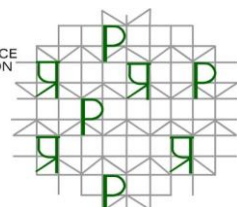


Promoting Adolescent Engagement, Knowledge and Health  
Evaluation of PAnKH: an adolescent girl intervention in Rajasthan, India  
Baseline Report



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October, 2016

Institute for Fiscal Studies (U.K.)<sup>1</sup>, International Institute for Research on Women (India) and  
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# 1 INTRODUCTION

Adolescence is increasingly recognised as a crucial life-cycle stage from both a social and developmental perspective. We are in a unique historical period when adolescents make up a larger proportion of the population in developing countries, including India, than ever before. This “youth bulge” presents both opportunities and risks (World Bank, 2012). Further, in contexts such as India with high prevalence of early child-bearing the well-being of adolescent girls can have very direct consequences for their children. This is also the stage at which across a number of indicators of well-being significant gender gaps in favour of boys begin to emerge (e.g. Singh and Krutikova, 2016).

At the same time there is a growing body of evidence that adolescence is a period of key developmental neurobiological transitions, making it, like early childhood, a time of both heightened vulnerability to adverse environmental factors but also opportunity for intervention (e.g. Fuhrmann et al, 2015).

The recognition of the importance of adolescence as a life-cycle stage for long-term outcomes of the adolescents themselves and their children, as well as the potential for remedial intervention during this stage is evident from growing investment into programmes and policies targeting adolescents among policy makers and other stakeholders in Lower and Middle Income Countries (LMIC’s). This is the case in India - the country that we focus on in this report. There remains, however, large scope for building knowledge on what works for adolescents and how to design high quality, cost-effective, scalable programmes that can be implemented in developing country contexts. The aim of the project discussed in this report is to inform on these questions.

Specifically, we evaluate an integrated community-based programme, *PAnKH*, that aims to delay age at marriage, increase school retention and improve sexual reproductive health (SRH) of adolescent girls in India. *PAnKH*, which means wings, and stands for Promoting Adolescent Engagement Knowledge and Health is being implemented in a sub-set of villages of Dhoulpur district of Rajasthan by International Center for Research on Women (ICRW) and Professional Assistance for Development Action (PRADAN). This district is characterized by rates of child marriage that significantly exceed the country average, as well as poor reproductive and maternal health outcomes.

The programme works with unmarried and married adolescent girls aged 12-19 years, their parents and in-laws, other community members, including men and boys, and key stakeholders within the health system. Programme components include group education sessions, sports with the girls, and social campaigning and community mobilization activities. The programme aims to help girls stay in or return to school, resist child and early marriage practices and make informed decisions about their SRH needs through providing girls with the information and skills that they need to improve their situation, as well as positively transforming norms and values relating to girls in their communities.

The programme aims and approach fit within the framework of the National Adolescent Health Programme *Rashtriya Kishor Swasthya Karyakarm* (RKSK). RKSK was launched by the Government of India in January 2014 to address adolescent health needs and differs from

previous adolescent health programme in its definition of adolescent health and service delivery model. It adopts a broader definition of health needs that includes sexual and reproductive health, nutrition, injuries and violence (including gender based violence), non-communicable diseases, mental health and substance misuse. The service delivery model it proposes includes engagement with both the service providers and adolescents themselves. Previous government adolescent health programmes focused exclusively on provision of clinic-based services with little or no consideration given to making these “adolescent friendly” or reaching out to adolescents directly. In contrast, key components of RKSK include establishment of Adolescent Friendly Health Clinics, as well as community based interventions such as peer educators, outreach by counsellors, involvement of parents and the community through a dedicated adolescent health day and information and behaviour change communication campaigns.

To date there has been more progress made in setting up the Adolescent Friendly Health Clinics than directly engaging with adolescents. The Government of Rajasthan has, therefore, shown an interest in development and testing of a pilot phase scalable integrated community-based model of reaching adolescents with a view to identifying a specific viable strategy for advancement of adolescent engagement within RKSK. In response to this demand, ICRW have worked with PRADAN and the Government of Rajasthan to develop the *PAnKH* programme, which builds closely on successful programmes that ICRW have implemented in other parts of India. A key feature of the programme is that it relies entirely on existing local resources and infrastructure for implementation, utilising pre-existing women’s self-help groups and resident young women to lead programme activities. This greatly increases its potential for scale logistically and financially relative to programmes that rely on locally unavailable resources, such as highly trained professionals.

In order to test the effectiveness of *PAnKH*, The Centre for the Evaluation of Development Policies (EDePo) at the Institute for Fiscal Studies (IFS) in London is working closely with ICRW and PRADAN to conduct an evaluation of the programme using first-best randomised controlled trial design. The aim of the evaluation is not only to assess the overall impact of the *PAnKH* programme, but also to disentangle the effects of programme components that target only the girls from those of the integrated model that also engages with parents, men and boys and the broader community. To this end we are conducting a three arm trial in which a total of 90 clusters were randomly allocated to one of three arms: one in which the full integrated model of the *PAnKH* programme is implemented, one in which only the activities directly targeting the girls (group education and sports sessions) are implemented and one in which none of the *PAnKH* programme components are implemented (the control group).

This design allows us to answer the following questions:

- What is the impact of the *PAnKH* integrated community-based programme on education, marriage and SRH outcomes of adolescent girls, compared to girls not receiving the programme?

- Are there benefits to targeting the girls' parents, other members of the community and local stakeholders in addition to the adolescent girls themselves?
- How do the costs and benefits of the girl only approach compare to those of the integrated approach?
- Do the impacts of the programme vary by characteristics of the adolescent girls, such as age, caste, socio-economic status and marital status?
- What impact does the programme have on hypothesised mechanisms for programme effects including knowledge, attitudes, social support, girls' non-cognitive skills and mental health and how enabling the community and household environments are?
- Do improvements in these intermediate outcomes mediate programme impacts on adolescent girls' final outcomes (education, marriage and SRH)?

During the baseline stage we collected data on a sample of 7,577 adolescent girls, their primary caregivers and households before the start of *PAnKH* programme implementation. The aim of this report is to describe the study context and *PAnKH* programme, provide an overview of the baseline data and assess whether the randomisation across the three intervention arms was successful (i.e. whether the three groups are comparable).

## 2 BACKGROUND AND CONTEXT

According to the most recent census (2011), Dhoulpur has a population of 1.2 million with approximately 100,000 adolescent girls ages 12-19 years. Compared to average trends for India, these girls continue to leave education young, marry early, and become pregnant young and repeatedly with little birth spacing despite legislations against child marriage and several government programmes incentivizing continued school education, delayed marriage, and promotion of reproductive health. According to the Annual Health Survey 2011-12, despite sharp downward trends in rates of child marriage, it remained the case that over half (61%) of the married women in the 20-24 year age-group were married before the age of 15 and nearly half of the women age 15-19 were already mothers or pregnant at the time of the survey. Total fertility rate is 4.1 and the overall sex ratio is among the lowest in India at 819 in rural areas. Further, two out of five girls in the 12-17 age-group were out of school and, according the last census (2011), literacy rates among adult women were significantly lower than those for men at 55 and 81 percent respectively.

There is a range of adolescent programmes operating in Rajasthan. In addition to RKSK (discussed in the Introduction), the most relevant ones include most recently *Beti Bachao Beti Padoo*, launched by the government of India in 2015 with the aim of generating awareness about needs of adolescent girls and young women as well as improving the efficiency of provision of services targeting the welfare of women. Older programmes include the Rajiv Gandhi Scheme for the Empowerment of Adolescent Girls (*SABLA*), launched in 2010 with the explicit aim of addressing health, nutrition and developmental needs of out-of-school girls aged 11-18 years. Similarly an earlier programme *Kishori Balika Yojana* (launched in 2006) also focuses on promotion of health and development of disadvantaged girls, including out of school girls, as well as girls belonging to scheduled castes, scheduled tribes and other backward castes.

This diversity of programmes clearly demonstrates recognition of the need to improve outcomes of adolescent girls in Rajasthan. One of the more challenging areas in development and implementation of these programmes remains effective direct outreach to adolescents, their families and communities. This is the focus of the *PAnKH* Programme.

### 3 THE PANKH PROGRAMME

The aim of the *PAnKH* Programme is to delay age at marriage, increase school retention and improve sexual reproductive health (SRH) of adolescent girls in India through providing the girls with the skills and information they lack as well as create a safe enabling environment in which they can thrive and make the best choices for their future.

#### 3.1 PROGRAMME COMPONENTS

The key components of the programme include:

- Group Education Activities with adolescent girls age 12-19:*** These will consist of a total of 40-45 weekly sessions, each lasting about 45-60 minutes, facilitated by “mentors” selected from amongst young women living in the targeted communities and trained to follow a set detailed curriculum by PRADAN and ICRW. There will be separate sessions for older and younger, as well as, possibly married and unmarried girls. The curriculum will be divided into three segments each lasting 3-4 months– basic, intermediate and advanced. The aim of the sessions is to provide adolescents with a space to discuss and acquire accurate information related to gender, gender-based violence, relationships, puberty, menstruation, contraceptives, as well as resources and services available on SRH. There are specific sessions in which risks of early pregnancy, safe abortion, and maternal health services will be discussed. An important component of the curriculum is provision of training in negotiation and communication skills. The sessions will use examples and methods that are gender transformative and encourage critical thinking and reflections. The content of each session is communicated both through discussion and facilitation of group activities.
- ***Sports Activities with adolescent girls age 12-19:*** Building on ICRW experience of implementing *Parivartan* Girl Sport programme<sup>3</sup>, a core component of work with the girls will include weekly sports sessions of two hours, facilitated by the education session mentors. In addition, two tournaments will be held during the project period providing an opportunity for girls from different villages to come together and interact with each other as well as other community members there as spectators. Based on outcomes of the formative research phase of the project and ICRW’s previous experience we will be engaging girls through a traditional sport called *Kabaddi*. The session will happen once in a week and will include discussions of some of the issues covered in the education sessions.
  - ***Group Education Activities with mothers and fathers of the adolescent girls:*** A total of 20-25 sessions, each lasting one hour, following a curriculum closely aligned to that implemented in the GEA activities with the girls, but with a key addition of a parent-child communication focus. Mentors and Sakhis will facilitate these sessions

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<sup>3</sup> *Parivartan* Girl Sports programme is an intervention targeting adolescent girls age 12-16 years with the aim of improving their self-esteem, self-efficacy and aspirations for education:

<http://strive.lshtm.ac.uk/resources/parivartan-girls-programme-tools>



jointly with the mothers. Fathers will be reached out along with other men from the same clusters by the male mentors in Chaupal (a central place in the village where men usually spend time for leisure or discussion) specially through film facilitation and discussions as well as broader discussion forum. Champions will be identified from the group of parents who will be encouraged to speak and narrate their experiences to other parents from similar milieu. We propose to use positive deviant models and promote them by making them visible and also identify culture specific innovative ways to engage with parents.

- **Group Education Activities with men and boys:** a total of 10-12 sessions of 45 minutes each, twice a month. These sessions will be aligned with those of the girls and will follow the *Parivartan* men and boys programme<sup>4</sup>.
- **Safety audits:** Adolescent girls and men and boys participating in the GEA will carry out at least two “safety audits” of public spaces in their villages including school routes to identify spaces that are not safe for girls and reasons why that is. They will report back to community stakeholders and work with them to plan and implement strategies for making the identified areas safer for women and girls.
- **Community mobilization and social campaigning:** Community meetings and campaigns will be organized in addition to the focused activities with girls, mothers and men and boys. There will be at least three rounds of campaigns during the project period, focusing on the broad themes of enhancing the perceived value of girls, raising awareness of various forms of violence within the home and in public spaces, as well as the impact of these on girls’ freedom and rights. The specific issues addressed will include the ills of child marriage and early pregnancy, SRH needs of adolescent girls and need for appropriate service provision. In addition, different opportunities will be utilized to hold meetings with different stakeholders in the community. Engagement with fathers of adolescent girls will be part of this community mobilization process.
- **Sensitization of service providers:** Sensitization workshops on the SRH needs of adolescent girls, services that are available and accessible to them, barriers to access and how to address barriers in enhancing access to services will be held with relevant service providers, including Accredited Social Health Activists (ASHA) and *Anganwadi* Worker (AWW).

### 3.2 THEORY OF CHANGE

We propose a theory of change which outlines the main channels through which the *PAnKH* programme may affect marriage, education and sexual and reproductive health. It is guided by our overarching hypothesis that *adolescent girls will be able to make informed reproductive health and other critical choices including those relating to marriage, education and livelihood only if they have the right information, understanding and skills to navigate*

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<sup>4</sup> <http://strive.lshtm.ac.uk/projects/parivartan-coaching-boys-men>

*their contexts, are free from fear and violence, are valued by society, and live in a supportive environment both within and outside home.* We identify five key specific mechanisms for programme effects. These include (i) improvement in knowledge; (ii) changes in attitudes; (iii) increased social support; (iv) enhanced non-cognitive skills and mental health; and (v) creation of enabling environments within the household and community ( Figure 1).

We now discuss the role and importance of each mechanism in turn:

*Improved Knowledge:* Lack of knowledge is likely to be a key constraint in adolescent decision-making, as evidenced, for example, by widespread health campaigns targeting adolescents about the danger of risky behaviours. We expect lack of knowledge about sexual and reproductive health and relationships to be a particularly salient constraint in the study context, where these issues are considered taboo and inappropriate to discuss. Providing adolescents with accurate information related to education (e.g. benefits of educations, rights in school), marriage (e.g. legal age of marriage, relationships in a marriage) and sexual and reproductive health (e.g. information about menstruation and contraception) through the *PAnKH* programme may shift girls' perceptions of costs and benefits of different decisions related to these areas.

*PAnKH* which means “wings” in English is symbolic of the aspiration to be able to chart the course of journey of one’s own life. Wings are related to the cognitive faculty, imagination, thought, freedom and victory.

We perceive “*PAnKH*” as an expression of empowerment, where adolescent girls are able to explore their maximum capabilities and fulfill all their aspirations by making independent choices at critical junctures such as taking decisions on their health, wellbeing, education, livelihood, choice of partner and reproduction.

We envision that our project will be instrumental in creating a supportive (and safe) environment in communities so that the girls are valued by the society and a girl’s act of challenging and breaking free from the inequitable social norms does not jeopardize her basic right to freedom from fear, gender discrimination and gender based violence

*Changes in Attitudes:* By introducing new ideas and concepts around gender, education, marriage and sexual and reproductive health, as well as encouraging girls to critically engage with entrenched norms, the programme altering girls’ attitudes to key life decisions. Having a clearer conception of some of the prevailing norms and attitudes in negotiation and decision making within the household may help girls to overcome the barriers these attitudes and norms form. For example, by promoting a pro-active attitude to involvement in decision-making within marriage (along with strategies to do so) the programme may increase the amount of say girls have about use of contraception (a taboo issue which men usually have final say on).

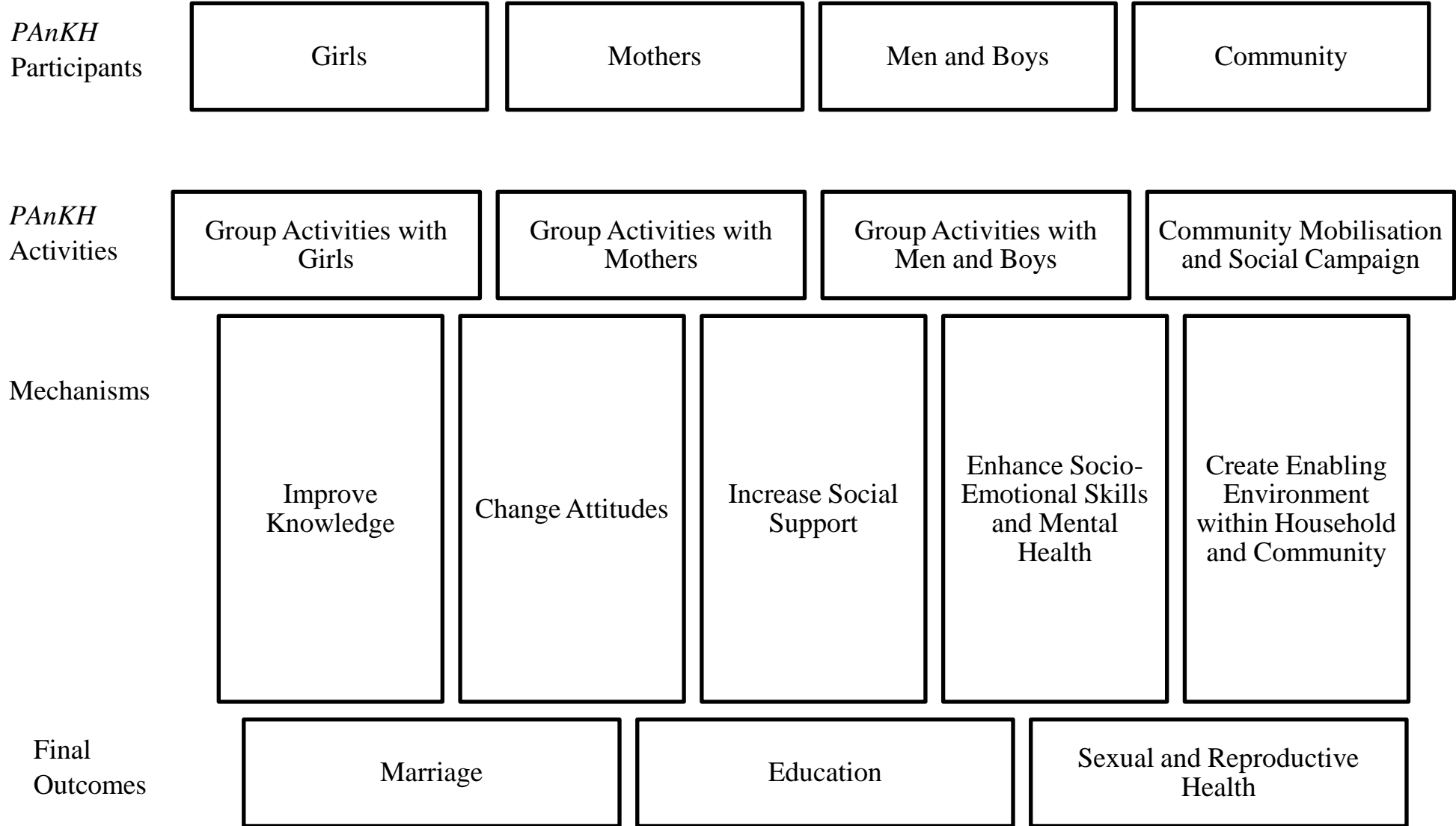
*Increased Social Support:* Peers and the wider social setting are a particularly important influence in decision-making and wellbeing in adolescence (Knoll et al, 2015). By bringing together adolescent girls in a safe environment, the programme will encourage the formation of new networks and friendships, which will increase the social support and information available to the girls. These networks may also change girls’ perceptions of ‘norms’ in the

community and influence attitudes. Programme influence on the norms and attitudes of the other members of the community (mothers, men & boys, wider community) may further enhance the support available to girls in their homes and within the community.

*Enhanced Non-Cognitive Skills and Mental Health:* Adolescence is increasingly recognised as a critical stage for the formation of non-cognitive skills (such as self-efficacy, self-esteem, peer-relations and socio-emotional skills) and mental health which are crucial for lifelong wellbeing (Kia-Keating et al. 2011), educational attainment, skills and socio-economic outcomes (Heckman et al. 2006). The *PAnKH* curriculum targets these critical domains through sports, activities and discussion within the education sessions, along with the promotion of role-models, which encourage girls to feel positive about themselves and support the idea that girls like them have the abilities to succeed in various challenging situations and to affect change. Previous studies have found that interventions with similar components – sports (Ekeland et al. 2005; Dishman et al. 2004) and group based reflective discussions and other games and activities (see Morton and Montgomery (2013) for a review) – had impacts on self-efficacy, self esteem and other measures of socio-emotional skills and mental health.

*Creation of Enabling Environments within the Household and Community:* The outcomes of adolescent girls in our study environment are affected by many factors outside of their direct control. Attitudes, norms and practices in the family and wider community are key. These are targeted by the programme through engagement not just with the girls but with their mothers and carers, men and boys, key stakeholders and the wider community. By working with these groups to consider and question traditional gender norms within the community and in the natal and marital home the programme may make the environment in which the girls live more receptive to their needs, open to their input and safer for them, enabling and supporting them in making the best life choices for them.

**Figure 1: PAnKH Programme Theory of Change**



### 3.3 IMPLEMENTATION PLAN

Programme implementation started in the summer of 2016 and is planned to continue for 12-14 months in 60 villages spread over three blocks of Dhoulpur district – Bari, Basari and Dhoulpur - where PRADAN have operated for over ten years and have a well-established women’s self-help group infrastructure as well as trust and acceptance of the communities. Implementation is overseen by *field facilitators* who are individuals from the district with higher education and prior experience of implementing grass-roots programmes targeting women and girls. The field facilitators have been involved from the very initial stages in all parts of the project including initial formative research in the targeted villages, facilitation of evaluation baseline data collection (described in detail below), as well as training for and monitoring of the programme implementation. Each field facilitator will oversee implementation in up to 6 villages.

The core components of the *PAnKH* programme are implemented by programme *mentors*, who will lead the group education sessions, sports activities and facilitate the community mobilization and service provider sensitization activities (see Section 3.1 for description of the programme components). These are young people (male and female) recruited from the participating villages. In addition to ongoing, close support from the field facilitators, the links and infrastructure that PRADAN have build up in the communities over the years are used to closely link the mentors with individuals, local institutions and community stakeholders to provide support, counseling and information. Going forward, these mentors will potentially become a key resource for capacity building of peer educators under the government RKSK programme.

Throughout the implementation phase field facilitators and mentors will undergo continuous training. The training is incremental in order to allow participants to absorb the new concepts and information that it introduces, as well as build up experience of application of new methods such as building trust within the communities, group facilitation and community campaigning. The initial set of training workshops focus on sensitization of the participants to core philosophy and themes of the programme. Subsequent workshops are used to cover specific materials and facilitation methods for the implementation of the group education activities curriculum.

See Appendix Section 10.1 for more details of the implementation plan.

## 4 EVALUATION

In order to test the effectiveness of *PAnKH*, we designed a randomised controlled trial (RCT) of the programme. The aim of the trial is to evaluate the overall impact of the *PAnKH* programme, as well as to disentangle the effects of programme components that target only the girls from those that also engages with parents, men and boys and the broader community. In this way we can assess not only the impact and cost-effectiveness of the full integrated model of the programme, but also of its key individual components. Given the complexity of the full model, it is important to understand the impact of the individual components, as well as the combination in order to learn which model would deliver highest impact most efficiently.

To this end we are conducting a three arm trial in which a total of 90 clusters are randomly allocated to one of three arms: one in which the full integrated model of the *PAnKH* programme is implemented, one in which only the activities directly targeting the girls (group education and sports sessions) are implemented and one in which none of the *PAnKH* programme components are implemented (the control group). We collect data in all three arms before and after the implementation of the programme to evaluate impacts of the “girl only” and “integrated” models of the *PAnKH* programme on the main outcomes identified in the Theory of Change ( Figure 1). In this section we describe the evaluation design, sampling procedures, data collection and data analysis strategies.

Ethical clearance for the project was granted by the Sigma IRB Committee (New Delhi), ICRW IRB (Washington DC), and UCL IRB (London).

### 4.1 EVALUATION PROBLEM

The key evaluation problem is that we would like to observe how the same individual would fare with and without the programme; for instance, we would like to compare the age at marriage of a girl in a state of the world where she has participated in the *PAnKH* programme to that where she has not. Since it is not possible to observe these two outcomes for the same girl we need to use an approach that allows us to observe the outcome for two groups of girls where:

1. Only one group participated in the programme
2. Without the programme, the outcomes *would* have been identical.

As long as these conditions hold, any differences in outcomes found after programme implementation can be attributed to the programme. Because participating in the programme is an individual choice, it is likely that girls who choose to participate are different from those who choose not to participate, so that even without the programme their outcomes would not have been identical. We would therefore have no robust way of disentangling programme effects from these pre-existing differences if we just compare participants to non-participants.

