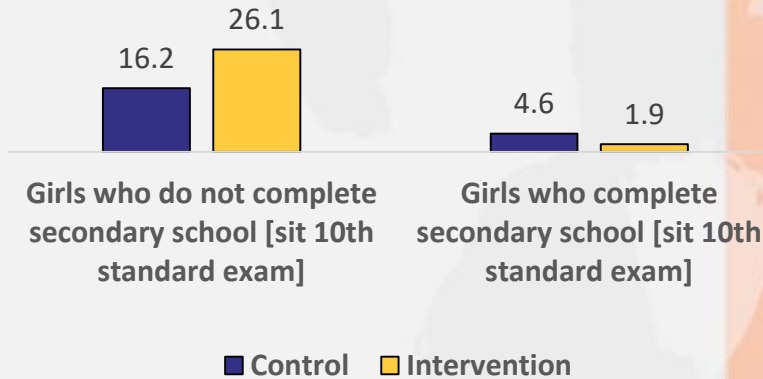
Proportion of girls married by Trial endline by their final result in secondary school exam, Overall



Likelihood of marriage among those who complete secondary school (AOR, CI): 0.53 (0.26-1.07); p-value: **0.077**

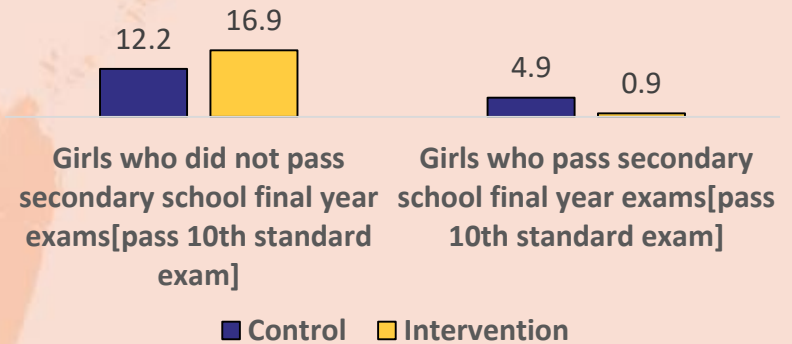
## Significant association between schooling and marriage in Bijapur

Proportion of girls married by Trial endline by their attendance in secondary school exam, Bijapur



Likelihood of marriage among those who sit in secondary school exam (AOR, CI): 0.22 (0.07-0.76) p-value: **0.016**

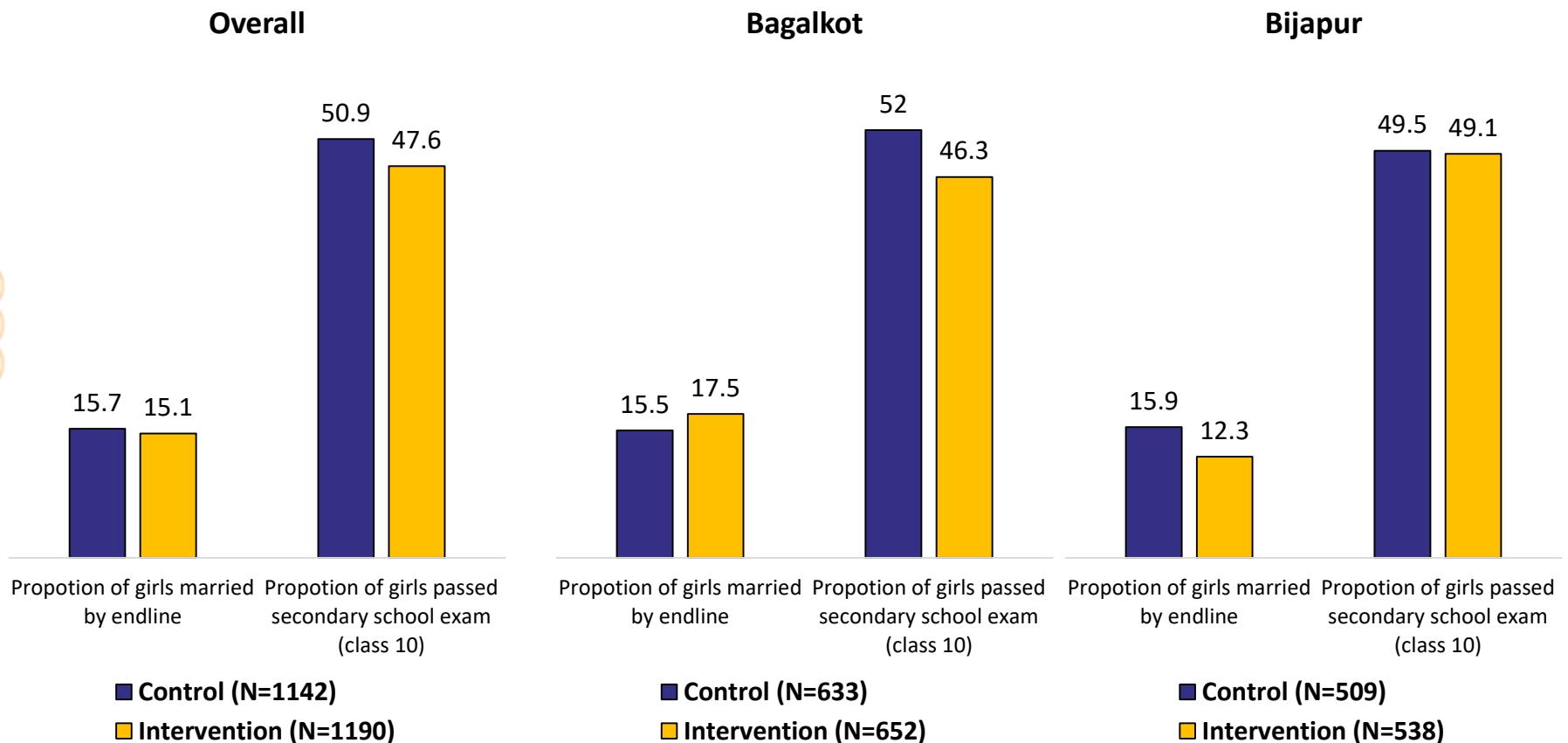
Proportion of girls married by Trial endline by their final result in secondary school exam, Bijapur



Likelihood of marriage among those who complete secondary school (AOR, CI): 0.04 (0.01-0.39) p-value: **0.005**

## Sensitivity analysis find similar results to main trial findings

Analysis included information from additional 544 girls ( C=266, I=278) not participated in the endline survey but their family responded about marriage and education



## Key messages: primary & secondary outcomes

- Overall, we found no significant differences between the Trial arms, in our primary and secondary outcomes. Thus, we found no significant difference between the intervention and control arms in the proportion of girls who entered into secondary school (class 8), who completed secondary school (class 10), or who passed the end of secondary school exam (class 10 final exam).
- We also found no significant difference in the proportion of girls who were married at endline (age 15/16 years), who were married and co-habiting with their husband at endline, or who reported sexual debut at endline.
- However, when we stratified by district, we found that girls in the intervention villages in Bijapur district were significantly more likely to enrol into secondary school (I:96% vs C:90%; AOR=3.58, CI:1.36-9.44) and to complete secondary school (I: 77% vs C:73%; AOR=1.54, CI:1.04-2.32 ), compared to girls in the control villages.