The first-best way to address these pre-existing differences is to allocate programme participation *randomly* among a group of eligible individuals. Conditional of successful randomization and large enough sample, allocating the programme in this way will mean that

girls who are assigned to the *treatment* group (group that receive the programme) are, on average, not different, before the start of the programme, from the girls who are in the *control* group (group that do not receive the programme), meeting the conditions above. In this case any differences that are found after implementation of the programme can be confidently attributed to programme impacts. This is the approach that we adopt to evaluate the impact of the *PAnKH* programme.

## 4.2 EVALUATION DESIGN

*Randomisation strategy:* Our unit of randomisation is the village, since the programme operates at the community level. We have a total sample of 90 villages and randomly allocated 30 of the 90 villages to each of three possible treatment arms:

1. “Integrated”, in which the full set of *PAnKH* programme components are implemented
2. “Girl only” in which only the activities with the girls (education and sport sessions) are implemented.
3. “Control” in which none of the *PAnKH* programme components are implemented

*Evaluation:* In order to evaluate programme impacts data are collected at the start (baseline) and end (endline) of the project. Baseline data were collected before the start of programme implementation between January and March, 2016. Endline data will be collected for the whole the baseline sample after the completion of the planned programme activities, between October and December, 2017. We will use these data to estimate the impact of eligibility for the *PAnKH* programme on the targeted outcomes using regression analysis and controlling a core set of baseline characteristics to increase the precision of the impact estimates. The planned analysis strategy is set out in more detail in Appendix Section 12.2 and will be fully developed in a pre-analysis plan which we will publish ahead of conducting the evaluation analysis in winter, 2017/18.

It is important to note that our main estimates will inform on the impact of being in a village that was allocated to each of the treatment groups (*Intention to Treat*), rather than the impact of directly participating in the programme. These will be different if some girls and households decide not to participate in the programme even though they are eligible (in villages where the programme operates). Using an *Intention to Treat* framework is optimal in this study for two reasons. First, if the girls/households that chose not to participate were already different, before the start of the programme, from those that did in ways that are relevant for the outcomes of interest (e.g. more traditional), the randomisation would be compromised and the estimated effects would include both the programme impacts and the effect of the pre-existing differences between the participants and non-participants. Secondly, the *unconditional* effect of a household being offered the programme is arguably more useful from a policy perspective as it is our best estimate on the effect on the ‘average’ adolescent girl of scaling up the programme.

Due to resource constraints the evaluation focuses on measuring impacts on the primary target beneficiaries of the programme – the adolescent girls. To this end we collect data on

the girls, their caregivers and households. We will not, therefore, be able to measure direct impacts on the men and boys or wider set of community members reached by the programme in the “Integrated” arm.

*Evaluation Instruments:* Our guiding principle in designing questionnaires for this study was to collect data that would allow us to go beyond evaluation of the overall “black-box” impact of the programme and explore the key channels for the effects, guided by the theory of change (described in Section 3.2). The survey instruments, therefore, include questions designed to measure both the final and the intermediate outcomes as specified in the Theory of Change (see Figure 1). Good data on both would allow us to explore the overall impacts of the programme as well as the factors that mediate these in order to answer the key evaluation questions, listed in Section 0 (Introduction).

Below we outline the content of the questionnaires in relation to each of the final and intermediate outcomes in Figure 1<sup>5</sup>:

**Marriage** (Final outcome 1): Questions relevant for married girls in the evaluation sample include age at marriage and involvement in the marriage arrangement process. These questions were also included in the carer questionnaire to capture persistence in marriage practices within families across generations. Modules aimed at unmarried girls in the sample include questions about their expectations surrounding their future marriage including its timing and the process for its organisation. Trends in age at marriage within the study villages will be captured during the the baseline as part of the village census listing exercise (see description of baseline data collection in Section 4.3.2).

**Education** (Final outcome 2): Education related questions capture current educational status of all girls in the sample, including whether or not they still attend school and, if so, what type of school and what grade. Self reported education data is complemented by time-use questions informing on time spent on core activities including going to school and studying on a particular day. School achievement indicators include information on current school level, a rapid literacy assessment and self and carer assessments of ability relative to peers and siblings.

**Sexual and Reproductive Health** (Final outcome 3): SRH questions relate to menstruation and health seeking behaviours. Modules administered to married girls only include questions about family planning methods and sexually transmitted infections as well peri-natal care and practices (for married girls with children).

**Improve Knowledge** (Intermediate outcome 1): Improving girls’ and their carers’ knowledge and understanding of the issues surrounding marriage, education and SRH decisions is key to our theory of change. The questionnaires therefore include modules to measure girls’ understanding of menstruation and its connection to puberty and reproduction using a series of multiple choice questions and true or false statements such as “Menstruation cleans the body of dirty blood”. These questions have previously been used and validated in India on a smaller sample of adolescents

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<sup>5</sup> Complete set of baseline questionnaires is available on request.



(Singh et al. 2006). Married and older girls knowledge around contraception and family planning are also assessed.

***Change in Attitudes*** (Intermediate outcome 2): We include modules to capture the attitudes of girls and their carers surrounding decision making on marriage, education and SRH as well as gender more generally. Attitudes towards gender are measured using a 29 statement scale capturing gender norms and attitudes. This scale has been developed and piloted by ICRW. Carer attitudes towards girls' education are captured using a vignette approach; the attitudes of both girls and their carers towards SRH (childbearing, menstruation and contraception).

***Increased Social Support*** (Intermediate outcome 3): To assess the level of social support accessible to sample girls, the questionnaires include questions relating to where they access information and who they talk to about sensitive issues including the extent of the girls' communication with friends and different family members on personal issues such as sexual harassment, marriage and SRH.

***Enhanced Non-Cognitive Skills and Mental Health*** (Intermediate outcome 4): The girl includes General Health Questionnaire which is a widely used instrument for assessing symptoms of mental health problems in surveys including in developing countries. We measure four domains of non-cognitive skills – self-efficacy, self-esteem, peer relations and socio-emotional skills – using widely used short tools described in more detail in the Results Section 5.2.7.

***Creation of Enabling Environments within the Household and Community*** (Intermediate outcome 5): Measurement of the broader environment could be greatly enriched by collecting data at the community level and from men and boys. However, as mentioned above, due to resource constraints, this is outside the scope of this study, in which we are restricted to measurement of carer and girls' outcomes. The carer questionnaire captures women's role in decision making within the household through a series of questions on the carers' role in a variety of household decisions. The girl questionnaires also ask about prevalence/experience of violence and intimidation against girls in the household, school and communion, as well as restrictions placed on women in relation to, for instance, mobility, access to information and communication technology.

In addition to these measures, we will collect basic data on key household and household member characteristics, including caste, household composition, socio-economic status, household member employment etc.

While the main evaluation analysis will be based on data collected at the end of programme implementation, all of the measures described above were also be collected at baseline. These data are important for a number of reasons. First, they will allow us to examine change in the core indicators with age. Second, we will be able to use these data to control for baseline measures of the outcome measures in estimating programme impacts to increase precision of estimates, as well as explore interactions between initial conditions and the programme.

Finally, we will be able to assess the quality of data and how the instruments performed and make necessary adjustments for the end-line survey.

*Sample Size and Power:* The programme targets girls in a wide age-range and in different circumstances (e.g. married and unmarried, in and out of school). For the purposes of the evaluation we distinguish 3 groups for which we would like to be able to robustly estimate programme effects on the main outcomes: (1) younger adolescent girls (12-14 years); (2) older, unmarried adolescent girls (15-17 years); and (3) married adolescent girls (12-19 years)<sup>6</sup>. We conducted detailed power analysis in order to determine the sample size in each group that would give us the desired degree of confidence in being able to detect programme effects. Details of the analysis are presented in Appendix Section 12.3. The results suggested a target size of 7000 girls spread evenly over the 90 villages.

## 4.3 EVALUATION IMPLEMENTATION

### 4.3.1 SAMPLING

*Selection of districts and blocks:* The evaluation takes place in three blocks of Dhoulpur district – Bari, Basari and Dhoulpur where PRADAN have operated for over ten years and have a well-established self-help group infrastructure as well as trust and acceptance of the communities.

*Selection of Respondents:* Within each village we performed a complete listing of girls aged 12 to 19, recording their marital status. These girls became the sampling frame from which we drew our study sample, stratifying by age and marital status (unmarried age 12-14; unmarried age 15-17; married age 12-19). As discussed in section 4.2 given a target sample size of 7000 girls and an expected refusal rate of 15-20% as well as substantial misreporting of age during the listing stage, we drew a sample of 9,162 girls: 3483 girls aged 12-14 (an average of 38.7 per village), 3315 unmarried girls aged 15-17 (an average of 36.8 per village) and 2364 married girls aged 15-19 (an average of 26.2 per village).

Figure 2 summarises the sample selection process. From the girls we selected for baseline from the mapping process we had a combined refusal/non-completion/out-of-age-range rate of 17.2%. Overall, we have 7577 girls who meet baseline eligibility criteria based on their age and marital status and for whom we have complete girl level data. This is the sample which we use for all further analysis in this report and will aim to resurvey at end-line.

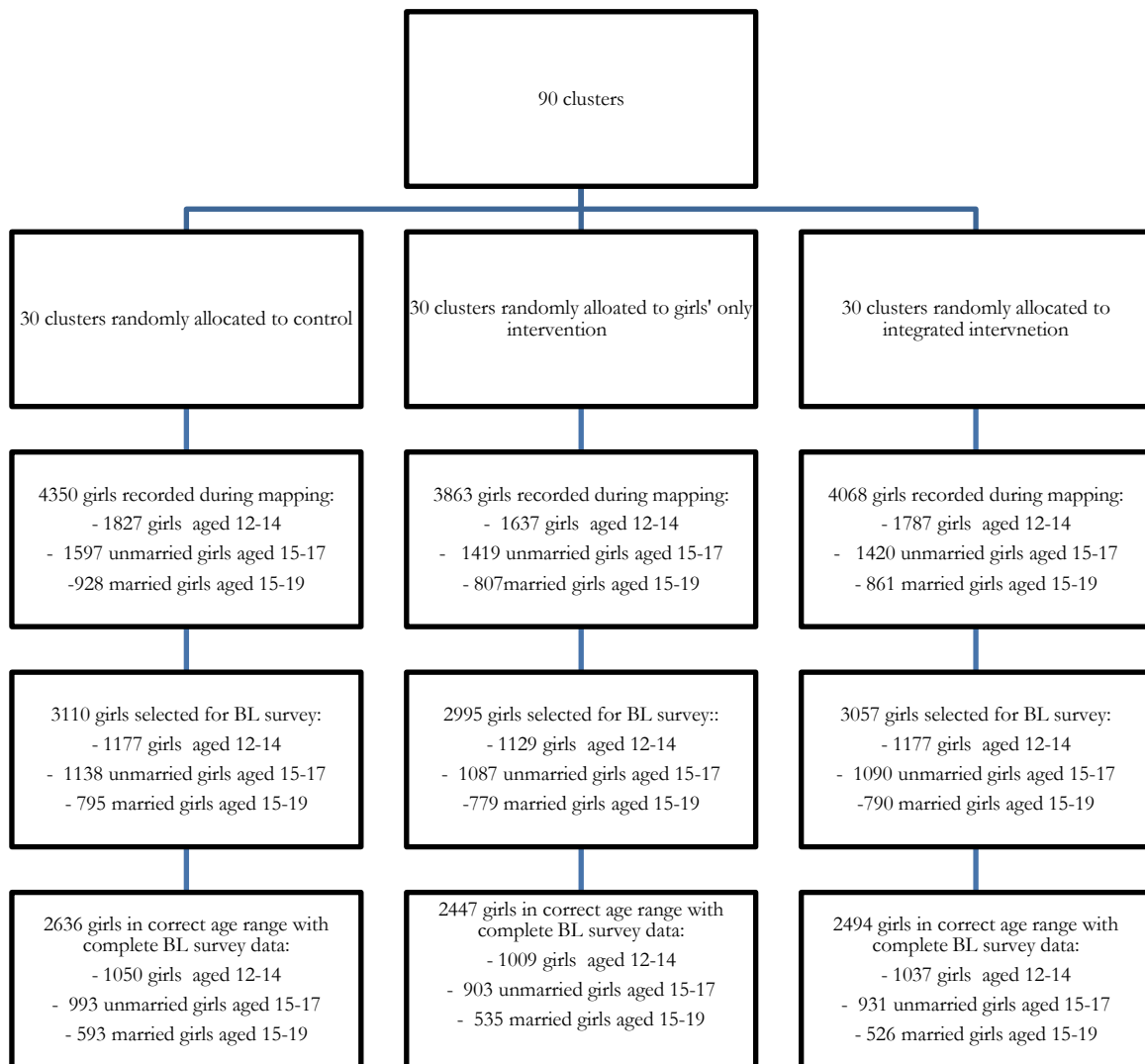
### 4.3.2 DATA COLLECTION

*Household listing:* Listing was conducted in all 90 study villages order to identify the sample frame for the study (used to draw the study sample, as described above). The aim was to capture all households in the village with members in the programme target group – girls age 12-19. Listing was conducted by ten teams of two fieldworkers overseen by two supervisors

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<sup>6</sup> Ideally we would be able to estimate robust effects of all groups of participants. However, this would require us to collect data on a much bigger sample than is possible within the resource constraints of this project.

**Figure 2: Randomisation and sample selection**



following 3 days of training (including classroom discussion and field practice) on research ethics and mapping-listing techniques facilitated by ICRW staff.

Upon entry to the village, fieldworkers approached the first structure on the right-hand side to gather information about number of households residing in that structure. Then, the team approached each household, ask for an adult member, read brief introduction and ask name of head of the household, number of adolescent girls in age group 12-19 years and some additional basic information (including marital status of the girls), covering a total of 100-150 households per day.

*Baseline Survey:* Implementation of the baseline survey took place in the 90 study villages following the completion of the listing and sampling stages.

*Interviewer training:* Interviewers received 10 days of training which included: two days focusing on the aims and objectives of the study, perspective building on gender and

violence, and research ethics including consent and assent processes; five days familiarising themselves with the questionnaires and use of tablets for data collection<sup>7</sup>; two days for field practice; and a day on review of field practice, and developing a field execution plan. Data collection was supervised by supervisors from the survey company (Nielsen) and by field consultants from ICRW.

*Informed consent:* Prior to commencement of the survey oral consent was taken from all adults in the sample. In cases where the individual was a legal minor (less than 18 years in India), parental consent was taken first, followed by the assent of the individual. The consent and assent forms were translated into the local language and read out loud to the concerned person to get their approval. Interviewer emphasized to married girls that they could take time to consult with anyone they wish to in order to come to the decision of whether or not to participate in the study.

*Questionnaires administered:* There were three separate instruments used to collect the data (see Section XX for description of the main measures). These included:

(1) Girl questionnaire administered to each sample girls and containing question on the following broad themes: education, employment, savings, time-use, peer-network, self-esteem, self-efficacy, attitudes towards gender norms, marriage, sexual and reproductive health and family planning (knowledge and practices), socio-emotional skills, safety and violence, communication and well-being.

(2) Carer questionnaire administered to the main carer of each girl in the baseline sample. If a girl lived with her mother then this was almost always the mother of the girl. If she lived with her in-laws it was typically her mother-in-law. It contained question on the following broad themes: education, employment, decision making, attitudes to girls' education and marriage, sexual and reproductive health and family planning, expenditure on different children, social support, attitudes towards gender norms.

(3) Household questionnaire administered to a knowledgeable adult in the household, often the main carer of the sample girl. It contained questions on the following broad themes: a household roster, dwelling characteristics, assets, ration cards, caste and religion of the household members.

*Data collection:* The data collection team consisted of 10 teams with 6 field staff in each (4 female interviewers, 1 female quality monitor and 1 male supervisor). The supervisor allocated households to each of the interviewers and they then approached each of the selected households, gave his/her introduction and asked for the head of the household. If the head was not available, then the investigator asked for any adult member of the household. After explaining the purpose of his/her visit, the interviewer explained the household consent form, responded to any follow-up questions, and then took consent. After securing consent from the household head, the interviewer proceeded with the household interview. Upon completion of the household survey, the interviewer approached the selected eligible girls and their female caregiver for the individual surveys<sup>8</sup>. For ethical reasons and to ensure girls

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<sup>7</sup> All data were collected using Computer-assisted personal interviewing (CAPI).

<sup>8</sup> Depending on the age of the selected respondents, the interviewer approached a parent (or respondent, in case of adult) for their consent and then the respondent (girl) for assent.

felt comfortable and able to give honest answers to sensitive questions, we used same sex fieldworkers.

*Quality assurance/check:* To ensure data quality, on-site and off-site monitoring mechanisms was placed. There were four sets of checks in place at the field level: a) team supervisor to ensure that the sampled households and respondents are the ones surveyed and tablets and application are working; b) female quality monitor to accompany investigators to ensure that consent and assent processes are followed, interview is happening in private, questions are asked and recorded correctly and appropriately, and files are saved before leaving; c) four female consultants recruited by ICRW for field monitoring through sitting-in on interviews and conducting back-checks through randomly picking respondents to re-interview; d) periodic field visits by ICRW research team to assess quality of data collection and ensure compliance with ethical guidelines. Further, monitoring checks conducted from ICRW offices in Delhi included periodic review of uploaded data for completeness and internal consistency followed by feedback to the field team on ways to improve data quality.

*Social Mapping:* The household listing, sampling and baseline survey stages were followed by the *Social Mapping Process*, which was conducted using Participatory Learning and Action (PLA) approach in the 60 villages where *PAnKH* programme implementation is planned. The main objectives of this exercise were to:

- a. Get an overview of some key characteristics including caste composition, educational level (mainly among women and girls), status of health including sexual and reproductive health, availability of resources and livelihoods opportunities.
- b. Understand the existing social norms and practices in relation to education of girls, livelihoods, SRH, mobility and marriage among girls and how these impact on a regular life.
- c. Explore issues related to safety of girls, girls' access to public spaces which can be used to implement programme activities including spaces to run groups with girls, men and boys, and parents groups for the programme and spaces to play sports.

The PLA process was completed over the course of two month and involved techniques such as introductory meeting with key stakeholders, transect walk of the village, social mapping and construction of timelines with adolescent girls and women. The process was implemented by a team of three field facilitators and a note taker: one facilitator discussed the thematic area/issues with the community members, while the others facilitated drawing of the social and resource map with different groups in the community (see Figure 3).

Through this extensive process, the following information was captured for the 60 villages:

- Location of various hamlets within community especially most marginalized and vulnerable social groups, their population mix and socio-economic condition, female headed households etc.
- Government service infrastructure, school, health services (ASHA, SC, PHC), nutrition services (AWC, mid day meal in schools) and their access from various parts of the village

- Location of common natural resources (ponds, wells, surface water, land with common rights), roads, water bodies, grazing lands, places of worship and their access from various parts of the village
- Areas open for access to all social groups
- Presence of Collectives, Cooperatives and SHGs etc
- Groups within the village such as community specific *Panchayats* (caste and tribe based congregations) that take up crucial issues such as safety and security of women and girls, inter- community tensions/frictions etc.

The team also took the opportunity to brief the villagers about plans for implementation of the PAnKH programme and sought their collective approval to work with the different groups targeted by the programme.

**Figure 3: Social Mapping**



#### 4.4 BASELINE DATA ANALYSIS STRATEGY

*Sample Balance:* A key aim of baseline analysis is to check that randomization was successful i.e. that there are no systematic differences between the samples in the three arms based on observable characteristics (i.e. the sample is balanced). We present summary statistics (mean and standard deviation) for all key indicators by treatment group in Supplementary materials C file (Tables C1-C11). We test for differences between these groups by estimating the following regression using Ordinary Least Squares (OLS):

$$y_{ij} = \alpha + \beta_G T_j^G + \beta_I T_j^I + \varepsilon_{ij} \quad (2)$$

Where  $y_{ij}$  is the indicator of interest for individual  $i$  in cluster  $j$ ,  $T_j^G$  is an indicator variable equal to one if the girl is in the girl only treatment group and  $T_j^I$  is an indicator variable equal to one if the girl is in the “Integrated” treatment group.

We report p-values for the following hypothesis tests: (i) the “Girl only” treatment group mean is equal to the control mean (i.e.  $\beta_G = 0$ ); (ii) the “Integrated” treatment group mean is equal to the control mean (i.e.  $\beta_I = 0$ ); (iii) the “Integrated” treatment group mean is equal to the “Girl only” treatment group mean (i.e.  $\beta_G = \beta_I$ ); and (iv) the mean in each of the three treatment groups is equal to the others (i.e.  $\beta_G = \beta_I = 0$ ). The p-values for these statistical tests tell us the probability that a difference as big as the one we see could be due to chance if, in fact, no difference was present. Therefore, the higher the p-value the more similar our treatment groups seem, statistically speaking, on that particular outcome. In this analysis we allow for arbitrary correlation of the errors,  $\varepsilon_{ij}$ , at the level of the cluster.

*Summary Statistics:* In the remainder of this report we present the descriptive statistics (mean and standard deviation) of the key indicators from the baseline survey. We present all the statistics for the whole sample (see Figure 2), for each of the sampled sub-groups (girls aged 12-14, unmarried girls aged 15-17 and married girls aged 15-19) and then separately by caste group and top and bottom wealth quartile. Note that we do not have a representative sample and, therefore, the descriptive statistics presented are not representative of the population averages in the surveyed areas.

*Analysis of Scales:* Many of concepts of interest in this study, such as mental health, attitudes or various skills, are best assessed using scales<sup>9</sup>. The gold standard would be to use scales validated for our specific study population (or as close to it as possible). This has the dual advantages of knowing that the scale effectively measures the concept we wish to capture and allows for comparability. However, this gold standard is not possible in most developing country contexts, including ours, where scales have rarely been rigorously validated. Therefore, in the absence of validated scales to measure the concepts of interest in this study, we adhered to a number of guiding principals, with the aim of ensuring that we have a good understanding of what we are measuring and are, potentially, able to compare our results with other studies: (a) we only included complete existing scales that had been well-validated in developed countries and previously used successfully in a developing country context, preferably India; (b) we prioritised scales that had been used in populations that we might want to draw comparisons with – for example the *Young Lives* study and the *Youth in India: Situation and Needs Study*<sup>10</sup>; (c) we piloted all scales and selected scales (or sets of items within scales) that were judged to perform well in terms of the comprehension and level of engagement of respondents.

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<sup>9</sup> Scales are a common measurement tool in social sciences (e.g. psychology). They consist of a set of individual statements (referred to as items) to which a respondent must choose a response which indicates his/her degree of agreement with the statement, on a 4 or 5 point scale. These items all aim to measure either a single, or several closely related concepts. Capturing these concepts through multiple items gives us much information and means our analysis is less prone to measurement error than if we used single questions. In this study we measure gender norms, mental health, self-efficacy, self-esteem, peer relations and socio-emotional well-being using scales.

<sup>10</sup> <http://www.younglives.org.uk/> and <http://www.popcouncil.org/research/youth-in-india-situation-and-needs-study>

The focus of the analysis of these scales in this baseline report is to assess how they performed in the specific study population. We use exploratory factor analysis to (a) analyze the extent to which all items in a particular scale are measuring the same underlying construct or whether the items relate to multiple constructs; (b) assess the reliability of the scales (i.e. statistical performance of the scale); and (c) assess the criterion validity (how well the scale predicts known related behaviours/constructs). Appendix Section 12.4 and Tables B1-B16 present a detailed discussion and results of the factor analysis procedure and construction of the final analysis measures of each construct. We discuss findings linked to criterion validity in the main results section below (Section 5).



## 5 BASELINE FINDINGS

In this section we first present results of checking that the randomization was successful (following the strategy described in Section 4.4). We then present and discuss baseline findings linked to key themes of the study including: (i) marriage (ii) education (iii) sexual and reproductive health (SRH) (iv) safety and violence (v) gender attitudes (viii) social support, communication and decision making (vi) self-efficacy, self-esteem, peer relations and socio-emotional skills, (vii) mental health.

### 5.1 SAMPLE BALANCE

Tables C1 to C11 show summary statistics for a set of variables linked to these key themes over the three treatment groups and results of hypothesis tests set out in Section 4.4. As discussed, with a successful randomisation we would expect the three treatment groups to look, statistically speaking, the same across the vast majority of measured characteristics. Note that when looking at differences across so many variables, we would expect “chance” imbalances in 5% of the cases. The results suggest that by and large this is the case and the sample is well balanced across the three arms. Nevertheless, we will include any core baseline characteristics which we find to not be perfectly balanced as baseline controls in the evaluation analysis; the exact set of baseline controls will be specified in the pre-analysis plan.

There are very few indicators that differ across the three groups and are worth of note. Table C1 shows that there is a slight imbalance by caste with girls in the “Girl only” treatment arm less likely to be in a dominant caste household than their counterparts from the “Integrated” and “Control” arms. Table C2 further shows some differences in marital patters between the “Integrated” and “Control” arms, with slightly higher proportions of girls reporting marriage preparation being underway in the former than the latter. There are other cases of statistically significant differences, but with little to suggest that there is anything more to them than chance.

Overall, the balance analysis clearly indicates that the randomisation was successful. This is a key finding of the baseline, as without a successful randomisation the whole design of the evaluation would be compromised.

### 5.2 DESCRIPTIVE STATISTICS

We now turn to a discussion of the baseline trends in a selection of indicators linked to the key themes of the study. Tables A1 to A11 present descriptive statistics on each of these themes for the whole sample as well as broken down by age, marital status, caste and wealth

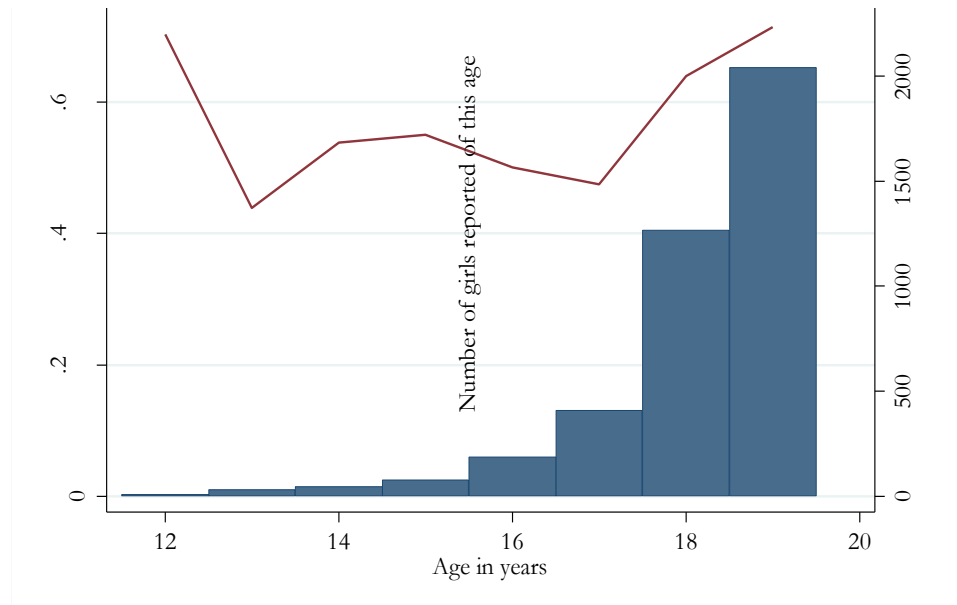
#### 5.2.1 MARRIAGE

One of the primary goals of the *PAnKH* programme is to increase the mean age at marriage, with a specific aim to reduce the proportion of girls marrying before 18 - the legal minimum age of marriage. We examine baseline patterns in the key marriage outcome measure - age of marriage - as well as, measures of some of the main mechanisms through which we hypothesise that the intervention could have an impact on this outcome - girls’ attitudes towards, say in and expectations about marriage.

### Age of marriage in the sampled villages and the study sample

Using listing data on all girls age 12-19 in the study clusters, collected prior to the baseline, Figure 4 plots proportion of girls reported married by age.

**Figure 4: Marital status by age in the sample villages**



The proportion reported as married remains very low between ages 12 and 14, starting to increase more noticeably from age 15 and reaching 13% of girls by age 17. By 19, two thirds of 19 year olds reported being married at the time of the listing. These trends should be interpreted with caution as on the same plot we show an odd overall pattern in the distribution of reported ages in the listing data (red line). There is a marked spike in the number of girls who are reported as 12, 18 or 19 years of age relative to ages 13-17. Similar spikes are found in the DLHS data suggesting that respondents' systematically gravitate to 'benchmark' ages (e.g. 12, 18, 20). While uncertainty about exact age is likely to be part of the explanation, the patterns are also consistent with intentional misreporting: if families systematically report girls who are under 18 and married as being over 18 then we would expect to see this pattern.

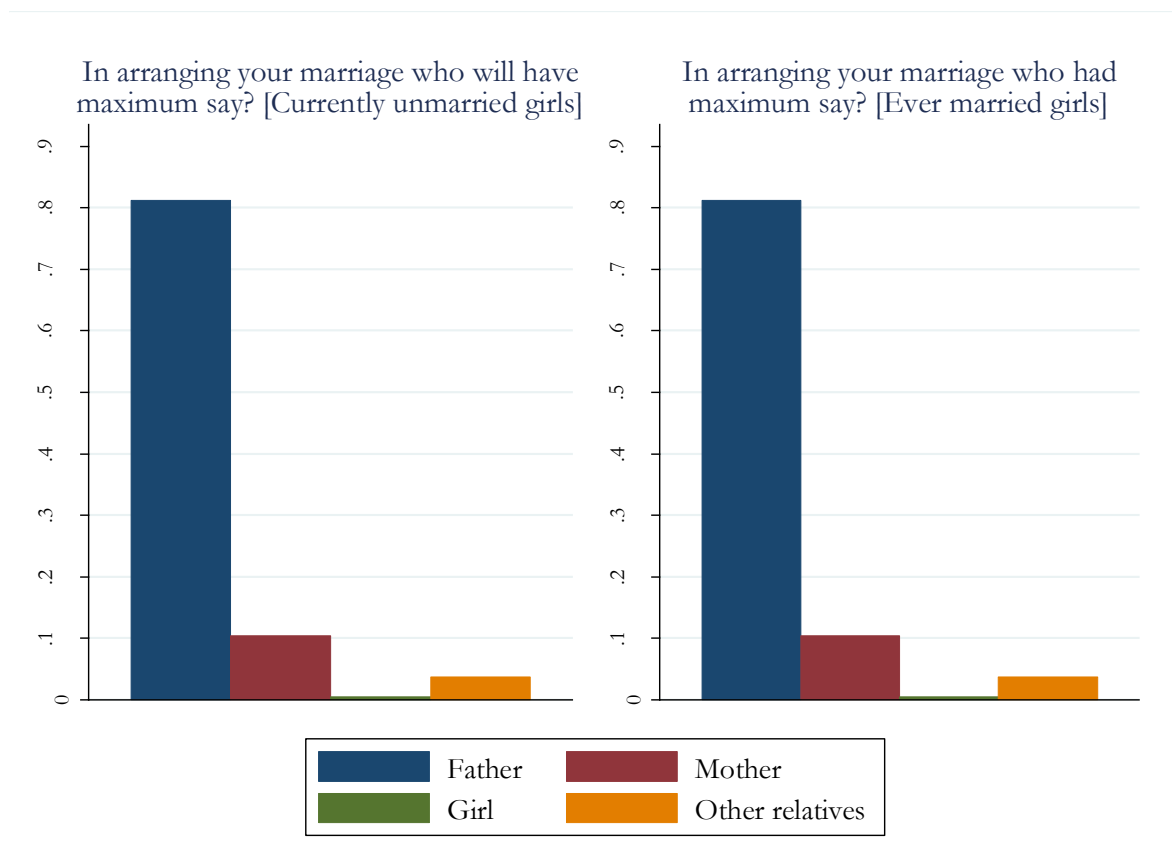
We now turn to our study sample, in which we oversample married girls in order to be able to detect intervention effects on this group: 22.4% of our baseline sample are married, of whom 12.4% were married before they turned 18 and 10.4% lived with their husband before 18. A further 13% of unmarried girls in the 15-17 age-group report that their elders are talking about marriage, with a marriage fixed for more than half of these. Mean age at marriage among married girls in the sample is 15.6 years and on average they married men who were about four years older than them. While the great majority of married girls are living with their husbands' families, the 10% who are not tend to be girls for whom the marriage ceremony has been performed but the *gauna* ceremony, which marks the start of conjugal life together, has not yet been performed; these girls are significantly younger than the other married girls (Table A2).

Finally, consistently with India-wide trends, there is a clear sharp intergenerational upward trend in the reported age of marriage: the great majority (78%) of the mothers/mothers-in-law in the sample married before they were 18 years with a mean (median) of 15.6 (15) years.

*Attitudes, Expectations, Aspirations and Decision-Making around marriage*

In this context the overwhelming norm is for arranged marriage; almost all of the girls in the sample either had or expect to have an arranged marriage. Our data also suggest that girls are generally in favour of this practice: 97.2 % of unmarried girls reported that if the decision was theirs alone they would prefer this arrangement (Table A3).

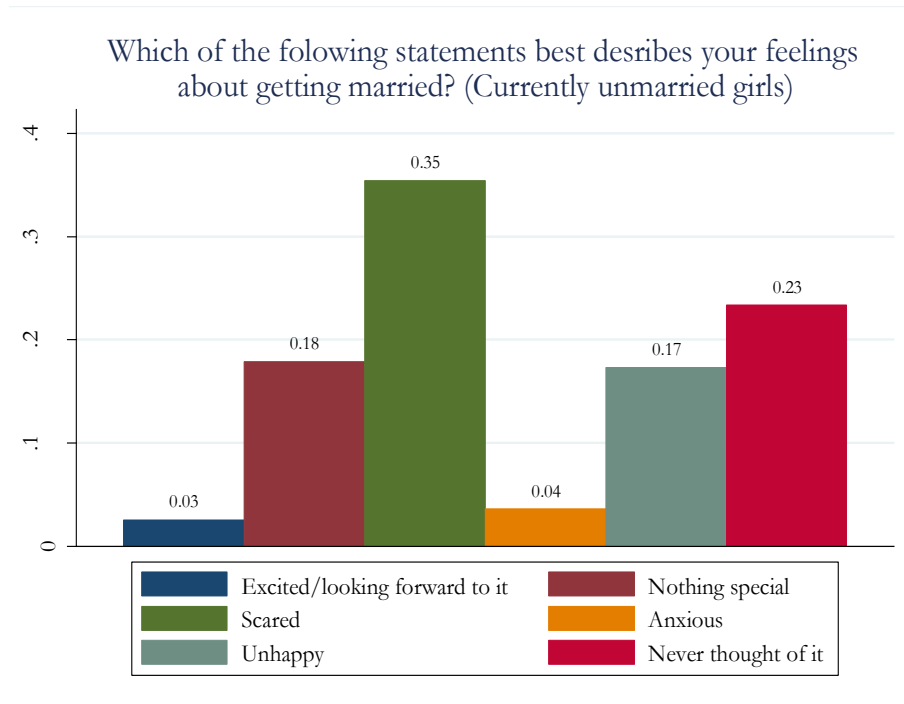
**Figure 5: Household decision making in marriage decision**



Further, girls have very little say in anything to do with the marriage arrangement. Overall decision making power in the process is predominantly held by the father, with four out of five girls reporting that they either expect their father to have maximum say on this (unmarried girls) or that this was the case at the time when the marriage was arranged (married girls). Fewer than one in ten of the married girls in the sample had been asked when or whom they wanted to marry. While a quarter of the married girls reported that their parents had asked them whether they liked the boy before marriage, in the context of the previous figures we infer that this was often asked after the match had been fixed. In line with these findings the question about expected age of marriage to unmarried girls in the sample proved to be difficult with 55% responding that they “didn’t know”. The pattern across all of these indicators is consistent with the qualitative data collected as part of the social mapping

component: a strong theme is that girls are not asked or told anything about their marriage until all arrangements are finalised (Table A3).

**Figure 6: Feelings about marriage (unmarried girls)**



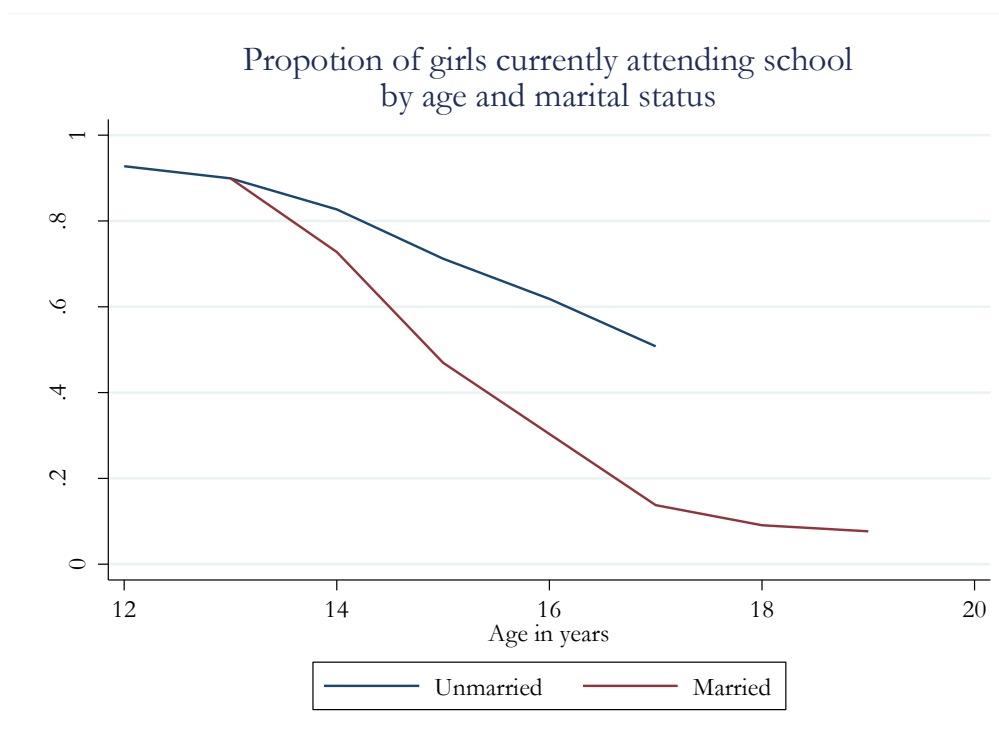
We see some persistent differences in the level of parental involvement of their daughters in the marriage decision by caste and wealth: on average girls from dominant caste households and wealthier households reported being asked more frequently when and whom they want to marry and whether they like the boy selected to marry them.

Strikingly, the most common single response to a question on feelings about marriage prior to marriage (current for unmarried girls and retrospective for married girls) is “Scared” (Figure 6).

### 5.2.2 EDUCATION

Improvements in women’s education in India are strongly associated with a decline in overall fertility and prevalence of early marriage, as well as improvements in birth spacing, child health, labour market outcomes, democratic participation and mental health and wellbeing (Dreze and Murthi 2001; Dreze and Sen 2002; Duraisamy 2002). Recent studies as well as findings from formative research for this study suggest that remaining in school may be one of the most effective ways in which adolescent girls can delay marriage and child-bearing (e.g. Duflo et al, 2014). Educational attainment and retention in school is, therefore, a key outcome of interest in this project. In this section we describe baseline trends in school participation followed by a discussion of some of the key indicators of girls’ attitudes and decision making power in relation to schooling.

**Figure 7: School attendance by age and marital**



Although the great majority of girls in the sample have attended school at some point (93%), about half of those currently at school are attending a standard that is lower than we would expect based on their age. This could be because they started school later than expected (age 6), or because they were held back for their poor progress in studies<sup>11</sup>. This proportion increases with the age of girls and is higher amongst girls from SC/ST and OBC castes, as well as those living in poorer households (Table A4). Overall school attendance rates decline sharply with age. Figure 7 shows that while more than 90% of unmarried 12 year olds were attending school at the time of the baseline, this was the case for only half of the unmarried 17 year-olds. Across the age groups the majority of the school-going girls attend public schools (70%), with the rest in private schools. Most primary and upper primary schools appear to be either within the village or close by, with girls travelling an average distance of less than 1.5 km to reach either. Girls travel substantially further to reach secondary schools (2.3 km) and upper secondary schools (5.5km) (Table A4).

Self-reported attendance rates suggest that just over a third of the girls currently at school miss between 1 and 5 days of school in a typical month; reported attendance rates are substantially higher among girls from dominant caste households. Time-use data provide some further detail: school-going girls spend an average of 6.2 hours a day in school and a further 1.7 studying. Again the most significant difference is by caste with girls from higher caste households spending about half an hour a day longer on studying at home (Table A4).

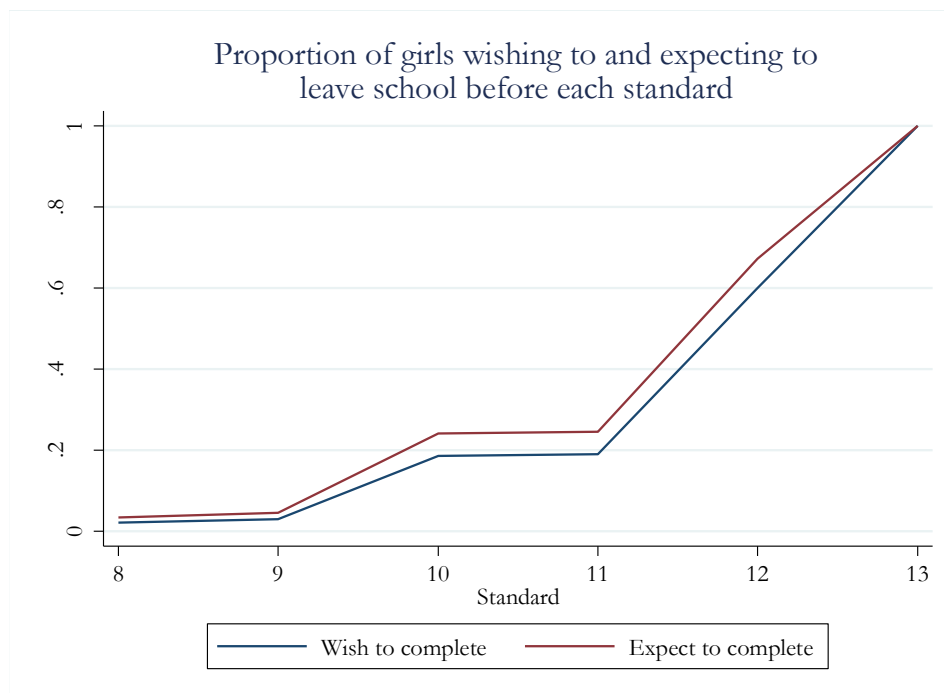
<sup>11</sup> Age misreporting could also be part of the explanation.

Strikingly, based on assessment by the interviewers, a quarter of the girls who attended school and completed less than 8<sup>th</sup> standard were unable to read a simple sentence completely<sup>12</sup>. There is roughly a 20 percentage point difference in literacy of girl from dominant caste households and those from SC/ST and OBC groups, which is also comparable to the gap between girls from poorer (bottom wealth quartile) and richer (top wealth quartile) households.

There is a well-documented link between girls' schooling and marriage in India and similar contexts, including some causal evidence suggesting that delaying marriage increases girls' schooling (e.g. Field and Ambrus, 2008). The repeated finding that married girls are significantly less likely to be at school than their unmarried peers is also evident in our data. The blue line in Figure 7 above shows school attendance rates by age for unmarried girls, while the red for married. Overall, very few married girls were attending school at the time of the baseline (one in ten) and the majority of those who were are still living with their parents (i.e. *gauna* has not yet been performed). On average, therefore, married girls have received less schooling than their non-married peers of the same age, as many as a quarter of them had never been to school at all and only half were able to read a sentence completely.

*Attitudes, Aspirations and Decision-Making around Education*

**Figure 8: Education aspirations and expectations**



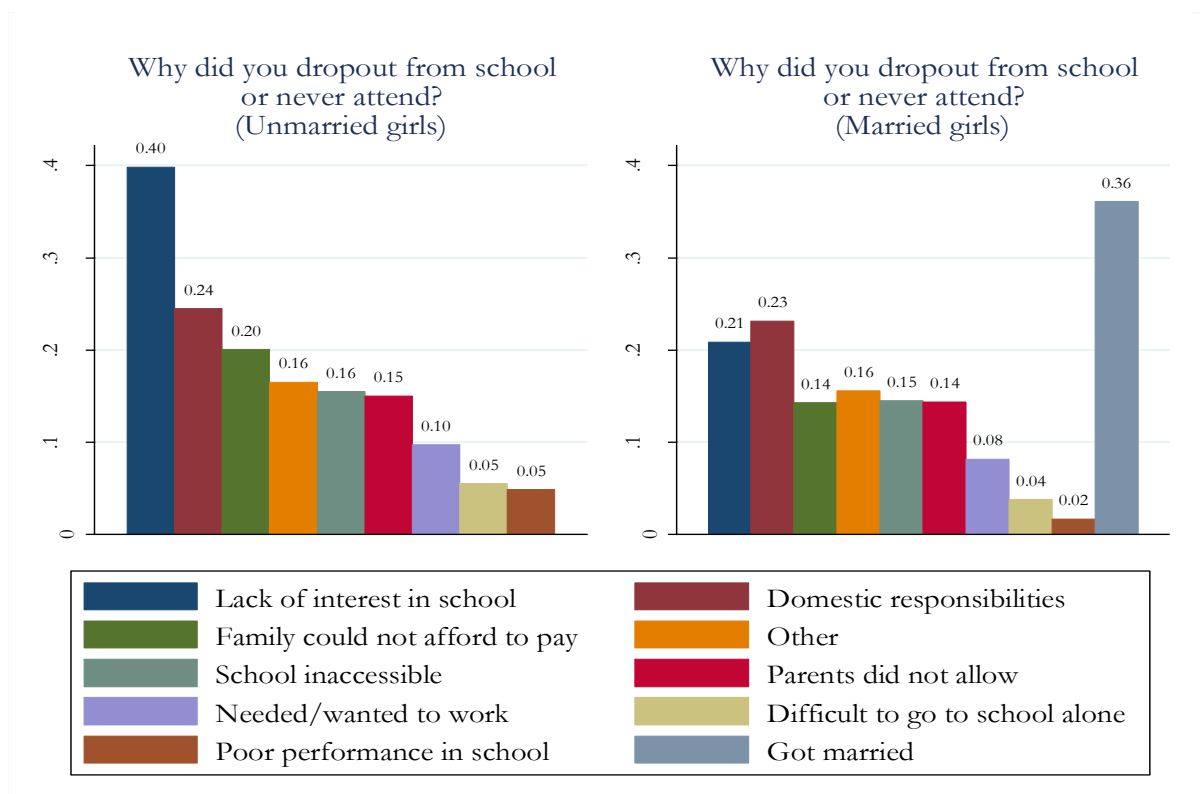
The girls in the sample aspire to and expect to be able to attain much higher levels of education than that reached by their mothers/mothers-in-law. While less than 10% of the mothers/mothers-in-law of the girls in the sample completed standard 10, Figure 8 shows that

<sup>12</sup> Before the baseline, we assumed that all of the girls who have completed 9<sup>th</sup> standard or higher would be able to read a complete sentence and did not test these girls. In the context of the findings for girls completing less than 9<sup>th</sup> standard, this assumption may have been incorrect so that the true overall level of literacy in the sample is in fact lower than the 69% than our data suggest.

four out of five girls aspire to and three out of four expect to complete at least 10<sup>th</sup> standard. There is only a small gap between the highest level of education that girls currently in school aspire to and expect to complete.

Overall 38% of girls in the sample were no longer attending school during the baseline. Marriage was the single most common reason for drop out cited by 36% of the married girls in the sample. The pattern of responses across the two groups (married and unmarried) shows that combined domestic responsibilities, need to work and families being unable to afford school were one of the reasons for drop-out cited by roughly half of the out of school girls. A further one in five girls cited school accessibility (including difficulties getting to school alone). Finally, lack of interest came through as a much more prominent reason for drop-out among the unmarried than married girls (Figure 9).