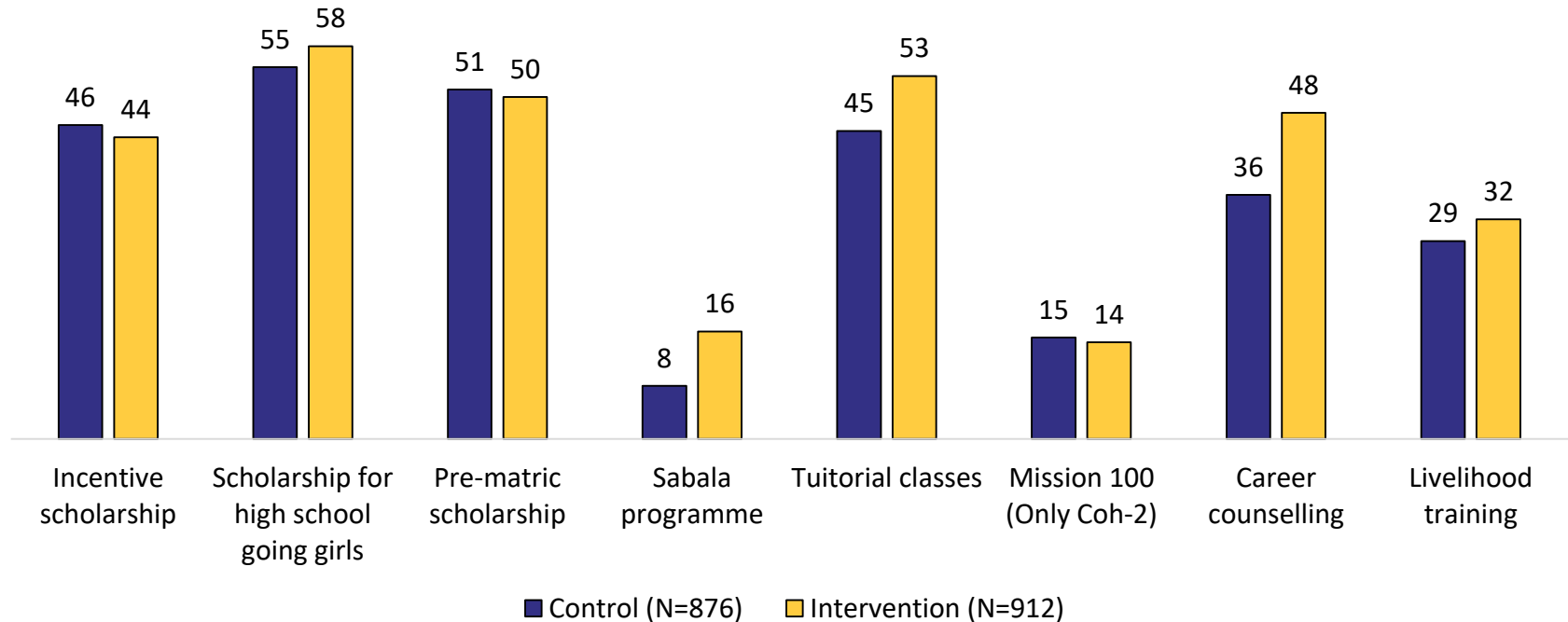
## Key messages: association between schooling and marriage

- Current findings support the utility of secondary education in delaying girls' marriage, however, it also indicates that these efforts have modest significance at the overall level.
- However, again this association was strong in Bijapur district, where a significantly lower likelihood of marriage was detected in the intervention group among girls who either completed secondary school (I:1.9% vs C:4.6%; AOR:0.22, 95%CI:0.07-0.76) or who passed the end of secondary school exam (I:0.9% vs C:4.9%; AOR:0.04, 95%CI:0.01-0.39).

## Critical changes in the landscape of the community during the project period

- The project launched by Central Government “*Beti bachao beti Padhao*” (BBBP) Yojana (save daughter, educate daughter) in the year 2014 to save and empower the girl child is making waves all over the nation
- During the year 2016-17, introduction of cash incentives by government of Karnataka for girls to prevent school drop out and introduction of Mission 100 – Remedial classes for the poor performing students across the district
- Implementation of Sabala program and life skill education sessions for the girls by Department of women and child in villages of Bijapur district implemented during 2011-2013. The programme is being continued in the some part of the district through other NGOs.
- Introduction of Career counselling for all the schools by Department of Education in the year 2014-15.
- Mandate for the schools to form Safety Committees. Circular issued by Department to adhere to 20 point program to ensure safety of the students in 2016-17

## Equal level of exposures to other interventions, scholarships and tutorial classes across arms

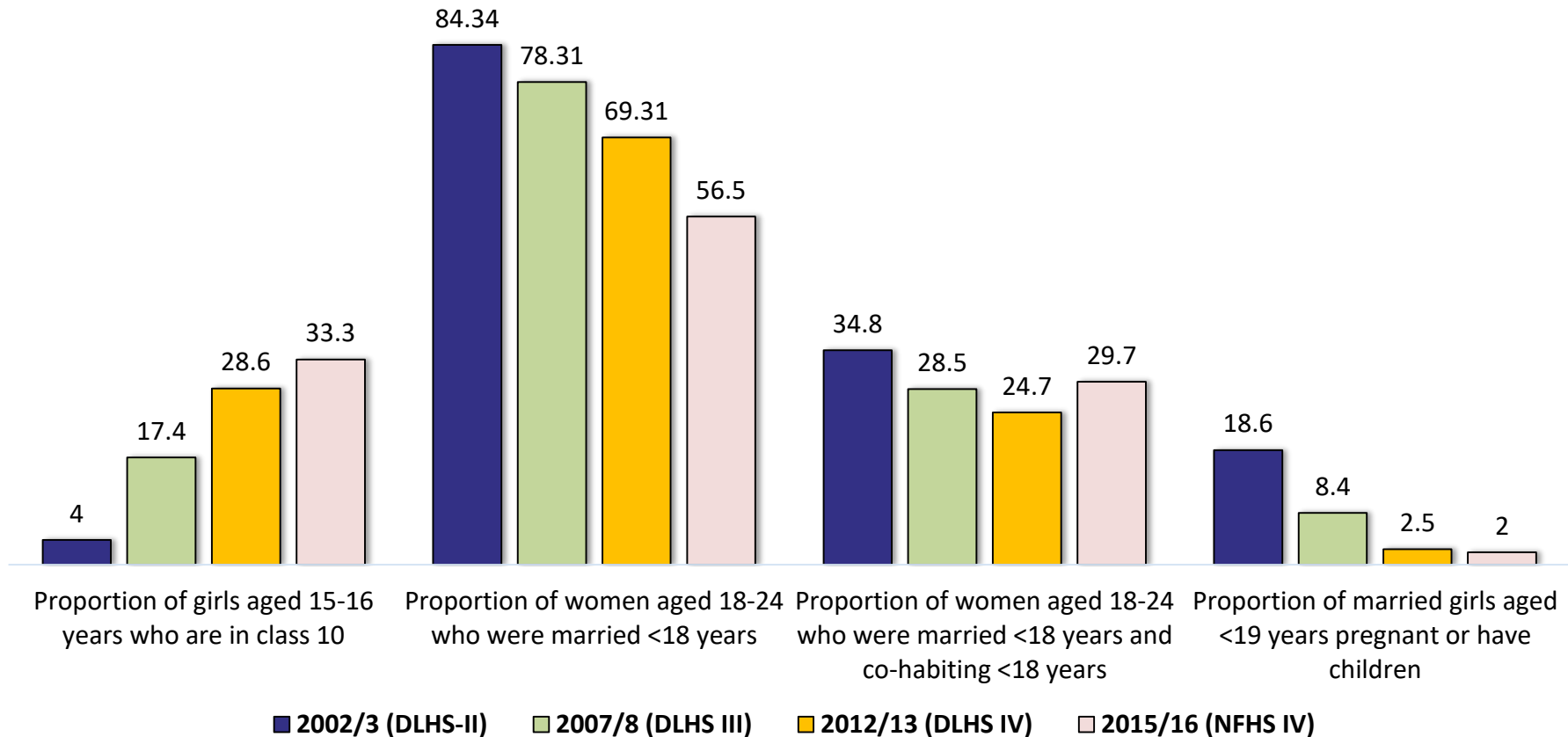


## Plausible hypotheses for no difference between the trial arms

1. Secular changes in the prevalence of school completion and early marriage due to national, state, and district level interventions to keep girls in school leading to improvement in control areas
2. Insufficient duration/intensity of intervention: instead of planned 36 months of intervention girls received 18-30 months of intervention
3. Timing of intervention too late: though the intervention was supposed to reach the girls at the end of primary school (Class 7<sup>th</sup>), the girls from cohort- 1 and 2 were intervened when they entered into secondary school; no sufficient time to work on improving the quality of learnings among girls
4. Incremental intervention due to new learning over time— the entire intervention was not delivered throughout – especially in relation to interventions to parents