**Figure 9: Reasons for dropping out of school**

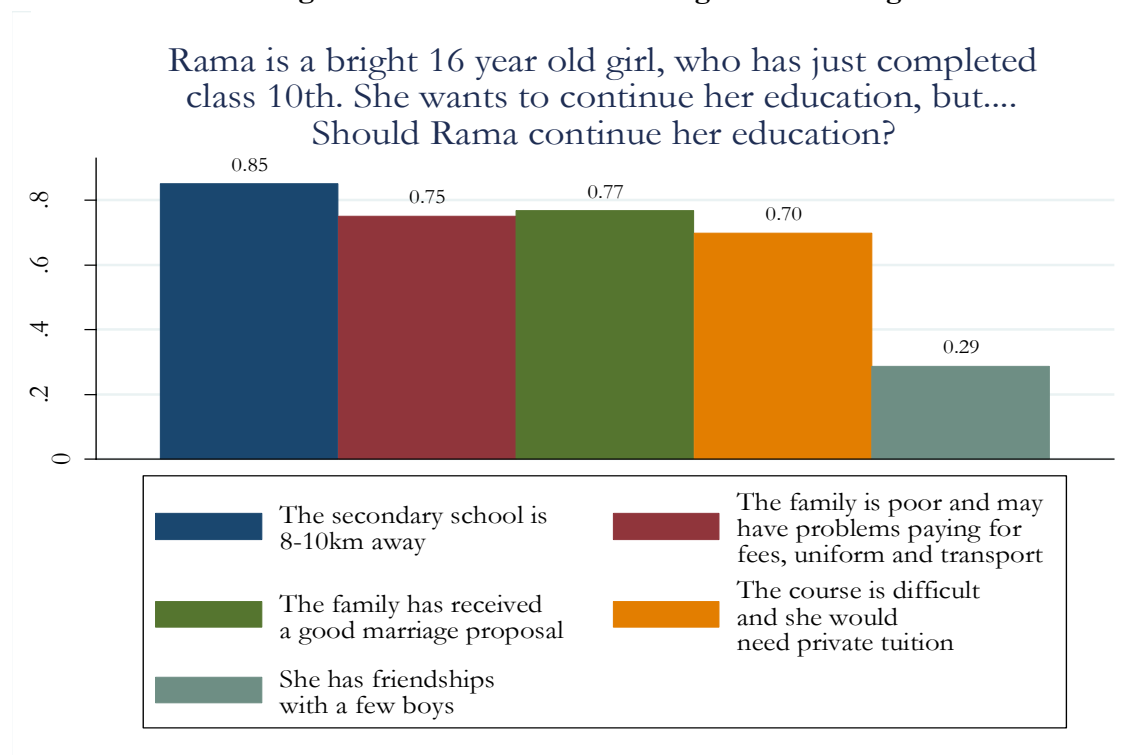


More than half of the whole sample of out of school girls report that they wish they could have pursued their education further. This seems to be more consistent with wishes that develop after drop-out since the assessment of the majority of the girls currently at school is that they will have at least some say (big say for 50% of the girls) in the decision regarding continuation of their education.

The data further provide some insight into what carers perceive as constraints to girls being allowed to continue in education. Figure 10 shows the proportions of carers who think that a fictional girl Rama should continue her education in various scenarios. The one scenario in which the majority of carers thought Rama should *not* continue her education is if she has

friendships with boys. Further, similar proportions of carers (around one in four) viewed financial constraints and a good marriage proposal as reasons to discontinue a 16 year old girl's education.

**Figure 10: Carers' attitudes to girls' schooling**



### 5.2.3 SEXUAL AND REPRODUCTIVE HEALTH

Sexual and reproductive health is a major issue for adolescents and young people in India, especially girls. Prevalence of misconceptions and myths, restrictive traditional practices, shame and stigma surrounding menstruation, combined with restricted access to suitable menstrual hygiene products and WASH facilities mean that adolescent girls are ill informed about menstruation, have few sources of information to draw on and perceive menstruation as a taboo subject. Existing studies on India and Rajasthan suggest that these factors are associated with unsafe menstrual hygiene practices with heightened risk of reproductive tract infections, as well as school absenteeism (Khanna et al, 2005; van Eijk et al, 2016)<sup>13</sup>. Further, prevalence of early marriage results in early onset of sexual activity, extremely low rates of contraception use, early childbearing and heightened vulnerability to maternal mortality and sexual violence (Jejeebhoy and Santhya, 2011). Improvement of adolescent sexual and reproductive health is therefore key to improving the long-term well-being of adolescent girls and their children and is the focus of the *PAnKH* programme. In this section we present baseline descriptive statistics relating to knowledge, practices and attitudes to menstruation, family planning, pregnancy and child-birth in our sample.

<sup>13</sup> It should be noted, however, that the evidence on the link between menstrual hygiene and reproductive tract infections as well as school absenteeism is weak and based on correlational studies. Meta-analysis findings suggest that methodologies used in these studies are often low quality and more rigorous studies do not find significant associations. There is a great need for more robust evidence on the link between management of menstruation and women's health and social outcomes (Oster and Thornton, 2011; Sumpter and Torondel, 2013).



## *Menstruation*

Overall, 70.4% of the girls in the sample have already experienced their first menstrual period. By aged 14 the majority of girls have begun menstruating.

A stark example of the shame and stigma associated with menstruation and puberty more generally are the views of mothers and mothers-in-law in our sample; nearly 3 out of 5 report that they consider speaking to their daughters about menstruation and other bodily changes inappropriate. This is consistent with data on the main sources of information regarding these issues for the girls: the majority first heard about menstruation from a female friend (34%) or a sister (27%). As has been found in other studies, the majority of girls (72%) had not known about menstruation before first menstrual period (Table A5).

In this context, we see that levels of knowledge about menstruation among the girls vary substantially depending on whether information could have been acquired through personal experience. Where that is the case knowledge is relatively good: the majority answer questions about age at first menstruation, normal duration of cycle and blood flow correctly (Figure 11). However, girls show significant knowledge gaps when it comes to questions that require a greater understanding of the female body and the purpose of menstruation. For example, only 9% correctly disagreed with the statement that “Urine and menstrual blood leave the body through the same path” and just 4% with the statement that “Menstruation cleans the body of dirty blood”. Strikingly 1 in 4 girls are not aware of the link between the menstrual cycle and childbearing.

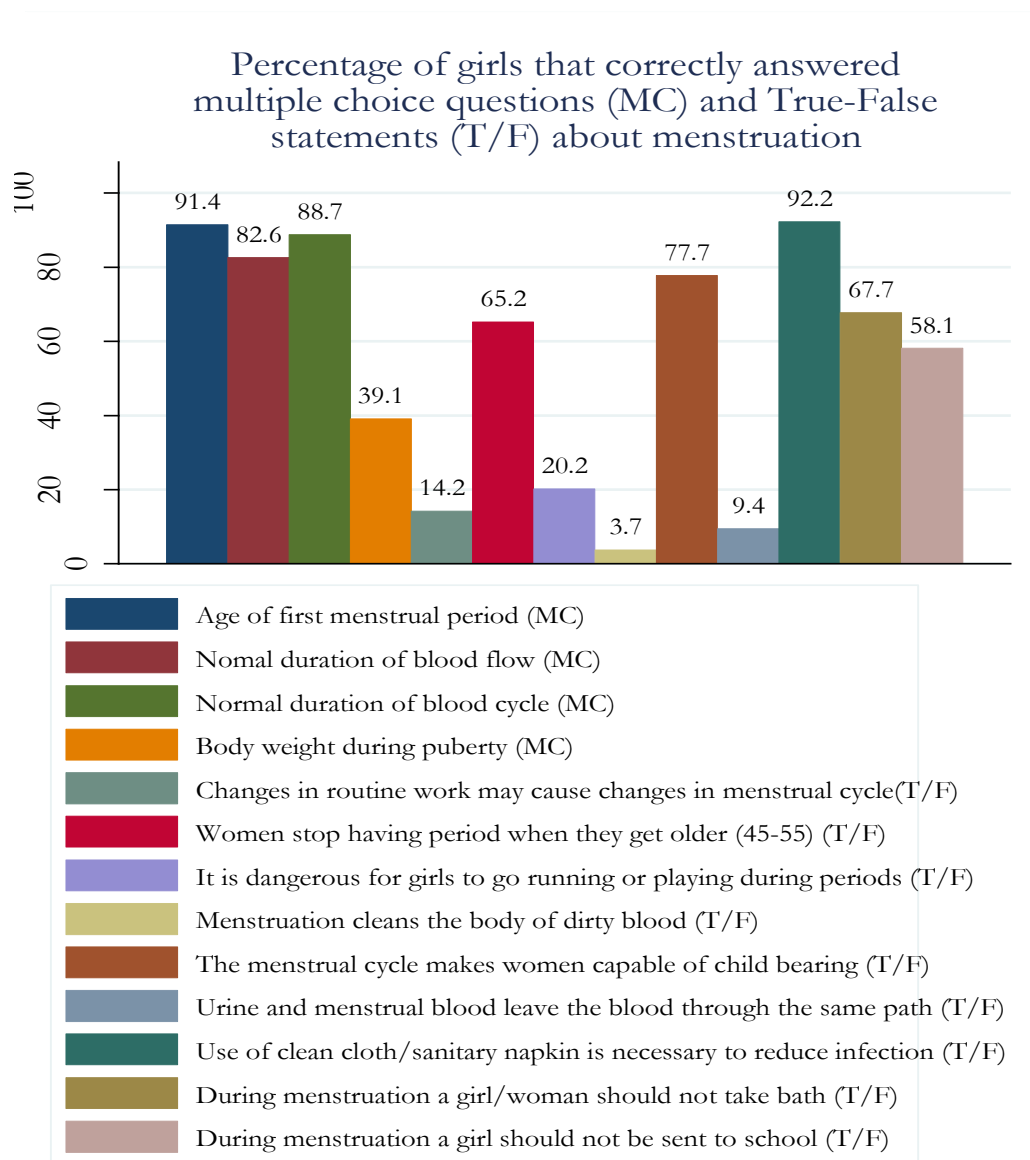
Our data also show that along with it being a taboo issue for discussion, girls face many day-to-day culturally motivated restrictions when menstruating. For instance, in line with beliefs identified through the social mapping component, the great majority are not allowed to touch stored food or attend religious festivals, more than half are also not allowed to cook (Figure 12).

One of the potential risks of such stigma and strong restrictive norms surrounding girls’ menstruation is non-disclosure of health problems and adoption of unsafe hygiene practices for fear of letting it be known that they are menstruating (e.g. drying washed sanitation cloths in dark, damp spaces). Overall, reported hygiene practices with respect to use of sanitary products in our sample are consistent with good menstrual hygiene: while more than half of the girls report exclusively using cloths, almost all of them, as well as those using a mixture of cloths and sanitary pads, report that they never re-use the cloths<sup>14</sup>. One in three girls report exclusively using sanitary pads; these usage rates are higher among younger girls and among girls who belong to a dominant caste or a wealthier group (Table A5).

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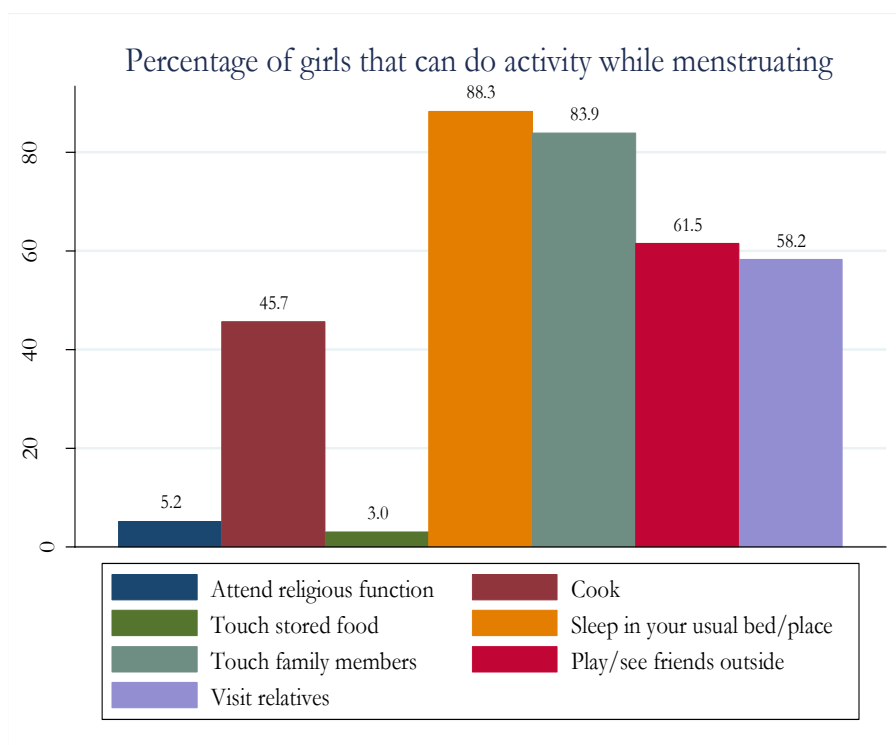
<sup>14</sup> Results of more in-depth related studies conducted in comparable contexts, however, suggest that these data should be treated with caution: it can often be the case that the cloths used have been stored in unhygienic conditions (e.g. hidden in dark, damp spaces) and are not sufficiently clean (e.g. Behera et al, 2015).

**Figure 11: Knowledge about menstruation**



Another often cited risk linked to physical and social restrictions and stigma faced by girls during menstruation in developing countries is disruption to schooling. There is a common, much publicised, perception that girls miss substantial amounts of school during menstruation for a variety of reasons including lack of access to suitable sanitary products and toilet facilities in schools, harassment by boys, restrictions placed by the family and community. Our data, however, offer only weak evidence of this; irrespective of wealth and caste more than two-thirds of the girls report that they do not interrupt their attendance to school during menstruation. Only 16% report often or always missing school due to menstruation. Even among these girls the great majority (71%) report physical pain rather than lack of facilities or restrictions places by the family as the reasons for missing school. These patterns are in line with the little rigorous empirical evidence that there is, which shows that the link between menstruation and school attendance may not be as stark as correlational studies and popular media would suggest (Oster & Thornton, 2011).

**Figure 12: Restrictions during menstruation**



### *Pregnancy and Child bearing*

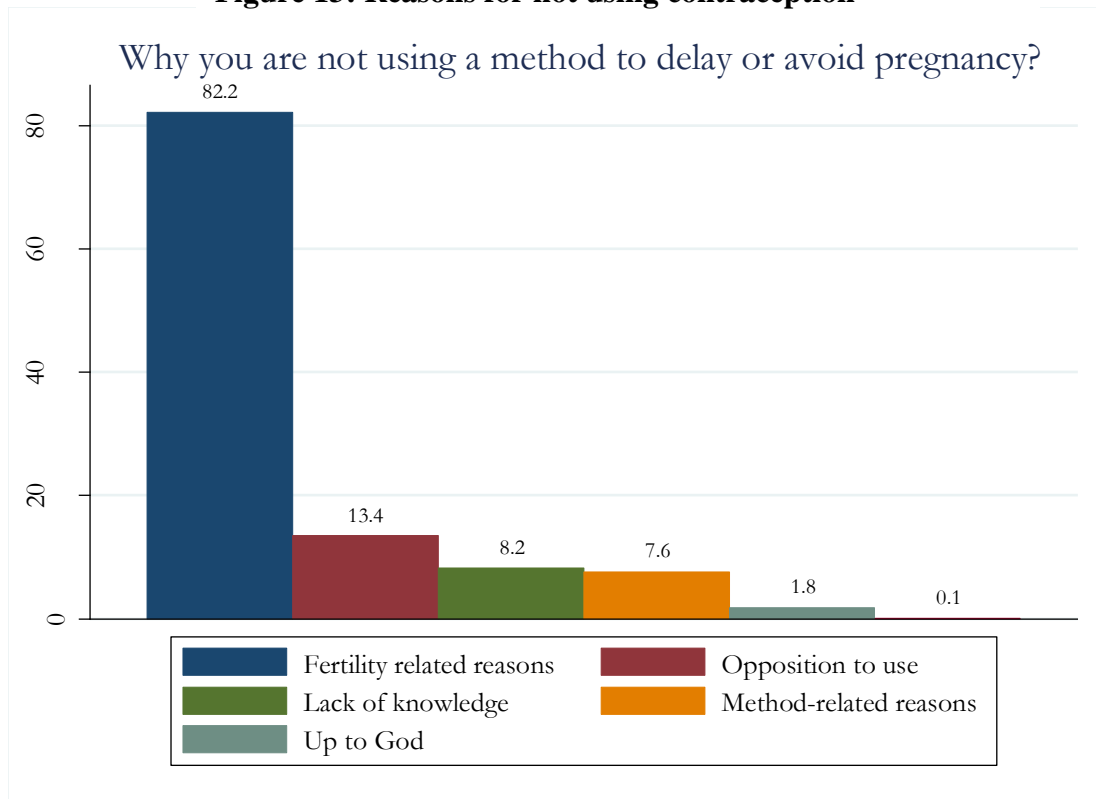
On average, more than half of the 15-19 year old girls in our sample who are currently married have been pregnant (11% of the total girls in the sample), with just over half of these girls (28% of all married girls) pregnant at the time of the baseline. At just under 17, the average age of first pregnancy among these girls is significantly lower than that perceived as ideal (21.3) across the sample of girls age 15+ (Table A9).

Among the girls who have had a live birth, 78% gave birth during the last year and eight out of ten had one child at the time of the baseline. While the great majority of the girls registered and had at least one check-up with a doctor, nurse or other qualified professional during their pregnancy just over half did not attend postnatal check-ups within the first 42 days after their baby was born. Across the wealth distribution girls in the sample mainly gave birth at public hospitals (Table A9).

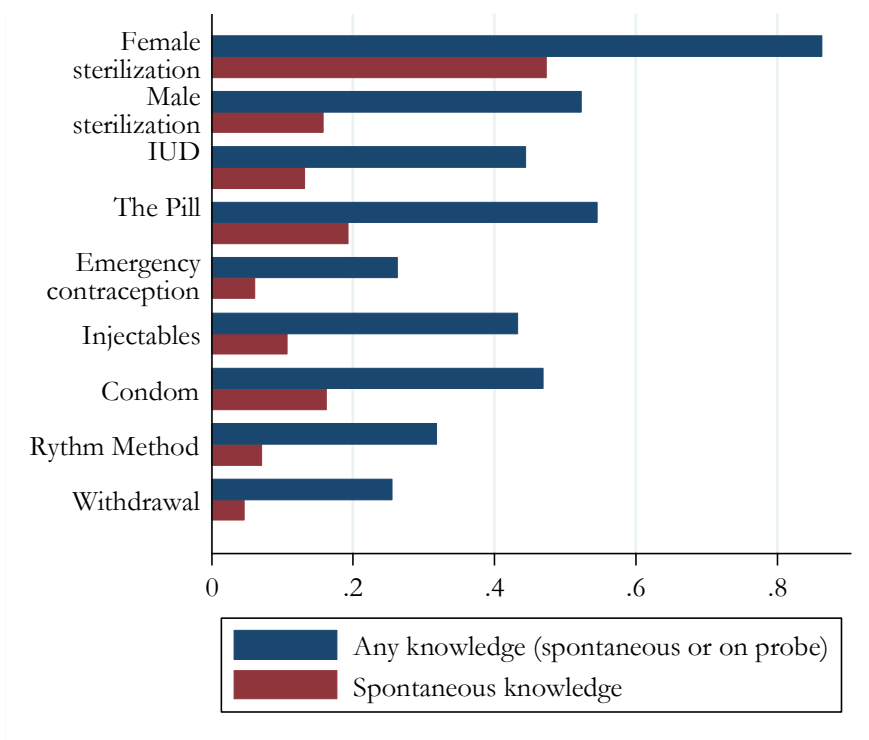
The mean number of children that the married girls report *wanting* to have is 2.6. A large proportion of the married girls (69%) report discussing the number of children they would like to have with their husbands, though two out of 5 say that in the end they have ‘little say’ over the final decision (Table A7)

While the girls in the sample cite at least two years as the ideal gap between the children (15 months between pregnancies), international recommendation is significantly higher than that at 24 months or more (WHO, 2005). Married girls are further more likely to have a preference for having more boys than girls (25%) than for having more girls (6%).

**Figure 13: Reasons for not using contraception**



**Figure 14: Knowledge of family planning methods**



Only 16% of the married girls are currently using a method of contraception (Table A6). About two thirds of these girls use a modern method, such as IUD, oral contraceptive or condom; most common methods are condoms or rhythm. The most often cited reasons for *not* using contraception among married girls who are not trying to get pregnant or are currently pregnant is opposition to use, predominantly among their husbands (Figure 13). Only a third of the married girls report ever discussing use of contraception with their husbands and in most cases (70%) these discussions were initiated by the husband.

More generally, the levels of knowledge about sexual reproduction and family planning methods in our sample are low. Nearly three quarters of girls over the age of 15 do not know that it is possible to get pregnant when having sexual intercourse for the first time<sup>15</sup>. Only about half of the girls age 15+ can name at least one contraceptive method without prompting; this proportion is higher among girls who are older, married, and come from households in the top wealth quintile (Figure 14 shows proportions of girls mentioning different types of contraception when asked to list the types they know, with and without prompting).

We assess attitudes of carers to contraception by asking carers whether they agree or disagree (on a four point Likert scale) with a series of statement about contraception, such as “females who use contraceptives are promiscuous”. Overall, most carers appear to believe that contraception is effective for preventing pregnancy and most believe that it is not ‘wrong’. However, the results show substantial embarrassment and discomfort around discussing the topic and stereotypes around the type of women who might use contraception.

We also find very low levels of knowledge about sexually transmitted infections: only just over one in ten girls, age 15+ report ever hearing about HIV and 3% of any other sexually transmitted infections (STI’s); almost none of the girls were able to name any symptoms of STI’s.

#### 5.2.4 SAFETY AND VIOLENCE

Safety from violence and the threat of violence are core themes of the PAnKH programme. Our overarching hypothesis is that freedom from fear and violence as well as a supportive environment are essential for enabling adolescent girls to improve their well-being (see Section 3.1). It is well documented that women and girls in South Asia face particularly high levels of different types of violence, from excess female child mortality, to physical and sexual harassment at home, in the community and at school, to intimate partner violence (Solotaroff and Pande, 2014). During the baseline, we aimed to capture girls’ experiences of violence, abuse and harassment and perceptions of safety across the different environments in which they operate day to day. Violence modules were included in the quantitative survey, as well as the qualitative social mapping component.

Before discussing the results, it is important to highlight the complexities associated with collection of these sensitive data, which often result in substantial underreporting. There are

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<sup>15</sup> Although knowledge increases somewhat with marriage and age, this remains the case for three out of five married girls.

issues linked both to barriers faced by women and girls in reporting violence, as well as the sensitivity of responses to specific survey methods. The key barriers link to (a) violence being considered normal/inevitable or apathy; (b) lack of outside options and fear of reprisal; and (c) reputational damage to the woman/girl and her family, especially since women/girls are often blamed for behaving in a way that evokes violence against them (Solataroff and Pande, 2014). Given these barriers, reporting of violence has been found to be sensitive to many factors including those to do with the specific contextual and individual characteristics (for example local sociocultural beliefs and norms), as well as those linked to the survey methods (specific definitions used, types of questions asked, interviewing techniques) (Fulu and Heise, 2015). Overall, disclosure appears to be significantly higher in focused surveys which are administered by carefully selected interviewers trained to ask sensitive questions and matched carefully to the respondents' background and life-stage (Ellsberg & Heise, 2005). Further, evidence on South Asia specifically suggests that underreporting is particularly high among adolescent girls, especially in relation to sexual abuse (Solataroff & Pande, 2014).

Based on this brief overview there are a number of reasons to anticipate serious underreporting in our quantitative data. These include (a) multipurpose nature of our survey (b) adolescent age-group along with questions about sexual harassment (c) use of interviewers with broad-based training in interviewing without specialisation in asking sensitive questions (d) high levels of acceptance of violence against women in the study area. The last feature is reflected in our data – for instance 53% of girls reported to either 'strongly agree' or 'agree' with the statement "A woman should tolerate violence in order to keep her family together" and 70% agreed or strongly agreed with the statement "A daughter deserves to be beaten if she does not obey her parents" (Table B6).