# Hypothesis 1: Secular changes in key outcomes between 2002-2016

## Trends in educational attainment, marriage, cohabitation and childbearing: Bagalkot



## Hypothesis 2: Insufficient duration of exposure

### No clear association between the duration of exposure and outcomes

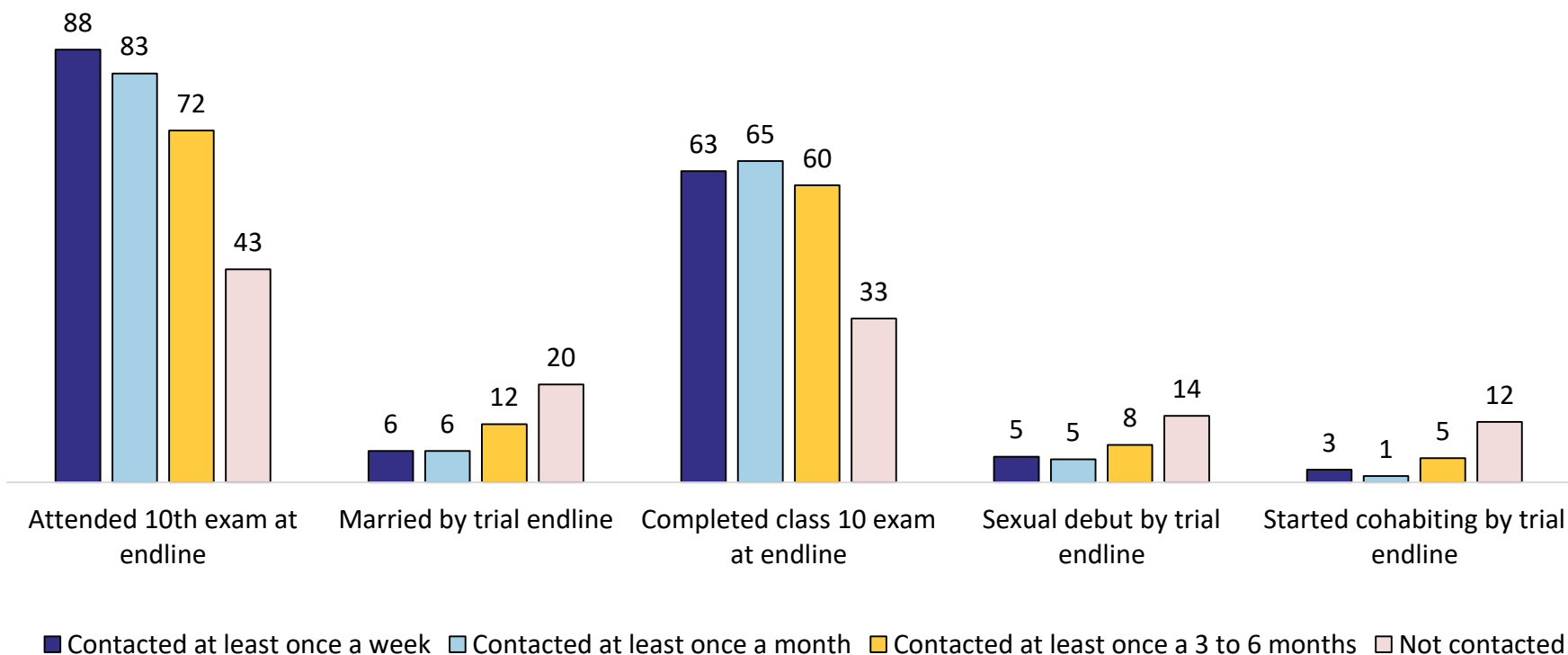
**Table:** Individual-level summaries of key outcomes by cohort across the arms