This is consistent with the patterns we see in our data. In the quantitative survey only 2.5% of girls reported experiencing any physical violence in the last six months and the great majority (85%) reported feeling either 'safe' or 'totally safe' from harassment and violence in their home, in school and in their community. In contrast, fear of violence and harassment outside the home emerged as highly prominent themes in discussions with women and girls as part of the social mapping exercise, where trained facilitators used specifically designed qualitative methods to illicit information. When asked to mark areas on the village map<sup>16</sup> where girls can play and feel safe, men and boys typically suggested that girls would feel safe in the entire village, especially during daylight hours. In contrast, women and girls, generally reported feeling safe in the smallest areas of the village, often confined only to their own homes. Some girls reported not wanting even to walk to the village health centre (*Anganwadi*) alone for fear of violence or harassment<sup>17</sup>. Answers relating to the specific forms of violence and harassment feared were twofold: (1) a fear of direct acts of physical violence, sexual assault, verbal harassment; and (2) the fear of the repercussions of such violence in terms of the shame it can bring on the girl and her family which, in turn, often leads to conflict with her parents or in-laws. Fears were partly based on first and second hand experience and partly on

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<sup>16</sup> The maps were drawn by the villagers as part of the social mapping exercise – see 4.3.2 for description and picture.

<sup>17</sup> They were often only happy to express this view when they were not in the presence of their adult or male relatives.

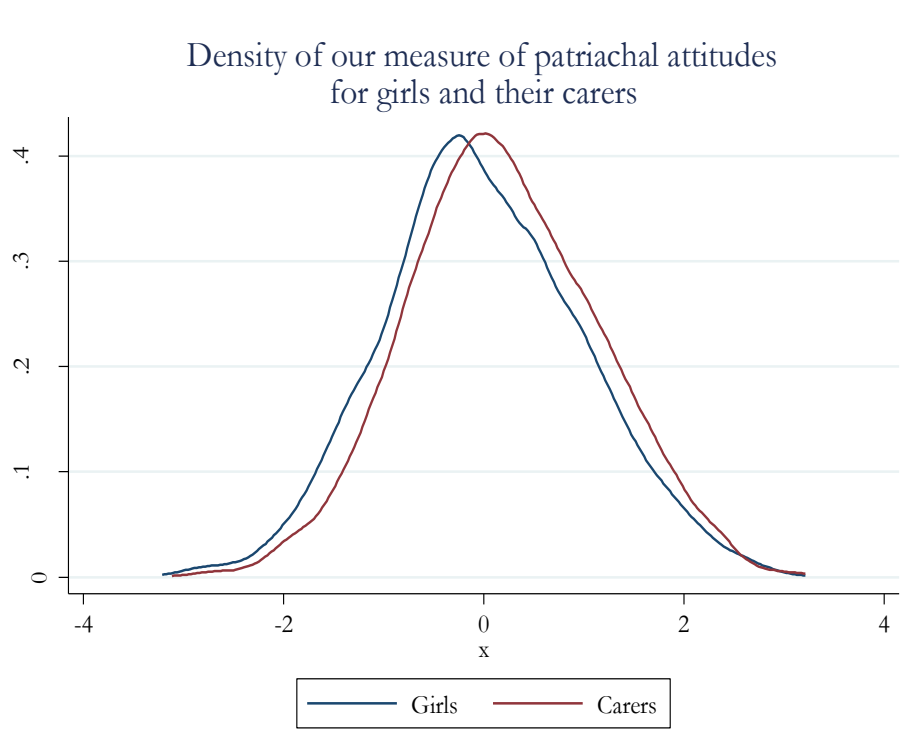
hear-say of incidents in the area from many years ago. Finally, the fear was often described as being part of a self-perpetuating mechanism, preventing girls from leaving their households unaccompanied, so on the rare occasions when they do it creates a lot of attention and resistance which, in turn, realises the fear.

### 5.2.5 GENDER ATTITUDES

Within the programme theory of change challenging and changing entrenched gender norms is seen as an important mechanism for influencing preferences and expectations around schooling, early marriage and SRH among the girls themselves and those around them.

Our main measure of attitudes towards gender is a scale created and piloted by ICRW for a project in Haryana. It contains 29 statements such as “Girls can hold leadership positions in school” and “A man should have the final say in all family matters”<sup>18</sup>. For each statement respondents are asked, with the help of a visual aide, whether they “strongly disagree”, “disagree”, “agree” or “strongly agree” with each statement. The majority of girls express agreement with statements supporting traditional gender roles, for example 86% either agreed or strongly agreed with the statement “Even if a girl is educated her primary role is to take care of the home”, 71% either agree or strongly agreed with the statement “A man should have the final say in all family matters”. As discussed above girls frequently agreed with statements justifying gender based violence and promoting restrictions on girls (see Table B6 for responses to the full set of the individual items in the scale).

**Figure 15: Distribution of patriarchal gender attitudes among girls and their carers**



<sup>18</sup> Of the 29 statements 5 are worded as positive statements on the rights and capabilities of girls and women, e.g. “A girl should be married only after she has been able to attain her educational goals” whereas the other 24 are phrased in support of patriarchal norms, e.g. “If a girl is a victim of some sexual abuse, it is the fault of the girl”.

The scale was administered to both the girls and their primary carers; we construct the main analysis measures using the exploratory factor analysis approach described in Section 4.4 and Appendix Section 12.4. Based on the results of this analysis, we construct a measure of how “patriarchal” the attitudes of the girls and their carers are. Overall we find that older unmarried girls hold less patriarchal attitudes than their younger counterparts (Table A11). Married girls, despite being older, however, hold substantially more patriarchal views than their unmarried counterparts; this could reflect the impact of marriage on girls views or the tendency of girls from families with more patriarchal views to marry earlier. We also find caste and wealth differences: girls from dominant caste households and higher wealth households have less patriarchal attitudes.

Table A11 further shows that gender attitudes of the girls are closely correlated with those held by their primary carers. Statistically, the underlying factor structures for the girls and the carers’ responses to the scale have very similar properties. We, therefore, pool the girl and carer data to estimate a single factor measuring patriarchal attitudes to allow direct comparison of the gender attitudes in the two groups<sup>19</sup>. Figure 15 shows that, on average, carers have more patriarchal gender attitudes; the average difference between girls and carers is 19% of on standard deviation (of the girls) as measured on this scale. While relatively modest, this difference is highly statistically significant.

#### 5.2.6 SOCIAL SUPPORT, COMMUNICATION AND DECISION MAKING

The low decision making power of women and girls within the household is a common theme across many of the areas we have discussed in this report: from decisions around marriage (Section 5.2.1) to decisions relating to fertility and sexual and reproductive health (Section 5.2.3). As described in Section 0, one of the aims of the PAnKH programme is to provide women and girls with the confidence and strategies to take a more active part in engaging with and being involved in decision making within the household.

The baseline data suggest that many of the key issues are not even discussed by the girls with their families. We ask girls whether they have ever discussed each of five different topics with (i) their mother or care giver, (ii) father, (iii) sister and (iv) brother. The results show that girls are far more likely to have discussed sensitive issues with their sisters and mother than their brothers or father (Figure 16). Even then, only 30% of girls reported ever discussing menstruation and other bodily changes with their mother and only 5% had discussed contraception or human reproduction with their mother.

Given the limited interaction that girls have with their families on these issues, peer networks may be crucial in providing the space for discussion of issues at the core of the *PAnKH* programme, dissemination of information/new ideas introduced by the programme and retention in the programme. The data are consistent with this: for example female friends are a key source of knowledge about menstruation and other SRH issues (over a third of girls first heard about menstruation from a female friend) and compared to the 30% of girls who discussed menstruation with their mother, more than half had done so with their female

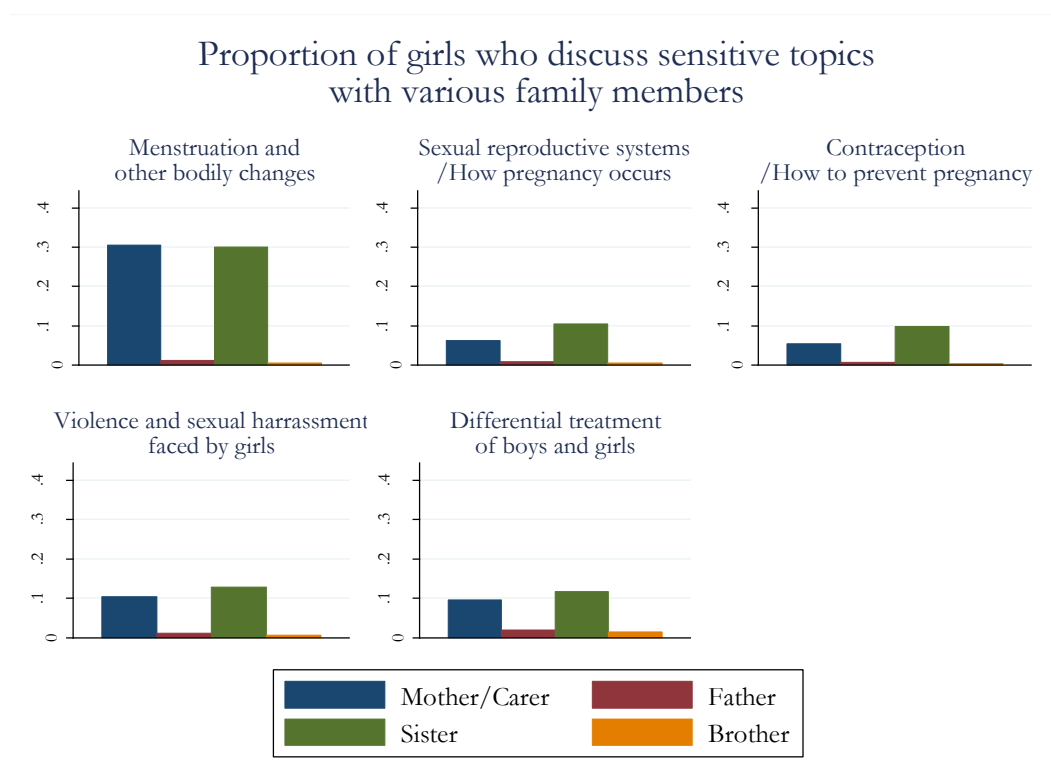
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<sup>19</sup> This analysis is valid under the assumption that the scale is operating in the same manner for both groups.



friends. Even among friends, however, discussion of certain issues remains limited: for example, less than a fifth of the girls reported discussing differential treatment of girls and boys or violence and sexual harassment of women in the last three months.

**Figure 16: Discussion of sensitive topics with family members**



School and extra-curricular activities provide important opportunities for interaction with peers: 62% of the sample were attending school at baseline and of these about half participated in extra-curricular activities (Table A10). In addition younger girls spend time playing with other girls in their spare time. Figure 17 shows that this proportion declines sharply with age from two out of three 12 year-olds to only a quarter of 16 year-olds. Further, these are slightly lower for girls from dominant caste.

Opportunities for out of school and married girls are much more limited: only 5% of married girls are members of women's groups.<sup>20</sup>

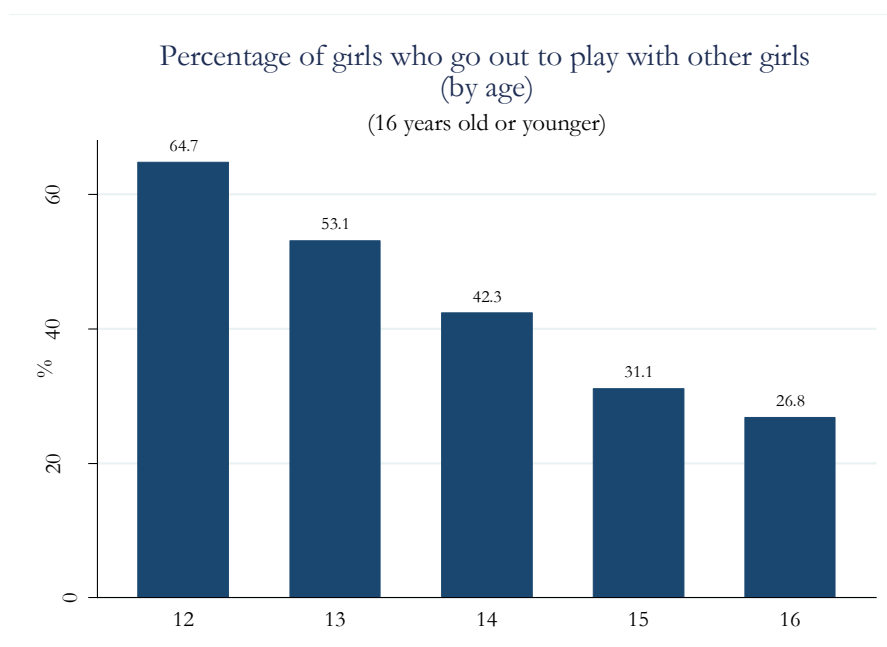
The *PAnKH* programme aims to increase girls' interaction with their families and involvement in the key decisions around their future both through activities with the girls but also their mothers in order to create an enabling environment within the household where women participate in key decisions.

Baseline results clearly show that, on average, mothers/mothers-in-law in the sample have relatively little say over big decisions and more say in small decisions linked to their remit of control within the household: while 77% reported having a big say in what to cook on a daily basis, only 38% did so for buying expensive items

<sup>20</sup> This is far lower than the participation rate for older married women in the village, reflecting a norm that women tend to join such groups after having children.

Carers in the sample also face very significant restrictions over their movement and freedom to go to certain locations or events unaccompanied: 36% of women cannot go to the village health centre (*Anganwadi*) unaccompanied and half cannot attend a Panchayat (local government) meeting unaccompanied. Consistently with these trends, women talked about fear of violence and harassment preventing them from visiting different locations in the village unaccompanied during qualitative PLA interviews. We use factor analysis to construct a summary measure of women’s freedom of movement to visit various locations unaccompanied (Table A11). We find that all items are highly informative on one underlying construct related to women’s freedom of movement. Carers from dominant caste households face slightly fewer restrictions on their movement than those from SC/ST and OBC households. As expected, the freedom of movement measure is positively correlated with that of carer decision making power.

**Figure 17: Spending free time with other girls**



### 5.2.7 NON-COGNITIVE SKILLS

Self-efficacy, self-esteem, peer relations and socio-emotional skills are hypothesised to be an important mechanism for increasing the girls’ aspirations for, as well as ability and confidence to pursue more ambitious life goals. The psychology literature presents ample evidence of the link between these skills and academic, occupational and socio-economic outcomes, as well as physical and mental well-being. We now discuss each of these skills in turn.

#### *Self-efficacy*

Self-efficacy is the belief in one’s own ability to succeed in a given situations or task (Bandura, 1977). This belief has been shown to be key in explaining how individuals approach situations and challenges; findings in the literature suggest that those with higher self-efficacy are more likely to work at and succeed in a challenging situation than those with

low self-efficacy. Adolescent girls in Rajasthan face many challenges and pressures linked to for example pursuing their education, complying with expectations regarding family roles and marriage, violence and harassment. Self-efficacy may be an important determinant of the extent to which girls face these challenging situations rather than retreat from them.

We measure self-efficacy using an adapted version of the “General self-efficacy scale” (GSE) developed to be used with adults and adolescents (Schwarzer and Jerusalem 1995). The GSE is a ten item scale containing statements such as “I can always manage to solve difficult problems if I try hard enough” or “I remain calm when facing difficulties because I can rely on my coping abilities”. Respondents were asked to indicate their degree of agreement (“Strongly agree”, “Agree”, “Disagree” or “Strongly disagree”) with each of the statements. It has previously been successfully piloted and used in India with adolescents as part of the Young Lives Study in the states of Andhra Pradesh and Telangana<sup>21</sup>; see Appendix Table B8 for responses to individual items on the scale.

Table A11 shows that being older, married, from a dominance caste or from a wealthier household are all correlated with having higher self-efficacy. For example, girls from dominant caste households score around one quarter of a standard deviation higher on the self-efficacy measure than girls from SC/ST or OBC households.

### *Self-esteem*

A related concept is that of self-esteem, referring to an individual’s subjective emotional evaluation of her self-worth (Rosenberg, 1989). We measure self-esteem using the “Self Description Questionnaire” (SDQ-I) (Marsh and O’Neill, 1984). This measure consists of 8 statements, all worded positively, such as “I have a lot of friends” to which girls were asked to choose either “strongly agree”, “agree”, “disagree” or “strongly disagree”. As with other scales we use factor analysis to create a summary measure and Table B9 shows that all items were found to be highly informative on a single construct of self-esteem.

We find our measure of self-esteem to be substantially less related to age than that of self-efficacy. Like self-efficacy, self-esteem is higher among girls from dominant caste and wealthier households (Table A11). Although we find that self-esteem is very highly correlated with self-efficacy ( $r=0.517$ ), factor analysis of the scales together finds two factors and, with one exception, all of the self-efficacy items load onto one factor whilst all of the self-esteem items load onto the other (despite all of the items being administered together and in mixed order). This is consistent with self-esteem and self-efficacy being separate constructs in the study sample of adolescent girls.

### *Peer Relations*

We used a subset of items from the peer relations subscale of the SDQ-I, which was piloted in India for the Young Lives study, to measure the perceived quality of peer relations in our sample. Of the eight items in this scale we included five that had factor loadings of greater than 0.25 in the Young Lives data.

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<sup>21</sup> <http://www.younglives.org.uk/>

Table summarises the data and presents results of factor analysis (Table B10). We find that all five items load strongly onto a single factor. Pooled factor analysis of the three scales discussed so far (self-esteem, self-efficacy and peer relations) further shows that peer relations and self-esteem items load onto one factor. Based on this finding we plan to present all analysis using separate and combined measures of self-esteem and peer relations.

We find that the average perceived quality of peer relations does not vary much with age amongst unmarried girls but is, on average, significantly lower for married girls. This might be due to restrictions placed on newly married women or the norm of moving away from the natal village making it hard to sustain quality friendships. Perceived quality of peer relations is higher among girls from dominant caste and wealthier households (Table A11).

### *Socio-emotional skills*

Socio-emotional skills refer to traits covering multiple domains - including social, emotional, personality, behavioural and attitudinal. Such skills, perhaps most notably resilience and grit, are increasingly being seen as as crucial as cognitive skills in determining success in education and the labour market. At the same time they also appear to be malleable, and can be raised through intervention. *PAnKH* aims to help girls develop such skills through a variety of games and activities implemented within the sports and education sessions. We use the socio-emotional skills measurement tool developed by the STEP programme at the World Bank to capture them in the baseline. This includes questions relating to eight theoretically separate socio-emotional skills: openness, conscientiousness, extraversion, agreeableness, emotional stability (neuroticism), grit, hostile bias and decision making. A detailed justification for the selection of sub-scales and validation across different developing country contexts can be found in a World Bank STEP Skills Snapshot document (World Bank, 2014).

In our study population, this measure is more experimental than our measures of self-esteem and self-efficacy. The STEP measure was principally developed to measure skills particularly relevant for employment and productivity in urban areas, and therefore it has never been validated in a setting similar to ours. However, including it here will help to expand the newly emerging evidence around non-cognitive skills, including their measurement, relationship to other outcomes and the extent to which they mediate interventions, in developing countries.

Table B11 shows that our data do not follow the hypothesized pattern: the scale items load onto 2 rather than 8 separate underlying constructs. The dominant pattern is that positive worded items (e.g. “Are you very polite to other people”) load onto one factor and the negatively worded items (e.g. “Are people mean/not nice to you?”) load onto the second factor. We interpret this pattern as due to wording effects discussed in Appendix 9.5. Because of this we take the first factor as the main single measure of socio-emotional skills in our sample.

We only measured socio-emotional skills for girls over the age of 15. Of these girls we observe that married girls score slightly higher than unmarried girls (10% of a standard deviation) though this difference disappears if we control for age suggesting that such skills increase with age. Again, we see both a caste and a wealth effect: girls from dominant caste and wealthier households scored substantially higher than their peers from ST/SC/OBC or lower wealth households (Table A11). As expected, we see that socio-emotional skills

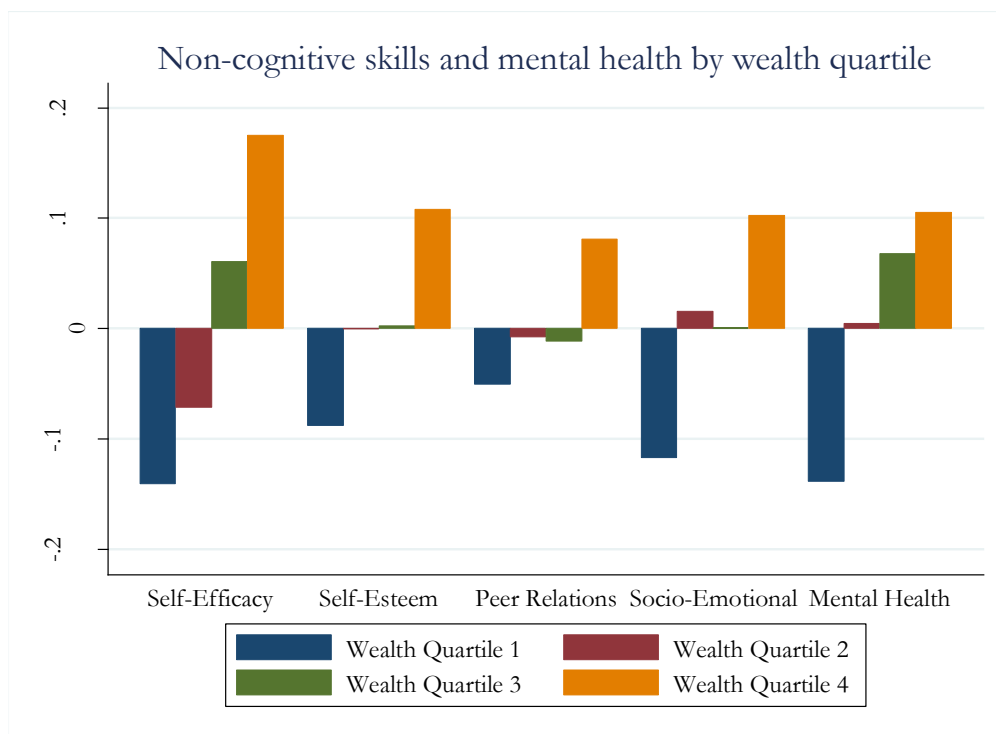
correlate reasonably strongly ( $r > 0.2$ ) and highly significantly with measures of self-efficacy, self-esteem and mental health (Table B16).

### 5.2.8 MENTAL HEALTH

There is growing evidence that adolescents and new mothers experience heightened vulnerability to developing mental health disorders with adverse long-term consequences for themselves and their children. At the same time mental health is generally recognised as a neglected area when it comes to health service provision in developing countries (Stein et al, 2014; Kieling et al, 2011). Within the PAnKH programme mental health (along with the non-cognitive skills discussed above) are seen as a key channel for impacting girls well-being and life outcomes. There is a lot of evidence that participation in sport can have positive impacts on adolescent mental health (e.g. Holt et al. 2016). Further we hypothesise that participation in group education activities can also be beneficial through, for instance, providing girls with a stronger support network and a safe space in which to discuss the challenges they face.

We use the General Health Questionnaire (GHQ-12) to measure girls’ mental health. In addition to its use as a screening instrument for those likely to be at risk of developing psychiatric disorders, the GHQ-12 is a common measure of psychological well-being in surveys. It has been used in many and diverse populations, including with adolescent girls in Rajasthan within the *Youth in India: Situation and Needs Study* implemented by the Population Council.<sup>22</sup>

**Figure 18: Non-cognitive skills and mental health by wealth quartile**



<sup>22</sup> <http://www.popcouncil.org/research/youth-in-india-situation-and-needs-study>

We follow a strategy proposed by Wang and Lin to determine the number of factors that the scale items load onto in our sample while controlling for wording effects (Wang & Lin, 2011). Based on this analysis we conclude that the first factor is the best measure of mental health in our population. Table B12 shows the complete set of items in the scale and their factor loadings.

Since the GHQ-12 has never been validated in our study population we do not apply any cut-offs for scores under which we could categorise a girl as having significant symptoms of depression. Instead we take the factor score as a continuous measure of mental health, where higher values signify higher levels of mental health and fewer symptoms of mental health problems such as anxiety and depression.

Table A11 shows that based on this measure, mental health is higher for older unmarried girls than for younger ones, and higher still for married girls, although this higher value for married girls is no longer significant once we control for age (which is highly significant). It is higher for girls from dominant caste and wealthier households. We also observe that it is positively correlated with measures of self-efficacy, self-esteem and socio-emotional skills and negatively correlated with holding patriarchal gender attitudes. It is also positively correlated with the carer having more pro-female education attitudes, more decision making power within the household and more freedom of movement.

## 6 DISCUSSION

Before concluding, we draw together some of the main findings of the baseline detailed in the previous section and their implications for the project going forward.

*Decision Making:* Adolescent girls report having little say over many of the decisions key for the outcomes targeted by *PAnKH*, including marriage, child-bearing and contraceptive use. They face many restrictions linked to traditional practices, for example around menstruation: the majority are not allowed to touch food, cook or attend religious festivals during menstruation. There is little space for discussion of issues linked to adolescence, such as menstruation and other bodily changes at home; if girls talk about these issues to anyone, it is likely to be their friends. There is a striking correlation between the gender attitudes of the girls and their mothers. Although girls tend to have slightly less “patriarchal” gender attitudes than their mothers, strong support for traditional gender roles remains: for example 86% either agreed or strongly agreed with the statement “Even if a girl is educated her primary role is to take care of the home”, 71% either agree or strongly agreed with the statement “A man should have the final say in all family matters”.

In this context, working to improve education, SRH and marriage outcomes of adolescent girls through activities that target them directly requires more than changing their attitudes and preferences. Even if such changes can be achieved, they may do more harm than good as long as the girls are not also provided with tools to influence decisions which they currently have no say over and address issues within their natal and marital homes which are currently not even discussed. This is reflected in the design of the *PAnKH* group education curriculum: sessions for each topic do not only focus on girls’ own knowledge, preferences, attitudes and aspirations, but also on building up their skills for appreciating different perspectives of those around them and learning to navigate these in building up negotiation and decision making power across key domains such as schooling, marriage and child-bearing.

There is also clearly a role for directly targeting those around the girls including members of their households and the wider community. A comparison of the impacts in the girl only and integrated arms in this evaluation will inform on whether and how much more effective the integrated approach is in relaxing the constraints girls face to making choices that improve their long-term outcomes.

*Schooling and Marriage:* In the context of the limited decision making power faced by girls highlighted above, it is all the more striking that the majority of girls in our sample report having some or even big say in decisions about continuing their education. This is consistent with the reasons given by girls for dropping out of school: two out of five out of school unmarried girls cite lack of interest. Interviews with the primary carers of the girls also offer some indirect evidence of scope for girls to influence schooling decisions. The majority of mothers think a 16-year-old girl should continue in education even in the face of a number of constraints outside her control, such as the school being too far away, family financial problems or even family receiving a good marriage proposal; the one scenario in which the

great majority (70%) of mothers agree that the girl should be taken out of school is also the one that she has most control over - having friendships with boys.

As highlighted above, designing interventions that aim to improve outcomes of adolescent girls through targeting them directly is very challenging in contexts such as Rajasthan where girls have little or no say in the decisions made in relation to many of these outcomes. The finding that schooling may be one area in which girls have more say is particularly important for the effort to reduce early marriage, given growing evidence that remaining in school may be one of the most effective ways for delaying early marriage and child-bearing (e.g. Duflo et al, 2014). Working with adolescent girls to increase their interest in remaining at school and develop behavioural and negotiation strategies to maintain the support of their families in keeping them at school is therefore a promising focus of the work that *PAnKH* conducts with the girls.

While the potential to work directly with the girls to improve school retention suggested by these data is encouraging, other constraints should not be underplayed. First, the data show that there are of course important constraints to girls staying at school that are outside of the girls' control: for about half of out-of-school girls, reasons for drop-out included at least one likely to be related to household economic constraints (including domestic responsibilities, need to work and families being unable to afford school). Second, the data suggest that girls may be learning very little while at school which may in part explain their lack of interest in continuing. A striking quarter of the girls age 12+ who completed less than 8<sup>th</sup> standard was unable to read a simple sentence completely (based on interviewer assessments) with large gaps observed by caste and socio-economic status. These findings suggest that changing girls' attitudes/behaviour/motivation in relation to schooling may not be effective without complementary interventions alleviating economic constraints for the families and improving quality of schooling.

*Knowledge:* The results strongly suggest that while there are many barriers to improving girls' outcomes, there remains a clear need for provision of basic information. A striking 1 in 4 girls is not aware of the link between the menstrual cycle and childbearing. Nearly three quarters of girls over the age of 15 do not know that it is possible to get pregnant when having sexual intercourse for the first time and only 3% of girls age 15+ report ever hearing about (non-HIV) STI's. Further, we see that girls perform significantly better on questions relating to knowledge that they could have gained through personal experience, suggesting that these findings are not driven by reporting biases that may arise when asking sensitive questions. Instead, these trends are consistent with the results described above suggesting that girls rarely discuss SRH issues with their mothers and that there are strong restrictive norms and stigma attached to them: for instance, 3 out of 5 mothers report that they consider speaking to their daughters about menstruation and other bodily changes inappropriate.

The results therefore suggest that in order to improve essential knowledge on SRH issues, it is important for interventions targeting adolescent girls to not only provide information but also build an environment in which girls learn to freely discuss socially sensitive issues and get access to further information and support. *PAnKH* takes this into account through (a) ensuring that there is an information focused component in all of the education curricula,



modules; (b) providing girls with a safe space and peer group in which to discuss “taboo” issues; (c) working with the wider community to improve overall levels of knowledge and reduce the social stigma.

*Measurement: Safety & Violence* A key aim of *PAnKH* is to create an environment in which girls can make choices, including those that challenge and break away from inequitable social norms without fear of discrimination and gender-based violence. In order to identify the best way of capturing *PAnKH* impact in this domain during the end-line, we used the baseline to test a number of quantitative and qualitative methods for measuring the extent of fear and prevalence of violence in girls’ lives.

Comparison of our quantitative and qualitative data show that in line with the literature which highlights many complexities in accurately capturing experience of violence in quantitative surveys, (to do with barriers faced by women and girls in reporting violence, as well as sensitivity of responses to specific survey methods), there appears to be significant underreporting of violence in our quantitative data. On the one hand the qualitative social mapping exercise revealed fear of violence and harassment outside the home as highly prominent themes in discussions with women and girls. There is also evidence of high levels of acceptance of violence against women in the quantitative data. For instance, 53% of girls reported to either ‘strongly agree’ or ‘agree’ with the statement “A woman should tolerate violence in order to keep her family together” and 70% agreed or strongly agreed with the statement “A daughter deserves to be beaten if she does not obey her parents”. Nevertheless, in the quantitative survey only 2.5% of girls reported experiencing any physical violence in the last six months and the great majority (85%) reported feeling either ‘safe’ or ‘totally safe’ from harassment and violence in their home, in school and in their community.

These patterns strongly suggest that the questions / survey methods used at baseline to elicit quantitative measures related to violence do not perform well in this context and further work is necessary to develop a stronger violence module for the end-line survey.

*Measurement: Non-cognitive skills and Mental Health* An area in which we had more success at baseline is measurement of non-cognitive skills and mental health. The link between these and key life outcomes is well established in the literature and, as reflected in our theory of change, we hypothesise that they will be an important mechanism through which *PAnKH* impacts the targeted final outcomes. However, while there are well-validated methods of measuring these attributes in developed country contexts, the methods have not been validated in most developing country contexts, including Rajasthan. Our approach to selection of measures for inclusion in baseline was to (a) include only complete existing scales that had been well-validated in developed countries and previously used successfully in a developing country context, preferably India; (b) prioritise scales that had been used in populations that we might want to draw comparisons with – for example the *Young Lives* study and the *Youth in India: Situation and Needs Study*<sup>23</sup>; (c) pilot all scales and selected scales (or sets of items within scales) that were judged to perform well in terms of the comprehension and level of engagement of respondents.

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<sup>23</sup> <http://www.younglives.org.uk/> and <http://www.popcouncil.org/research/youth-in-india-situation-and-needs-study>

Exploratory factor analysis shows that in most cases psychometric properties of the measures suggest that they perform well. The constructed measures also correlate sensibly with other characteristics of the girls captured in the data. For example, we see a striking positive correlation between wealth and both non-cognitive skills and mental health. In line with the interrelatedness of the different measures highlighted in the literature, there are also correlations between the measures, for example between self-esteem and self-efficacy and between both of these and mental health – though factor analysis confirms that they are still three distinct constructs.

The strong performance of the measures suggests that (a) we will be able to capture these dimensions of well-being at endline; and (b) there is potential for more in-depth analysis of the baseline data to better understand factors associated with non-cognitive skills and mental health as it is unusual to have a data-set that contains as wide a range of measures from socio-economic factors to social norms to skills and attitudes to parental attitudes.

## 7 CONCLUSIONS

This report presents baseline findings for the project to evaluate the *PAnKH* programme being implemented in 60 communities in Dhoulpur District of Rajasthan. In order to test the effectiveness of *PAnKH*, The Centre for the Evaluation of Development Policies (EDePo) at the Institute for Fiscal Studies (IFS) in London is working closely with ICRW and PRADAN to conduct an evaluation of the programme using first-best RCT design. To this end we are conducting a three arm trial in which a total of 90 clusters located across three blocks of Dhoulpur district (Bari, Basari and Dhoulpur) were randomly allocated to one of three arms: one in which the full integrated model of the *PAnKH* programme is implemented, one in which only the activities directly targeting the girls (group education and sports sessions) are implemented and one in which none of the *PAnKH* programme components are implemented (the control group).

During the baseline stage we collected data on a sample of 7,577 adolescent girls, drawn from a complete listing of girls aged 12 to 19 residing in the 90 clusters, their primary caregivers and households before the start of *PAnKH* programme implementation.

Our guiding principle in designing questionnaires was to collect data that would allow us to go beyond evaluation of the overall “black-box” impact of the programme and explore the key channels for the effects. The survey instruments, therefore, include questions that aim to measure both the final and the intermediate outcomes as specified in the Theory of Change (see Figure 1), as well as key household and household member characteristics, including caste, household composition, socio-economic status, household member employment, among others. In addition to quantitative data collection, Participatory Learning and Action (PLA) approach was used to conduct a social mapping exercise within the 60 “treatment” clusters in order to better understand the physical and social organisation of these location.

Most importantly, analysis of the baseline data shows that there are no statistically significant differences between the three arms across the vast majority of measured characteristics, suggesting that the sample is well-balanced. This is a key finding of the baseline; without a successful randomisation the design of the evaluation would be compromised.

Further analysis of the data highlights some important trends and measurement challenges in the key indicators of interest including marriage, education, sexual and reproductive health, safety and violence, gender attitudes, non-cognitive skills and mental health. These findings have contributed to the refinement of the *PAnKH* programme content, identified areas whether there is scope for further survey instrument development work ahead of the endline survey and provided foundations for more in-depth analysis to be undertaken while implementation of *PAnKH* is ongoing.

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## 9 TABLES A: SAMPLE DESCRIPTIVES

The descriptive tables summarise (mean and standard deviation) key variables of interest for:

- the whole sample
- by the age/marital status groupings we define and use in sampling: 12-14 year old girls, 15-17 year old unmarried girls and 15-19 year old married girls
- by the caste of the household head: scheduled caste/scheduled tribe (SC/ST), other backward caste/class (OBC) and dominant caste households
- by wealth of the household: we report summaries for the highest and lowest wealth quartiles as measured by an asset index

Means are reported for each characteristic, with standard deviations in parentheses. Binary variables are coded as 0,1 so means can be interpreted as proportions. The final column reports the number of observations. When a particular variable is defined only for a subpopulation, e.g. age of marriage is only defined for marriage girls, we report this subpopulation in square brackets. For example, “Age of marriage [married]”.

**Table A1:Sample Descriptives**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Currently married</b>	0.210 (0.407)	0.003 (0.057)	0.000 (0.000)	0.956 (0.204)	0.228 (0.419)	0.209 (0.407)	0.178 (0.383)	0.147 (0.354)	0.291 (0.454)	7577
<b>Currently married but gauna not perform</b>	0.012 (0.110)	0.010 (0.101)	0.000 (0.000)	0.037 (0.189)	0.022 (0.146)	0.008 (0.091)	0.003 (0.053)	0.017 (0.128)	0.007 (0.086)	7577
<b>Widowed/divorced/separated</b>	0.002 (0.040)	0.000 (0.018)	0.000 (0.000)	0.007 (0.081)	0.002 (0.042)	0.002 (0.042)	0.001 (0.026)	0.003 (0.052)	0.001 (0.033)	7577
<b>Never married</b>	0.776 (0.417)	0.986 (0.117)	1.000 (0.000)	0.000 (0.000)	0.748 (0.434)	0.781 (0.414)	0.818 (0.386)	0.834 (0.372)	0.701 (0.458)	7577
<b>Religion of the head of household: Hindu</b>	0.967 (0.178)	0.967 (0.179)	0.966 (0.180)	0.970 (0.170)	0.995 (0.071)	0.947 (0.224)	0.962 (0.191)	0.968 (0.176)	0.966 (0.181)	7577
<b>Religion of the head of household: Muslim</b>	0.031 (0.173)	0.032 (0.175)	0.031 (0.174)	0.030 (0.170)	0.005 (0.068)	0.053 (0.224)	0.031 (0.173)	0.032 (0.176)	0.032 (0.175)	7577
<b>Religion of the head of household: Christian</b>	0.000 (0.020)	0.001 (0.025)	0.000 (0.019)	0.000 (0.000)	0.000 (0.019)	0.000 (0.000)	0.001 (0.037)	0.000 (0.000)	0.001 (0.023)	7577
<b>Religion of the head of household: SIKH</b>	0.000 (0.020)	0.000 (0.018)	0.001 (0.027)	0.000 (0.000)	0.000 (0.000)	0.000 (0.017)	0.001 (0.037)	0.000 (0.000)	0.002 (0.040)	7577
<b>Schedule Caste or schedule tribe</b>	0.367 (0.482)	0.363 (0.481)	0.349 (0.477)	0.407 (0.491)	1.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.436 (0.496)	0.265 (0.441)	7577
<b>Other Backward Caste or Extremely Backward Caste</b>	0.445 (0.497)	0.452 (0.498)	0.440 (0.497)	0.437 (0.496)	0.000 (0.000)	1.000 (0.000)	0.000 (0.000)	0.463 (0.499)	0.431 (0.495)	7577
<b>Dominant Caste</b>	0.188 (0.391)	0.185 (0.388)	0.210 (0.408)	0.156 (0.363)	0.000 (0.000)	0.000 (0.000)	1.000 (0.000)	0.101 (0.302)	0.304 (0.460)	7577
<b>Low Asset Index</b>	0.247 (0.431)	0.294 (0.455)	0.238 (0.426)	0.176 (0.381)	0.294 (0.455)	0.257 (0.437)	0.133 (0.340)	1.000 (0.000)	0.000 (0.000)	7577
<b>High Asset Index</b>	0.250 (0.433)	0.196 (0.397)	0.256 (0.437)	0.339 (0.474)	0.180 (0.384)	0.242 (0.429)	0.403 (0.491)	0.000 (0.000)	1.000 (0.000)	7577

**Table A2:Marriage Practices**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Ever married</b>	0.224 (0.417)	0.014 (0.117)	0.000 (0.000)	1.000 (0.000)	0.252 (0.434)	0.219 (0.414)	0.182 (0.386)	0.166 (0.372)	0.299 (0.458)	7577
<b>Live with husband [married]</b>	0.902 (0.298)	0.093 (0.294)		0.923 (0.267)	0.857 (0.350)	0.935 (0.247)	0.927 (0.261)	0.820 (0.385)	0.942 (0.235)	1697
<b>Married before 18 [married]</b>	0.770 (0.421)	1.000 (0.000)		0.764 (0.425)	0.806 (0.396)	0.744 (0.437)	0.745 (0.437)	0.772 (0.420)	0.746 (0.436)	1697
<b>Lived with husband before 18 [married, live with husband]</b>	0.694 (0.461)	0.930 (0.258)		0.688 (0.463)	0.714 (0.452)	0.684 (0.465)	0.668 (0.472)	0.675 (0.469)	0.696 (0.460)	1697
<b>Age at marriage [married]</b>	15.907 (2.217)	11.116 (1.592)		16.031 (2.089)	15.440 (2.573)	16.171 (1.892)	16.417 (1.758)	15.350 (2.592)	16.389 (1.808)	1697
<b>Age of husband at marriage [married]</b>	19.667 (3.937)	15.353 (3.141)		19.731 (3.913)	19.158 (3.630)	19.872 (4.349)	20.382 (3.431)	18.803 (3.809)	20.197 (3.110)	1172
<b>arranged_marriage</b>	0.981 (0.136)	1.000 (0.000)		0.981 (0.138)	0.981 (0.135)	0.984 (0.127)	0.973 (0.162)	0.981 (0.138)	0.986 (0.118)	1697
<b>Currently engaged [unmarried]</b>	0.034 (0.181)		0.034 (0.181)		0.041 (0.197)	0.034 (0.181)	0.024 (0.152)	0.033 (0.178)	0.021 (0.142)	2827
<b>Marriage fixed but not engaged [unmarried]</b>	0.041 (0.198)		0.041 (0.198)		0.047 (0.211)	0.043 (0.202)	0.029 (0.167)	0.042 (0.200)	0.029 (0.168)	2827
<b>Elders talking about marriage [unmarried]</b>	0.074 (0.262)	0.023 (0.150)	0.129 (0.335)		0.078 (0.269)	0.072 (0.258)	0.071 (0.257)	0.064 (0.245)	0.076 (0.265)	5880



**Table A3: Attitudes and decision making around marriage**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Appropriate age of marriage</b>	18.929 (1.905)	18.884 (2.041)	19.029 (1.959)	18.843 (1.501)	18.820 (1.712)	18.867 (2.036)	19.288 (1.902)	18.741 (1.712)	19.240 (1.879)	7577
<b>Would prefer an arranged marriage if decision was hers alone [unmarried]</b>	0.972 (0.164)	0.965 (0.183)	0.980 (0.139)		0.978 (0.145)	0.965 (0.183)	0.978 (0.148)	0.972 (0.165)	0.971 (0.169)	5880
<b>Parents asked when would want to marry [unmarried, 15 or older]</b>	0.042 (0.200)		0.042 (0.200)		0.043 (0.202)	0.031 (0.174)	0.062 (0.242)	0.030 (0.170)	0.062 (0.241)	2827
<b>Parents asked who would want to marry [unmarried, 15 or older]</b>	0.032 (0.177)		0.032 (0.177)		0.037 (0.190)	0.022 (0.146)	0.045 (0.208)	0.021 (0.143)	0.041 (0.199)	2827
<b>Parents asked when would want to marry? [married]</b>	0.078 (0.268)	0.047 (0.213)		0.079 (0.269)	0.076 (0.265)	0.051 (0.221)	0.158 (0.366)	0.042 (0.200)	0.106 (0.308)	1697
<b>Parents asked who would want to marry? [married]</b>	0.071 (0.256)	0.000 (0.000)		0.073 (0.259)	0.066 (0.248)	0.051 (0.221)	0.139 (0.347)	0.039 (0.193)	0.104 (0.306)	1697
<b>Before marriage: Parents asked if girl liked future husband [married]</b>	0.252 (0.434)	0.116 (0.324)		0.256 (0.436)	0.249 (0.432)	0.196 (0.398)	0.421 (0.495)	0.193 (0.395)	0.311 (0.463)	1697

**Table A4: Attitudes, expectation and aspirations around education**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Currently attending school</b>	0.617 (0.486)	0.886 (0.318)	0.623 (0.485)	0.104 (0.305)	0.612 (0.487)	0.589 (0.492)	0.694 (0.461)	0.626 (0.484)	0.622 (0.485)	7577
<b>Ever attended school</b>	0.928 (0.258)	0.980 (0.141)	0.954 (0.209)	0.789 (0.408)	0.923 (0.266)	0.918 (0.274)	0.964 (0.188)	0.914 (0.281)	0.945 (0.228)	7577
<b>Literate</b>	0.694 (0.461)	0.712 (0.453)	0.771 (0.420)	0.528 (0.499)	0.646 (0.478)	0.667 (0.471)	0.851 (0.356)	0.573 (0.495)	0.814 (0.390)	7465
<b>Current standard of education [currently in school]</b>	7.397 (2.256)	6.299 (1.763)	8.900 (1.801)	9.517 (2.973)	7.250 (2.174)	7.162 (2.280)	8.123 (2.197)	6.717 (2.070)	8.251 (2.259)	4676
<b>Highest standard of education [dropped out]</b>	7.175 (2.441)	5.708 (1.997)	7.284 (2.338)	7.462 (2.496)	6.815 (2.319)	7.045 (2.429)	8.358 (2.388)	6.571 (2.232)	7.979 (2.475)	2359
<b>Current standard below expected based on age [currently in school]</b>	0.513 (0.500)	0.475 (0.499)	0.557 (0.497)	0.686 (0.465)	0.556 (0.497)	0.561 (0.496)	0.345 (0.476)	0.605 (0.489)	0.402 (0.490)	4676
<b>Attend government school [currently in school]</b>	0.726 (0.446)	0.737 (0.440)	0.715 (0.452)	0.651 (0.478)	0.800 (0.400)	0.715 (0.451)	0.619 (0.486)	0.827 (0.378)	0.593 (0.491)	4676
<b>Attend private school [currently in school]</b>	0.274 (0.446)	0.263 (0.440)	0.285 (0.451)	0.343 (0.476)	0.200 (0.400)	0.285 (0.451)	0.380 (0.486)	0.173 (0.378)	0.405 (0.491)	4676
<b>Number of days absent from school in a typical month [currently in school]</b>	2.595 (5.491)	2.453 (5.338)	2.656 (5.453)	4.233 (7.631)	3.015 (5.855)	2.672 (5.675)	1.719 (4.228)	2.383 (4.941)	2.224 (4.975)	4676
<b>Time spent studying outside of school [currently in school]</b>	1.753 (1.518)	1.632 (1.402)	1.992 (1.646)	1.244 (1.582)	1.704 (1.496)	1.585 (1.390)	2.175 (1.712)	1.495 (1.346)	2.080 (1.749)	4676
<b>Wish they could have continued in school [dropped out]</b>	0.561 (0.496)	0.447 (0.498)	0.539 (0.499)	0.608 (0.488)	0.566 (0.496)	0.537 (0.499)	0.616 (0.487)	0.545 (0.498)	0.574 (0.495)	2359
<b>Subjective assessment: 'above average' in studies [Currently in school]</b>	0.536 (0.499)	0.544 (0.498)	0.528 (0.499)	0.494 (0.501)	0.536 (0.499)	0.520 (0.500)	0.569 (0.495)	0.509 (0.500)	0.560 (0.497)	4676
<b>Subjective assessment: 'below average' in studies [Currently in school]</b>	0.070 (0.255)	0.084 (0.277)	0.051 (0.219)	0.052 (0.223)	0.082 (0.274)	0.072 (0.258)	0.048 (0.213)	0.100 (0.300)	0.048 (0.215)	4676
<b>Pro female education attitudes of carer (index)</b>	-0.000 (0.895)	0.013 (0.881)	-0.015 (0.912)	0.002 (0.892)	0.011 (0.895)	-0.065 (0.918)	0.129 (0.825)	-0.085 (0.923)	0.054 (0.882)	6787