Outcomes	Cohort 1		Cohort 2	
	Control	Intervention	Control	Intervention
	N (%)	N (%)	N (%)	N (%)
<b>N</b>	<b>440</b>	<b>432</b>	<b>436</b>	<b>480</b>
<b>Primary outcomes</b>				
Proportion of girls who complete secondary school [sit 10 <sup>th</sup> standard exam]	350 (79.5)	333 (77.1)	308 (70.6)	347 (72.3)
Proportion of girls who are married [by Trial end line]	54 (12.3)	44 (10.2)	30 (6.9)	49 (10.0)
<b>Secondary outcomes</b>				
Proportion of girls who start secondary school [enter into 8 <sup>th</sup> standard] <sup>#@</sup>	NA	NA	516 (91.2)	580 (92.8)
Proportion of girls who pass secondary school final year exams [pass 10 <sup>th</sup> standard exam]	325 (73.9)	306 (70.8)	205 (47.0)	212 (44.2)
Proportion of girls who have sexual debut [by Trial end line]	33 (7.5)	28 (6.5)	20 (4.6)	36 (7.5)
Proportion of girls married and co-habiting with husband [by Trial end line]	33 (7.5)	21 (4.9)	13 (3.0)	22 (4.6)

## Hypothesis 2: Intensity of exposure

**Intensity of exposure (more frequent contacts) were associated with better outcomes in intervention area**

Frequency of contact and outcomes in intervention area



## Hypothesis 2: Intensity of exposure

### QUALITATIVE FINDINGS SUGGESTING THE FACT THAT GIRLS IN INTERVENTION VILLAGES STANDS DIFFERENTLY IN MANY ASPECTS, ESPECIALLY THE ONE OR ONES EXPOSED TO **MOST** OF THE INTERVENTION COMPONENTS

- Better self esteem and clarity on their educational aspirations
- Intervention girls have better skills to manage family relationship and negotiate their needs
- Their allies and source of support extended specially for the one who attended *Parivarthan* groups

*I used to always feel scared and keep quiet if my parents asked anything about my marriage. has happened.. After participating in Parivartana Plus group, I got confidence. So I discuss with them about this, I tell them I will study further.... don't perform my marriage so soon. I have the confidence to ask why they want to marry me early..... [Ashwini, age 16]*

- Shift in role model: from teachers to family member who encourage education
- Better knowledge on laws which protect women rights



## Hypothesis 3: Timing of intervention too late, '*missed opportunity*' to intervene them at early phases of intervention

- Those who left school early haven't received major intervention exposure...
  - Most who left early have got married and moved to in-laws house or engaged in other work
- Some continued school due to compulsory education... but left later since it was difficult to cope-up.

*"I don't have much problem with Kannada, Science, Social and Hindi.... but English and Mathematics are most difficult... English writing...grammar is not perfect...I am not able to understand" (Latha, age 15)*

*"I was beaten up by teacher repeatedly as I was not able to read properly...My father came to school and scolded the teacher... it caused the problem further and I had to stop going to school" (Kavitha, age 16)*

## Hypothesis 4: Incremental intervention due to new learning over time

- Midline qualitative findings strongly found lack of parental support guided by gender-inequitable norms as leading causes of school dropout

*They have in their mind ‘if we give education to the boys then they feed us but if we give education to girls then they go to other home’ (Saritha, age 15)*

- Intervention strategized the family focused intervention from early 2016 and this yielded a better results

*My parents are providing me a good education, so they do not want me to spoil my education and career in the future. They say, ‘What do you do staying at home. You cannot understand the subjects if you miss the classes like this.’ Even in case I miss out the bus, my parents ask my brother to drop me to school” (Rupa, age 16)*

## Hypothesis 4: Incremental intervention due to new learning over time

- Girls started gaining more confidence and aspiration to continue their education due to enhanced parental support