**Table A5: Menstruation**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Started to have menstrual period</b>	0.705 (0.456)	0.399 (0.490)	0.894 (0.308)	0.953 (0.212)	0.699 (0.459)	0.699 (0.459)	0.731 (0.443)	0.634 (0.482)	0.780 (0.414)	7577
<b>Use only sanitary pad during menstrual period [started menstrual period]</b>	0.346 (0.476)	0.372 (0.484)	0.356 (0.479)	0.310 (0.462)	0.345 (0.475)	0.287 (0.452)	0.483 (0.500)	0.282 (0.450)	0.453 (0.498)	5340
<b>Use only cloth during menstrual period [started menstrual period]</b>	0.502 (0.500)	0.495 (0.500)	0.482 (0.500)	0.539 (0.499)	0.506 (0.500)	0.556 (0.497)	0.371 (0.483)	0.594 (0.491)	0.362 (0.481)	5340
<b>Use mix of sanitary pad and cloth during menstrual period [started menstrual period]</b>	0.151 (0.358)	0.130 (0.337)	0.161 (0.367)	0.150 (0.358)	0.148 (0.355)	0.156 (0.363)	0.145 (0.352)	0.120 (0.325)	0.186 (0.389)	5340
<b>Re-uses cloth [Uses cloth]</b>	0.018 (0.133)	0.018 (0.133)	0.018 (0.132)	0.018 (0.134)	0.027 (0.163)	0.014 (0.116)	0.009 (0.096)	0.023 (0.151)	0.011 (0.105)	3495
<b>Always attend to school when menstruating [started menstrual period, currently in school]</b>	0.683 (0.465)	0.699 (0.459)	0.699 (0.459)	0.445 (0.498)	0.688 (0.464)	0.678 (0.468)	0.685 (0.465)	0.709 (0.454)	0.685 (0.465)	2763
<b>Often attend to school when menstruating [started menstrual period, currently in school]</b>	0.124 (0.329)	0.118 (0.322)	0.119 (0.324)	0.202 (0.403)	0.117 (0.322)	0.129 (0.335)	0.125 (0.331)	0.102 (0.303)	0.127 (0.333)	2763
<b>Sometimes attend to school when menstruating [started menstrual period, currently in school]</b>	0.152 (0.359)	0.144 (0.351)	0.149 (0.356)	0.225 (0.419)	0.161 (0.368)	0.148 (0.355)	0.144 (0.351)	0.157 (0.365)	0.136 (0.343)	2763
<b>Never attend to school when menstruating [started menstrual period, currently in school]</b>	0.042 (0.200)	0.040 (0.196)	0.033 (0.180)	0.127 (0.334)	0.034 (0.180)	0.046 (0.209)	0.046 (0.210)	0.031 (0.174)	0.052 (0.223)	2763
<b>Any menstruation related problems in last 3 months [started menstrual period]</b>	0.089 (0.284)	0.078 (0.268)	0.081 (0.272)	0.110 (0.313)	0.092 (0.289)	0.084 (0.277)	0.093 (0.291)	0.082 (0.274)	0.093 (0.290)	5340
<b>Knew about menstruation before first menstrual period [started menstrual period]</b>	0.284 (0.451)	0.268 (0.443)	0.282 (0.450)	0.300 (0.458)	0.278 (0.448)	0.282 (0.450)	0.301 (0.459)	0.280 (0.449)	0.289 (0.454)	5343
<b>Knowledge about menstruation (index) [started menstrual period]</b>	0.000 (1.000)	-0.375 (1.240)	0.067 (0.893)	0.275 (0.746)	0.011 (0.999)	-0.007 (1.002)	-0.004 (0.998)	-0.095 (1.086)	0.071 (0.958)	5995
<b>Restrictions during menstruation (index) [started menstrual period]</b>	0.000 (1.000)	0.001 (1.009)	0.011 (0.991)	-0.019 (1.008)	-0.071 (0.982)	0.078 (1.008)	-0.043 (1.002)	-0.001 (1.010)	-0.023 (0.988)	5340

**Table A6: Practices around contraception and family planning**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Have been pregnant [married]</b>	0.674 (0.769)	0.300 (0.949)		0.676 (0.767)	0.666 (0.768)	0.688 (0.770)	0.657 (0.768)	0.775 (0.806)	0.567 (0.705)	1592
<b>Had live birth [ever pregnant]</b>	0.755 (0.430)			0.756 (0.430)	0.778 (0.416)	0.735 (0.442)	0.758 (0.430)	0.788 (0.410)	0.635 (0.482)	826
<b>Num of live births [any live births]</b>	1.208 (0.469)			1.208 (0.469)	1.209 (0.471)	1.201 (0.461)	1.227 (0.490)	1.203 (0.461)	1.163 (0.387)	624
<b>Age at first birth [any live births]</b>	17.521 (1.198)			17.521 (1.198)	17.547 (1.241)	17.495 (1.135)	17.530 (1.259)	17.488 (1.336)	17.765 (1.026)	631
<b>Currently pregnant [ever pregnant]</b>	0.276 (0.447)			0.275 (0.447)	0.258 (0.438)	0.271 (0.445)	0.336 (0.474)	0.256 (0.438)	0.373 (0.485)	826
<b>Currently using any method of contraception [married]</b>	0.161 (0.367)	0.100 (0.316)		0.161 (0.368)	0.139 (0.346)	0.175 (0.380)	0.177 (0.383)	0.145 (0.353)	0.176 (0.381)	1592
<b>Currently using modern method of contraception [married]</b>	0.104 (0.306)	0.100 (0.316)		0.104 (0.306)	0.088 (0.284)	0.112 (0.316)	0.122 (0.328)	0.087 (0.283)	0.122 (0.327)	1592
<b>Expect to use some method in next 12 months [married, not currently using contraceptives]</b>	0.117 (0.322)	0.100 (0.316)		0.118 (0.322)	0.091 (0.287)	0.113 (0.317)	0.201 (0.402)	0.105 (0.307)	0.105 (0.308)	1346
<b>Expect to use a modern method in next 12 months [married, not currently using contraceptives]</b>	0.042 (0.200)	0.000 (0.000)		0.042 (0.200)	0.036 (0.187)	0.038 (0.190)	0.067 (0.251)	0.038 (0.191)	0.042 (0.200)	1346

**Table A7: Knowledge of contraception and family planning**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Correct Answ: Can get pregnant first time she has sexual intercourse [15 or older]</b>	0.287 (0.452)		0.235 (0.424)	0.376 (0.485)	0.292 (0.455)	0.285 (0.451)	0.283 (0.450)	0.252 (0.434)	0.303 (0.460)	4481
<b>Correct Answ: Can get pregnant after kissing or hugging [15 or older]</b>	0.782 (0.413)		0.714 (0.452)	0.898 (0.303)	0.802 (0.398)	0.773 (0.419)	0.761 (0.427)	0.759 (0.428)	0.820 (0.384)	4481
<b>Knowledge of contraceptive methods - spontaneous (index) [15 or older]</b>	0.000 (1.000)		-0.218 (0.808)	0.372 (1.173)	-0.041 (0.938)	0.010 (1.035)	0.057 (1.031)	-0.122 (0.879)	0.171 (1.122)	4481
<b>Knowledge of contraceptive methods - on probe or spontaneous (index) [15 or older]</b>	0.000 (1.000)		-0.344 (0.902)	0.587 (0.878)	-0.010 (1.012)	-0.011 (0.989)	0.046 (1.002)	-0.166 (1.009)	0.216 (0.996)	4481
<b>Can name at least one method spontaneously</b>	0.554 (0.497)		0.467 (0.499)	0.703 (0.457)	0.554 (0.497)	0.553 (0.497)	0.558 (0.497)	0.520 (0.500)	0.610 (0.488)	4481
<b>Have ever discussed contraceptive with husband [married]</b>	0.340 (0.474)	0.000 (0.000)		0.343 (0.475)	0.303 (0.460)	0.345 (0.476)	0.421 (0.495)	0.316 (0.466)	0.351 (0.478)	1592
<b>Mainly Husband initiates discussion about use of contraceptives [discuss contraceptives]</b>	0.708 (0.455)			0.708 (0.455)	0.792 (0.407)	0.683 (0.466)	0.617 (0.488)	0.690 (0.465)	0.720 (0.450)	542
<b>Mainly Girl initiates discussion about use of contraceptives [discuss contraceptives]</b>	0.292 (0.455)			0.292 (0.455)	0.208 (0.407)	0.317 (0.466)	0.383 (0.488)	0.310 (0.465)	0.280 (0.450)	542
<b>Mainly Husband decides use of contraceptives [married]</b>	0.361 (0.480)	0.200 (0.422)		0.362 (0.481)	0.331 (0.471)	0.408 (0.492)	0.307 (0.462)	0.324 (0.469)	0.396 (0.490)	1592
<b>Mainly Girl decides use of contraceptives [married]</b>	0.058 (0.235)	0.200 (0.422)		0.058 (0.233)	0.062 (0.240)	0.048 (0.215)	0.079 (0.270)	0.098 (0.298)	0.047 (0.212)	1592
<b>Ever discussed how many children to have [married]</b>	0.693 (0.461)	0.300 (0.483)		0.695 (0.460)	0.662 (0.473)	0.685 (0.465)	0.791 (0.407)	0.644 (0.480)	0.744 (0.437)	1592

**Table A8: Knowledge of sexual health**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Has heard of HIV/AIDS [15 or older]</b>	0.117 (0.321)		0.111 (0.314)	0.127 (0.333)	0.090 (0.286)	0.102 (0.303)	0.204 (0.403)	0.058 (0.234)	0.173 (0.378)	4481
<b>Knows that a condom can prevent HIV [15 or older]</b>	0.161 (0.367)		0.125 (0.331)	0.222 (0.416)	0.159 (0.366)	0.160 (0.366)	0.166 (0.373)	0.130 (0.336)	0.191 (0.393)	4481
<b>Has heard about any other sexually transmitted infection [15 or older]</b>	0.029 (0.169)		0.024 (0.152)	0.039 (0.194)	0.025 (0.157)	0.032 (0.176)	0.032 (0.175)	0.018 (0.132)	0.054 (0.227)	4481

**Table A9: Childbearing**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	N
<b>Given birth in last year [married]</b>	0.305 (0.460)	0.000 (0.000)		0.307 (0.461)	0.304 (0.461)	0.313 (0.464)	0.283 (0.452)	0.345 (0.476)	0.229 (0.421)	1592
<b>Registered pregnancy [given birth in last year]</b>	0.777 (0.416)			0.777 (0.416)	0.767 (0.424)	0.755 (0.431)	0.875 (0.333)	0.726 (0.448)	0.746 (0.437)	485
<b>Received antenatal care during pregnancy [given birth in last year]</b>	0.932 (0.251)			0.932 (0.251)	0.947 (0.224)	0.932 (0.252)	0.893 (0.312)	0.918 (0.277)	0.959 (0.200)	385
<b>How many times received antenatal care during pregnancy [given birth in last year]</b>	2.449 (1.527)			2.449 (1.527)	2.474 (1.390)	2.429 (1.584)	2.446 (1.715)	2.397 (1.402)	2.474 (1.528)	385
<b>Place of delivery: Own/ Relative's Home [given birth in last year]</b>	0.041 (0.199)			0.041 (0.199)	0.047 (0.211)	0.041 (0.199)	0.028 (0.165)	0.032 (0.176)	0.040 (0.196)	485
<b>Place of delivery: Govt. Hospital/CHC/PHC [given birth in last year]</b>	0.845 (0.362)			0.845 (0.362)	0.870 (0.337)	0.827 (0.379)	0.833 (0.375)	0.895 (0.309)	0.802 (0.400)	485
<b>Place of delivery: Sub Centre [given birth in last year]</b>	0.002 (0.045)			0.002 (0.045)	0.000 (0.000)	0.005 (0.067)	0.000 (0.000)	0.000 (0.000)	0.008 (0.089)	485
<b>Place of delivery: PVT. Hospital/Maternity/Nursing/Home [given birth in last year]</b>	0.103 (0.304)			0.103 (0.304)	0.073 (0.260)	0.123 (0.329)	0.125 (0.333)	0.063 (0.245)	0.143 (0.351)	485
<b>Place of delivery: Other [given birth in last year]</b>	0.008 (0.091)			0.008 (0.091)	0.010 (0.102)	0.005 (0.067)	0.014 (0.118)	0.011 (0.103)	0.008 (0.089)	485
<b>Received postnatal care within 42 days of delivery [given birth in last year]</b>	0.406 (0.492)			0.406 (0.492)	0.456 (0.499)	0.364 (0.482)	0.403 (0.494)	0.379 (0.488)	0.381 (0.488)	485
<b>Best age for a married woman to get pregnant for first time [15 or older]</b>	21.316 (2.007)		21.538 (2.046)	20.938 (1.880)	21.196 (1.925)	21.219 (1.925)	21.780 (2.271)	21.022 (1.822)	21.632 (2.054)	4408
<b>Ideal gap (in months) between children [15 or older]</b>	31.574 (15.997)		31.466 (18.083)	31.741 (12.023)	30.996 (14.392)	31.422 (17.499)	33.052 (15.238)	30.637 (20.657)	32.863 (14.415)	4141
<b>Number of children would like to have if decision was hers along [married]</b>	2.617 (1.003)	2.571 (1.813)		2.617 (0.998)	2.629 (0.973)	2.713 (1.064)	2.321 (0.830)	2.547 (0.960)	2.600 (1.031)	1366

**Table A10: Social support**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	
<b>Talked with at least one female friend about menstruation (last 3 months)</b>	0.587 (0.492)	0.421 (0.494)	0.712 (0.453)	0.683 (0.465)	0.582 (0.493)	0.595 (0.491)	0.576 (0.494)	0.537 (0.499)	0.653 (0.476)	7575
<b>Talked with at least one female friend about differential treatment of girls and boys</b>	0.198 (0.399)	0.133 (0.340)	0.216 (0.411)	0.290 (0.454)	0.193 (0.394)	0.200 (0.400)	0.205 (0.404)	0.150 (0.357)	0.263 (0.440)	7575
<b>Talked with at least one female friend about violence/sexual harassment against girls</b>	0.196 (0.397)	0.125 (0.331)	0.210 (0.407)	0.307 (0.461)	0.193 (0.395)	0.200 (0.400)	0.193 (0.395)	0.148 (0.355)	0.263 (0.440)	7575
<b>Go out to play with other girls [16 or younger]</b>	0.440 (0.496)	0.543 (0.498)	0.300 (0.459)	0.102 (0.304)	0.440 (0.497)	0.455 (0.498)	0.402 (0.491)	0.460 (0.499)	0.422 (0.494)	5240
<b>How often? At least 2-3 days a week</b>	0.656 (0.475)	0.708 (0.455)	0.513 (0.500)	0.545 (0.522)	0.656 (0.475)	0.675 (0.468)	0.602 (0.490)	0.669 (0.471)	0.622 (0.485)	2303
<b>How often? Once a year</b>	0.124 (0.329)	0.108 (0.310)	0.165 (0.372)	0.273 (0.467)	0.132 (0.339)	0.114 (0.319)	0.130 (0.337)	0.122 (0.327)	0.138 (0.346)	2303
<b>How often? Once in a while</b>	0.221 (0.415)	0.184 (0.388)	0.322 (0.468)	0.182 (0.405)	0.211 (0.408)	0.210 (0.408)	0.268 (0.444)	0.210 (0.407)	0.240 (0.427)	2303
<b>Participate in extra-curricular active [currently in school]</b>	0.486 (0.500)	0.511 (0.500)	0.462 (0.499)	0.329 (0.471)	0.459 (0.498)	0.491 (0.500)	0.521 (0.500)	0.463 (0.499)	0.515 (0.500)	4670
<b>Member of a collective/organization</b>	0.014 (0.119)	0.001 (0.036)	0.006 (0.080)	0.053 (0.223)	0.015 (0.123)	0.014 (0.119)	0.013 (0.112)	0.009 (0.092)	0.022 (0.146)	7577



**Table A11:Scales**

	All	12-14	15-17 Unmarried	15-19 Married	SC/ST	OBC	Dominant Caste	Lowest Wealth Quartile	Highest Wealth Quartile	
<b>Self-Efficacy</b>	-0.000 (1.000)	-0.123 (1.049)	0.062 (0.986)	0.119 (0.904)	-0.025 (1.005)	-0.073 (0.992)	0.216 (0.978)	-0.153 (1.075)	0.177 (0.908)	7313
<b>Self-Esteem</b>	-0.000 (1.000)	-0.051 (1.007)	0.027 (1.004)	0.050 (0.975)	-0.034 (0.979)	-0.063 (1.024)	0.213 (0.954)	-0.101 (1.038)	0.112 (0.974)	7388
<b>Peer Relations</b>	-0.000 (1.000)	0.035 (0.974)	0.025 (1.021)	-0.108 (1.006)	-0.012 (0.975)	-0.048 (1.022)	0.137 (0.983)	-0.034 (1.021)	0.083 (0.973)	7452
<b>Socio-Emotional Skills</b>	0.000 (1.000)		-0.037 (1.017)	0.062 (0.967)	-0.044 (1.010)	-0.012 (0.973)	0.113 (1.033)	-0.129 (1.031)	0.103 (0.992)	4481
<b>Mental Health</b>	-0.000 (1.000)	-0.113 (1.008)	0.018 (1.000)	0.170 (0.960)	-0.019 (1.012)	-0.012 (0.991)	0.066 (0.996)	-0.162 (1.034)	0.108 (0.990)	6917
<b>Patriachal Gender Attitudes</b>	0.000 (1.000)	0.004 (0.992)	-0.057 (1.007)	0.089 (0.996)	0.042 (0.973)	0.046 (0.991)	-0.187 (1.051)	0.102 (1.005)	-0.124 (1.033)	6869
<b>Knowledge about menstruation</b>	0.000 (1.000)	-0.375 (1.240)	0.067 (0.893)	0.275 (0.746)	0.011 (0.999)	-0.007 (1.002)	-0.004 (0.998)	-0.095 (1.086)	0.071 (0.958)	5995
<b>Restrictions during menstruation</b>	0.000 (1.000)	0.001 (1.009)	0.011 (0.991)	-0.019 (1.008)	-0.071 (0.982)	0.078 (1.008)	-0.043 (1.002)	-0.001 (1.010)	-0.023 (0.988)	5340
<b>Knowledge about contraception (spontaneous)</b>	0.000 (1.000)		-0.218 (0.808)	0.372 (1.173)	-0.041 (0.938)	0.010 (1.035)	0.057 (1.031)	-0.122 (0.879)	0.171 (1.122)	4481
<b>Knowledge about contraception (on</b>	0.000 (1.000)		-0.344 (0.902)	0.587 (0.878)	-0.010 (1.012)	-0.011 (0.989)	0.046 (1.002)	-0.166 (1.009)	0.216 (0.996)	4481
<b>Positive sport attitudes</b>	-0.000 (1.000)	0.119 (0.957)	-0.148 (1.028)	-0.635 (1.077)	0.011 (0.991)	0.002 (0.978)	-0.026 (1.065)	-0.026 (1.020)	0.059 (0.992)	5024
<b>Patriachal Gender Attitudes (Carer)</b>	-0.000 (1.000)	-0.032 (1.009)	0.001 (1.001)	0.083 (0.969)	0.005 (1.008)	0.059 (0.978)	-0.141 (1.020)	0.042 (1.005)	-0.058 (1.009)	6360
<b>Pro Female Education Attitudes (Carer)</b>	-0.000 (1.000)	0.014 (0.984)	-0.017 (1.019)	0.003 (0.997)	0.012 (1.000)	-0.073 (1.026)	0.144 (0.921)	-0.095 (1.031)	0.060 (0.985)	6787
<b>Decision Making Power (Carer)</b>	-0.000 (1.000)	-0.020 (0.988)	0.035 (1.001)	-0.033 (1.028)	0.005 (0.995)	-0.009 (0.982)	0.011 (1.049)	0.045 (1.058)	-0.045 (0.978)	5867
<b>Freedom of Movement (Carer)</b>	0.000 (1.000)	-0.020 (1.002)	0.002 (1.003)	0.047 (0.986)	0.039 (0.990)	-0.002 (0.990)	-0.068 (1.038)	-0.020 (1.007)	-0.065 (1.015)	6788

## 10 TABLES B: SCALES

Here we report the results of all factor analyses of scales used in the report. For each item we summarise the percentage of respondents who gave each response. We report the rotated loading of the item onto the factor(s), retaining all factors with an eigenvalue greater than one. We report the eigenvalues for all factors.

**Table B1:Should Rama continue her education if...?**

	<b>Yes (%)</b>	<b>No(%)</b>	<b>Factor Loading</b>
<b>(...) secondary school is 8-10kms away</b>	85	15	0.69
<b>(...) family is poor and may have problem in paying for fee, dress, books and transport</b>	75	25	0.74
<b>(...) family has received good marriage proposal</b>	77	23	0.73
<b>(...) course is difficult and she would need private tuition</b>	70	30	0.74
<b>(...) she has friendship with few boys</b>	29	71	0.35
<b>Eigenvalue</b>	2.241		

**Table B2: Knowledge about menstruation**

	<b>Correct response (%)</b>	<b>Incorrect response(%)</b>	<b>Factor Loading</b>
<b>How old are most girls in India when they have first menstrual period?</b>	91	9	0.36
<b>For most girls what is normal duration of blood flow during menstrual period?</b>	83	17	0.30
<b>For most girls what is a normal duration of the menstrual cycle?</b>	89	11	0.42
<b>For most girls does body weight increase decrease or stay the same during puberty</b>	39	61	0.18
<b>Changes in routine work may cause changes in menstrual cycle</b>	14	86	0.04
<b>Women stop having period when they get older usually between the ages of 45 and</b>	65	35	0.31
<b>It is dangerous for girls to go running or playing during periods</b>	20	80	0.10
<b>Menstruation cleans the body of dirty blood</b>	4	96	-0.10
<b>The menstrual cycle makes women capable of child bearing</b>	78	22	0.40
<b>Urine and menstrual blood leave the blood through the same path</b>	9	91	0.01
<b>Use of clean cloth/sanitary napkin is necessary to reduce infection</b>	92	8	0.45
<b>During menstruation a girl/woman should not take bath</b>	68	32	0.48
<b>During menstruation a girl should not be sent to school</b>	58	42	0.40
<b>Eigenvalue</b>	1.300		

**Table B3: Restrictions during menstruation**

	<b>Restriction</b>	<b>No restriction</b>	<b>Factor Loading</b>
<b>When menstruating: can attend religious function</b>	95	5	0.06
<b>When menstruating: can cook</b>	54	46	0.31
<b>When menstruating: can touch stored food</b>	97	3	0.07
<b>When menstruating: can sleep in your usual bed/place</b>	12	88	0.40
<b>When menstruating: can touch family members</b>	16	84	0.53
<b>When menstruating: can play outside/see friends outside</b>	39	61	0.67
<b>When menstruating: can visit relatives</b>	42	58	0.67
<b>Eigenvalue</b>	1.444		

**Table B4: Knowledge of contraceptive methods (spontaneous)**

	<b>Yes</b>	<b>No</b>	<b>Factor Loading</b>
<b>Spontaneous knowledge of Female Sterilization [15 or older]</b>	47	53	0.45
<b>Spontaneous knowledge of male sterilization [15 or older]</b>	16	84	0.49
<b>Spontaneous knowledge of IUD [15 or older]</b>	13	87	0.60
<b>Spontaneous knowledge of Pill [15 or older]</b>	19	81	0.61
<b>Spontaneous knowledge of Emergency Contraception [15 or older]</b>	6	94	0.53
<b>Spontaneous knowledge of Injectables [15 or older]</b>	11	89	0.58
<b>Spontaneous knowledge of Condom or Nirodh [15 or older]</b>	16	84	0.63
<b>Spontaneous knowledge of Rhythm Method [15 or older]</b>	7	93	0.49
<b>Spontaneous knowledge of Withdrawal [15 or older]</b>	5	95	0.48
<b>Eigenvalue</b>	2.656		

**Table B5: Knowledge of contraceptive methods (on probe)**

	<b>Yes</b>	<b>No</b>	<b>Factor Loading</b>
<b>On probe knowledge of Female Sterilization [15 or older]</b>	86	14	0.42
<b>On probe knowledge of Male Sterilization [15 or older]</b>	52	48	0.56
<b>On probe knowledge of IUD [15 or older]</b>	44	56	0.67
<b>On probe knowledge of pill [15 or older]</b>	55	45	0.68
<b>On probe knowledge of emergency contraception [15 or older]</b>	26	74	0.62
<b>On probe knowledge of injectables [15 or older]</b>	43	57	0.69
<b>On probe knowledge of condom or nirodh [15 or older]</b>	47	53	0.70
<b>On probe knowledge of rhythm method [15 or older]</b>	32	68	0.65
<b>On probe knowledge of withdrawal [15 or older]</b>	26	74	0.64
<b>Eigenvalue</b>	3.578		