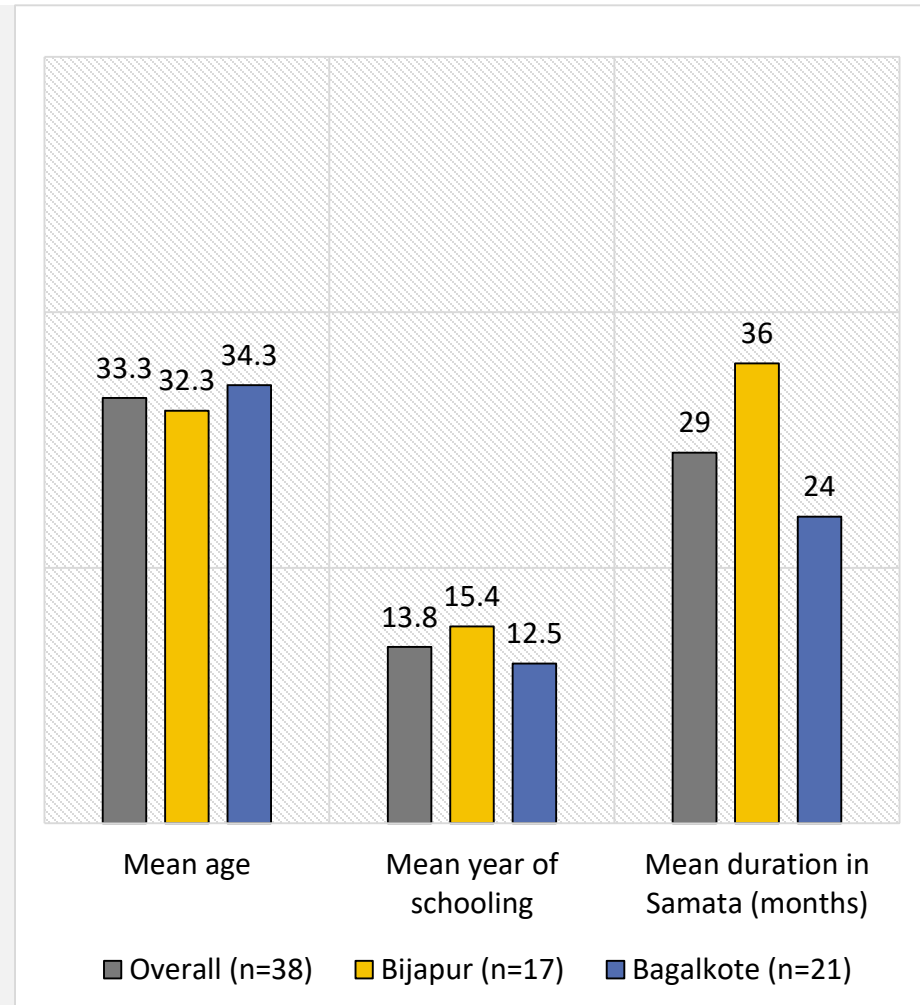
*Earlier my mother was not interested in sending me to school because of poverty at home, then Renuka [ORW] madam met my mother and told her not to scold me and not to restrict my movement...Send your daughter; she will become smart if she learns. You go to work every day, you did not go to school. Now if they study means they may achieve something. So, now she supports for my education.  
[Rekha, age 16]*

- On contrary, some girls regained parental support due to better academic performance and it resulted in postponing marriage

*“My parents were always talking about my marriage... after Annapurna akka [ORW] came and talked to my parents, they stop talking about my marriage.... Now they say, let her study” [Renuka, age 16].*

## Why 'Bijapur' shows better result?

- Differences in profile of ORWs
  - Bijapur ORWs being younger and more educated; helpful in building better rapport
- Less staff attrition in Bijapur than Bagalkote
  - 56% ORWs in Bijapur worked more than the average duration of work in the district (36 months) compared to 42% in Bagalkote (24 months)
- More frequent outreach in Bijapur compared to Bagalkote
  - 42% girls in Bijapur contacted at least once a week compared to 35% in Bagalkote
  - 55% in Bijapur vs 38% in Bagalkote (Cohort-2); no difference in Coh-1



## Next steps

- **Analysis of intermediate outcomes and its association with primary and secondary outcomes**
- **Analysis of family and school data to assess the changes in community level gender norms and attitudes**
- **Longitudinal analysis to understand pathways to change (quanti & quali)**



Peer-reviewed scientific publications




Research briefs and reports



Presentation in conferences, working group meetings, and dissemination meetings

## Acknowledgements



We thank the adolescent girls, family members and school staff for participating in the study and providing valuable information. We also acknowledge the support received from the parents of the adolescent girls, and we thank them for allowing the team to interact with and collect first-hand information from their daughters. We thank KHPT staff for providing the logistical support. We also thank the field investigators for conducting data collection work.

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THANK YOU!