**Table B6: Patriachal Gender Attidues Scale**

	<b>Strongly Disagree (%)</b>	<b>Disagree (%)</b>	<b>Agree (%)</b>	<b>Strongly Agree (%)</b>	<b>Factor 1 (rotated) Loading</b>	<b>Factor 2 (rotated) Loading</b>
<b>Girls can hold leadership position in school.</b>	1	3	22	75	-0.07	0.22
<b>Boys should be given more privilege as compared to the girls.</b>	22	39	28	12	0.41	-0.31
<b>Women/girls should work only if there are monetary needs in their family</b>	8	24	43	25	0.35	0.15
<b>Even if a girl is educated her primary role is to take care of her home</b>	3	11	46	40	0.15	0.37
<b>Men should share the work around the house with women such as doing dishes, cleaning</b>	27	25	28	20	0.05	-0.03
<b>A girl should have a right to inherit parental property</b>	7	21	40	32	0.02	0.24
<b>Only bad girls make male friends</b>	14	34	29	24	0.41	0.15
<b>A man should have the final say in all family matters</b>	6	23	41	30	0.45	0.31
<b>Men should be more educated than their wives</b>	7	26	41	26	0.50	0.25
<b>Boys are naturally better than girls in studies</b>	16	40	30	14	0.55	-0.06
<b>A daughter deserves to be beaten if she does not obey her parents.</b>	7	23	36	34	0.34	0.28
<b>Women have ability to hold leadership positions in local government</b>	3	8	38	52	-0.09	0.47
<b>A family's honour lies in a girl's hand.</b>	2	6	30	61	0.01	0.44
<b>Girls after menarche should not be allowed to go alone in the public space.</b>	14	27	30	28	0.25	0.16
<b>Family should decide till when the daughters should be educated.</b>	4	15	38	43	0.19	0.56
<b>Family should decide at what age a girl should be married</b>	3	11	38	48	0.16	0.59
<b>Girls should be married early to protect them from sexual harassment.</b>	17	37	30	16	0.52	0.08
<b>Girls should be married early to ease family's financial burden.</b>	20	39	28	14	0.59	-0.03



<b>A girl should be married only after she has been able to attain her educational and career aspirations</b>	4	11	33	53	-0.06	0.35
<b>Instead of spending money on a girl's education, it should be saved for her dowry</b>	22	44	22	12	0.50	-0.11
<b>If a girl is a victim of some sexual abuse, it is the fault of the girl.</b>	41	38	14	8	0.46	-0.18
<b>A woman should tolerate violence in order to keep her family together</b>	12	35	39	15	0.48	0.12
<b>There are times when a woman deserves to be beaten</b>	20	36	30	14	0.46	0.04
<b>Girls who are highly educated indulge in improper behaviour</b>	21	43	25	12	0.48	-0.05
<b>Good girls do not loiter in public spaces</b>	7	14	32	47	-0.00	0.43
<b>It is okay for boys to tease girls in public spaces</b>	63	25	8	4	0.33	-0.29
<b>Girls should return home on time</b>	2	4	29	65	-0.12	0.59
<b>Girls should go out only if they have a reason</b>	2	5	34	59	-0.06	0.59
<b>Girls should complete education up to class 12</b>	12	15	23	50	0.12	0.17
<b>Eigenvalue (factor 1)</b>	3.378					
<b>Eigenvalue (factor 2)</b>	2.913					

**Table B7: Patriachal Gender Attidues Scale (carer)**

	<b>Strongly Disagree (%)</b>	<b>Disagree (%)</b>	<b>Agree (%)</b>	<b>Strongly Agree (%)</b>	<b>Factor 1 (rotated) Loading</b>	<b>Factor 2 (rotated) Loading</b>
Girls can hold leadership position in school.	1	2	32	65	-0.02	0.22
Boys should be given more privilege as compared to the girls.	16	35	36	13	0.37	-0.22
Women/girls should work only if there are monetary needs in their family	7	23	47	24	0.36	0.18
Even if a girl is educated her primary role is to take care of her home	3	10	47	40	0.14	0.41
Men should share the work around the house with women such as doing dishes	31	26	28	15	0.08	-0.08
A girl should have a right to inherit parental property	8	19	45	27	0.11	0.19
Only bad girls make male friends	12	30	30	28	0.44	0.18
A man should have the final say in all family matters	5	21	42	31	0.46	0.32
Men should be more educated than their wives	5	22	45	28	0.52	0.30
Boys are naturally better than girls in studies	11	38	36	15	0.53	-0.05
A daughter deserves to be beaten if she does not obey her parents.	5	22	38	35	0.37	0.26
Women have ability to hold leadership positions in local government	2	8	42	48	-0.02	0.49
A family's honour lies in a girl's hand.	2	5	30	63	0.05	0.47
Girls after menarche should not be allowed to go alone in the public space.	12	24	34	31	0.25	0.18
Family should decide till when the daughters should be educated.	3	12	41	43	0.20	0.56
Family should decide at what age a girl should be married	3	10	38	49	0.16	0.58
Girls should be married early to protect them from sexual harassment.	16	33	33	18	0.52	0.07
Girls should be married early to ease family's financial burden.	17	38	30	15	0.59	-0.05
A girl should be married only after she has been able to attain her educational and career aspirations	4	13	35	47	-0.04	0.32
Instead of spending money on a girl's education, it should be saved for her dowry	19	45	23	12	0.44	-0.14
If a girl is a victim of some sexual abuse, it is the fault of the girl.	36	39	16	9	0.46	-0.16
A woman should tolerate violence in order to keep her family together	9	32	42	16	0.49	0.11
There are times when a woman deserves to be beaten	16	35	33	15	0.49	0.03
Girls who are highly educated indulge in improper behaviour	17	43	28	12	0.48	-0.07
Good girls do not loiter in public spaces	6	15	33	46	0.04	0.44
It is okay for boys to tease girls in public spaces	61	27	8	4	0.29	-0.36
Girls should return home on time	1	5	28	66	-0.09	0.63
Girls should go out only if they have a reason	2	5	32	62	-0.05	0.65
Girls should complete education upto class 12	8	11	25	56	0.14	0.28
Eigenvalue (factor 1)	3.363					
Eigenvalue (factor 2)	3.166					

**Table B8: Self-Efficacy Scale**

	<b>Strongly Disagree (%)</b>	<b>Disagree (%)</b>	<b>Agree (%)</b>	<b>Strongly Agree (%)</b>	<b>Factor Loading</b>
<b>I can usually handle whatever comes my way</b>	2	5	52	41	0.27
<b>I can always manage to solve difficult problems if I try hard enough</b>	5	15	52	29	0.60
<b>If someone opposes me, I can find the means and ways to get what I want.</b>	8	21	47	24	0.60
<b>It is easy for me to stick to my aims and accomplish my goals</b>	5	16	52	26	0.67
<b>I am confident that I could deal efficiently with unexpected events</b>	5	17	52	25	0.67
<b>Thanks to my resourcefulness, I know how to handle unforeseen situations.</b>	8	20	50	22	0.58
<b>I can solve most problems if I invest the necessary effort</b>	4	13	56	27	0.66
<b>I can remain calm when facing difficulties because I can rely on my coping ability</b>	5	15	55	25	0.65
<b>When I am confronted with a problem, I can usually find several solutions</b>	5	15	56	24	0.66
<b>If I am in trouble, I can usually think of a solution</b>	4	10	57	29	0.59
<b>Eigenvalue</b>	3.664				

**Table B9: Self-Esteem Scale**

	<b>Strongly (%)</b>	<b>Disagree</b>	<b>Disagree (%)</b>	<b>Agree (%)</b>	<b>Strongly (%)</b>	<b>Agree</b>	<b>Factor Loading</b>
<b>I do lots of important things</b>	2		8	51	38		0.48
<b>In general, I like being the way I am</b>	2		10	43	45		0.43
<b>Overall, I have a lot to be proud of</b>	5		16	52	27		0.33
<b>I can do things as well as most people</b>	1		7	52	41		0.54
<b>Other people think I am a good person</b>	1		8	56	35		0.54
<b>A lot of things about me are good</b>	1		6	56	36		0.57
<b>I'm as good as most other people</b>	1		7	57	35		0.54
<b>When I do something, I do it well</b>	1		7	54	38		0.54
<b>Eigenvalue</b>	2.014						

**Table B10: Peer Relations Scale**

	<b>Strongly (%)</b>	<b>Disagree</b>	<b>Disagree (%)</b>	<b>Agree (%)</b>	<b>Strongly Agree (%)</b>	<b>Factor Loading</b>
<b>I have lots of friends</b>	2		6	35	57	0.45
<b>Other people of my age want me to be their friend</b>	2		11	53	33	0.56
<b>I have more friends than most other people my age</b>	3		16	50	32	0.59
<b>I am popular with people of my own age</b>	2		9	56	33	0.50
<b>Most other people my age like me</b>	2		10	57	31	0.50
<b>Eigenvalue</b>	1.370					

**Table B11: Socio-Emotional Skills Scale**

	Almost (%)	Always	Many (%)	Times	Sometimes (%)	Almost Never (%)	Factor (rotated) Loading	1	Factor (rotated) Loading	2
<b>Do you come up with ideas other people have not thought of before?</b>	14		21		28	36	0.06		0.39	
<b>Are you very interested in learning new things?</b>	3		19		47	30	0.42		0.04	
<b>Do you enjoy beautiful things like nature, art and music?</b>	5		23		39	32	0.43		0.00	
<b>When doing a task are you very careful?</b>	5		20		43	31	0.51		-0.13	
<b>Do you prefer relaxation more than hard work?</b>	18		39		29	14	0.15		0.32	
<b>Do you work very well and quickly?</b>	5		21		44	30	0.46		-0.12	
<b>Are you outgoing and sociable, for example do you make friends very easily?</b>	16		34		33	16	0.35		0.24	
<b>Do you forgive other people easily?</b>	10		26		43	21	0.48		0.16	
<b>Are you very polite to other people?</b>	9		26		45	19	0.47		0.15	
<b>Are you generous to other people with your time and money?</b>	20		33		32	14	0.30		0.32	
<b>Are you relaxed during stressful situations?</b>	15		32		35	16	0.39		0.26	
<b>Do you tend to worry?</b>	24		40		23	12	0.04		0.48	
<b>Do you get nervous easily?</b>	21		41		26	12	0.02		0.47	
<b>Do you finish whatever you begin?</b>	9		24		41	26	0.46		0.09	
<b>Do you work very hard?</b>	23		38		27	12	0.20		0.44	
<b>Do you enjoy working on things that take a very long time to complete?</b>	32		36		21	8	0.09		0.50	
<b>Do people take advantage of you?</b>	51		22		13	6	-0.07		0.51	
<b>Are people mean/not nice to you?</b>	36		33		20	7	-0.03		0.48	
<b>Do you think about how the things you do will affect you in future?</b>	24		32		29	13	0.31		0.28	

<b>Do you think carefully before you make an important decision?</b>	12	27	38	22	0.51	0.04
<b>Do you ask for help when you do not understand something?</b>	10	35	32	22	0.26	0.15
<b>Eigenvalue</b>	2.923					

**Table B12: Mental Health Scale**

	<b>Yes (%)</b>	<b>No(%)</b>	<b>Factor Loading</b>
<b>Have you been able to concentrate on whatever you are doing?</b>	90	10	0.25
<b>Have you lost much sleep over worry?</b>	19	81	0.20
<b>Have you felt that you are playing a useful role?</b>	61	39	0.51
<b>Have you felt capable of making decisions about things?</b>	50	50	0.58
<b>Have you felt constantly under strain?</b>	21	79	0.27
<b>Have you felt you could overcome your difficulties?</b>	55	45	0.63
<b>Have you been able to enjoy your normal day-to-day activities?</b>	86	14	0.32
<b>Have you been able to face up to your problems?</b>	67	33	0.56
<b>Have you been feeling unhappy and depressed?</b>	16	84	0.23
<b>Have you been losing confidence in yourself?</b>	11	89	0.28
<b>Have you been thinking of yourself as a worthless person?</b>	17	83	0.28
<b>Have you been feeling reasonably happy, all things considered?</b>	70	30	0.46
<b>Eigenvalue</b>	1.934		

**Table B13: Carer's decision making scale**

	No say (%)	Some say (%)	Big say (%)	I take the decision (%)	Factor Loading
How much say do you have in how much your household spends on food? Spontaneous	9	40	27	24	0.54
How much say do you have in buying a small purchase, for example, a new knife or	4	21	29	46	0.47
How much say do you have in buying a large purchase or an expensive item? Spontaneous	24	38	27	11	0.57
How much say do you have in what to cook on a daily basis	2	20	22	55	0.38
How much say do you have in how many children you should have	9	47	31	13	0.51
How much say do you have in what to do if your child falls sick	4	32	42	22	0.61
How much say do you have in whether your child goes to school if he/she doesn't	5	35	40	20	0.66
How much say do you have in which school should your child attend	7	38	38	16	0.71
How much say do you have in how much time your child should spend on homework	8	37	39	16	0.66
How much say do you have in at what age/time your child to stop going to school	11	41	35	13	0.70
How much say do you have in when your children should marry	10	44	35	10	0.73
How much say do you have in to whom your children should get married	12	45	33	10	0.74
How much say do you have in how much to spend on your child's marriage	14	45	31	10	0.73
How much say do you have in whether daughter/daughter-in-law can attend some function	12	35	28	25	0.58
Eigenvalue	5.425				



**Table B14: Freedom of movement (carer)**

	<b>Yes (%)</b>	<b>No (%)</b>	<b>Factor Loading</b>
<b>Can you go to the Market unaccompanied?</b>	61	39	0.74
<b>Can you go to the Anganwadi centre unaccompanied?</b>	64	36	0.89
<b>Can you go to the School unaccompanied?</b>	62	38	0.90
<b>Can you go to the Self-help group unaccompanied?</b>	55	45	0.89
<b>Can you go to the Panchayat meeting unaccompanied?</b>	50	50	0.87
<b>Eigenvalue</b>	3.698		

**Table B15: Positive attitudes towards sport scale**

	<b>Always (%)</b>	<b>Often (%)</b>	<b>Sometimes (%)</b>	<b>Never (%)</b>	<b>Factor Loading</b>
<b>I can play sports with other girls in my village</b>	17	33	22	28	0.66
<b>I can make friends by playing sports</b>	13	38	33	16	0.68
<b>I can be healthier by playing sports</b>	10	26	37	27	0.61
<b>I can encourage other girls to take up sports in my village</b>	19	41	27	14	0.66
<b>I can ask for play time after I complete household chores.</b>	16	40	26	18	0.64
<b>I can be comfortable with my body while playing sport</b>	15	31	34	20	0.64
<b>I can compete in sports just as well as boys.</b>	41	27	17	16	0.53
<b>Eigenvalue</b>	2.808				

**Table B16: Correlation of factor indices**

	Self-Efficacy	Self-Esteem	Peer Relations	Socio-Emotional Skills	Mental Health	Patriarchal Gender Attitudes	Knowledge about menstruation	Restrictions during menstruation	Knowledge about contraception	Knowledge about contraception (on probe)	Positive sport attitudes	Patriarchal Gender Attitudes (Carer)	Pro Female Education Attitudes (Carer)	Decision Making Power (Carer)	Freedom of Movement (Carer)	
<b>Self-Efficacy</b>	1.000															
<b>Self-Esteem</b>	0.517***	1.000														
<b>Peer Relations</b>	0.449***	0.590***	1.000													
<b>Socio-Emotional Skills</b>	0.328***	0.346***	0.208***	1.000												
<b>Mental Health</b>	0.246***	0.217***	0.106***	0.244***	1.000											
<b>Patriarchal Gender Attitudes</b>	0.107***	0.008	0.056***	-0.030*	-0.075***	1.000										
<b>Knowledge about menstruation</b>	0.041**	0.094***	0.000	0.085***	0.168***	-0.095***	1.000									
<b>Restrictions during menstruation</b>	-0.087***	-0.109***	-0.143***	-0.046**	-0.127***	0.020	-0.141***	1.000								
<b>Knowledge about contraception (spontaneous)</b>	0.116***	0.024	0.059***	0.016	0.005	0.032*	0.031*	-0.078***	1.000							
<b>Knowledge about contraception (on probe)</b>	0.150***	0.038*	0.010	0.041**	0.024	0.020	0.114***	-0.040*	0.573***	1.000						
<b>Positive sport attitudes</b>	0.185***	0.174***	0.268***	0.303***	0.070***	-0.046**	-0.105***	0.017	0.104***	0.028	1.000					
<b>Patriarchal Gender Attitudes (Carer)</b>	0.151***	0.082***	0.094***	0.051**	-0.008	0.617***	-0.052***	0.049**	0.059***	0.048**	-0.075***	1.000				
<b>Pro Female Education Attitudes (Carer)</b>	0.209***	0.087***	0.048***	0.025	0.162***	-0.048***	0.074***	-0.090***	0.045**	0.081***	0.010	-0.085***	1.000			
<b>Decision Making Power (Carer)</b>	0.021	0.000	-0.023	0.089***	0.128***	-0.058***	-0.007	-0.007	-0.087***	-0.054**	0.050**	-0.062***	0.101***	1.000		
<b>Freedom of Movement (Carer)</b>	0.049***	0.030*	0.005	0.080***	0.073***	0.050***	-0.016	-0.028	-0.056***	0.031	0.050***	0.078***	0.114***	0.241***	1.000	

This table presents the pairwise correlation coefficients between all constructed factor indices. \*=correlation significantly different from 0 at 10% level, \*\*=5% level, \*\*\*=1% level

## 11 TABLES C: SAMPLE BALANCE TESTS

The balance tables summarise (mean and standard deviation) key variables of interest for the three treatment groups (control, girls' only and integrated). As discussed in section 5.1.2 we report pvalues for the following hypothesis tests: (i) the girls' only treatment group mean is equal to the control mean (i.e.  $\beta_G = 0$ ) – column 4, (ii) the integrated treatment group mean is equal to the control mean (i.e.  $\beta_I = 0$ ) – column 5, (iii) the integrated treatment group mean is equal to the girls' only treatment group mean (i.e.  $\beta_G = \beta_I$ ) – column 6, and (iv) the mean of all three treatment groups are equal to one another (i.e.  $\beta_G = \beta_I = 0$ ) – column 7. All inference allows for arbitrary correlation of errors within clusters.

\* = treatment mean significantly different from control group at 10% level, \*\*=5%, \*\*\*=1%

Means are reported for each characteristic, with standard deviations in parentheses. Binary variables are coded as 0,1 so means can be interpreted as proportions. The final column reports the number of observations. When a particular variable is defined only for a subpopulation, e.g. age of marriage is only defined for marriage girls, we report this subpopulation in square brackets. For example, "Age of marriage [married]".

**Table C1:Sample Descriptives**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p-value</b>	<b>Integrated vs. Control p-value</b>	<b>Overall P-value</b>	<b>N</b>
<b>Currently married</b>	0.219 (0.414)	0.207 (0.405)	0.203 (0.403)	0.452	0.367	0.629	7577
<b>Currently married but gauna not perform</b>	0.010 (0.099)	0.016 (0.124)	0.012 (0.107)	0.270	0.692	0.541	7577
<b>Widowed/divorced/separated</b>	0.001 (0.034)	0.003 (0.053)	0.001 (0.028)	0.178	0.689	0.252	7577
<b>Never married</b>	0.770 (0.421)	0.774 (0.418)	0.784 (0.411)	0.774	0.403	0.696	7577
<b>Religion of the head of household: HINDU</b>	0.956 (0.205)	0.980 (0.142)	0.968 (0.177)	0.105	0.426	0.260	7577
<b>Religion of the head of household: MUSLIM</b>	0.041 (0.198)	0.020 (0.139)	0.032 (0.175)	0.140	0.521	0.317	7577
<b>Religion of the head of household: CHRISTIAN</b>	0.000 (0.000)	0.001 (0.029)	0.000 (0.020)	0.314	0.318	0.365	7577
<b>Religion of the head of household: SIKH</b>	0.001 (0.028)	0.000 (0.000)	0.000 (0.020)	0.315	0.675	0.365	7577
<b>Schedule Caste or schedule tribe (SC/ST)</b>	0.327 (0.469)	0.364 (0.481)	0.413 (0.492)	0.558	0.166	0.380	7577
<b>Other Backward Caste or Extremely Backward Caste (OBC)</b>	0.434 (0.496)	0.511 (0.500)	0.391 (0.488)	0.254	0.512	0.283	7577
<b>Dominant Caste</b>	0.239 (0.427)	0.125** (0.330)	0.196 (0.397)	0.019	0.437	0.054	7577
<b>Low Asset Index</b>	0.237 (0.425)	0.258 (0.438)	0.248 (0.432)	0.442	0.665	0.741	7577
<b>High Asset Index</b>	0.274 (0.446)	0.236 (0.425)	0.238 (0.426)	0.192	0.197	0.358	7577

**Table C2: Marriage Practices**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p-value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Ever married</b>	0.230 (0.421)	0.226 (0.418)	0.216 (0.411)	0.774	0.403	0.696	7577
<b>Live with husband [married]</b>	0.928 (0.260)	0.886* (0.318)	0.888 (0.315)	0.097	0.179	0.169	1697
<b>Married before 18 [married]</b>	0.764 (0.425)	0.766 (0.424)	0.779 (0.415)	0.946	0.585	0.842	1697
<b>Lived with husband before 18 [married, live with husband]</b>	0.703 (0.457)	0.678 (0.468)	0.701 (0.458)	0.386	0.931	0.636	1697
<b>Age at marriage [married]</b>	15.959 (2.090)	15.982 (2.267)	15.771 (2.299)	0.916	0.336	0.546	1697
<b>Age of husband at marriage [married]</b>	19.865 (3.438)	19.646 (4.837)	19.468 (3.448)	0.562	0.180	0.405	1172
<b>Arranged marriage [married]</b>	0.982 (0.134)	0.978 (0.146)	0.983 (0.128)	0.710	0.884	0.876	1697
<b>Currently engaged [unmarried]</b>	0.023 (0.150)	0.031 (0.173)	0.048*** (0.215)	0.327	0.009	0.031	2827
<b>Marriage fixed but not engaged [unmarried]</b>	0.026 (0.160)	0.040 (0.196)	0.058*** (0.234)	0.120	0.003	0.009	2827
<b>Elders talking about marriage [unmarried]</b>	0.060 (0.238)	0.079* (0.269)	0.084** (0.277)	0.090	0.039	0.087	5880

**Table C3: Attitudes and decision making around marriage**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p-value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Appropriate age of marriage</b>	18.946 (1.829)	18.964 (2.208)	18.877 (1.645)	0.882	0.454	0.676	7577
<b>Would prefer an arranged marriage if decision was hers alone [unmarried]</b>	0.975 (0.155)	0.969 (0.174)	0.973 (0.162)	0.407	0.764	0.699	5880
<b>Parents asked when would want to marry [unmarried, 15 or older]</b>	0.031 (0.174)	0.039 (0.193)	0.056* (0.230)	0.472	0.051	0.144	2827
<b>Parents asked who would want to marry [unmarried, 15 or older]</b>	0.027 (0.163)	0.030 (0.170)	0.040 (0.195)	0.735	0.173	0.387	2827
<b>Parents asked when would want to marry? [married]</b>	0.081 (0.273)	0.071 (0.256)	0.082 (0.274)	0.613	0.955	0.821	1697
<b>Parents asked who would want to marry? [married]</b>	0.076 (0.265)	0.071 (0.256)	0.065 (0.247)	0.766	0.529	0.818	1697
<b>Before marriage: Parents asked if girl liked future husband [married]</b>	0.244 (0.430)	0.219 (0.414)	0.296 (0.457)	0.558	0.176	0.052	1697

**Table C4: Attitudes, expectation and aspirations around education**

	Control mean (SD)	Girl only mean (SD)	Integrated mean (SD)	Girl only vs. Control p-value	Integrated vs. Control p-value	Overall P-value	N
Currently attending school	0.632 (0.482)	0.621 (0.485)	0.598 (0.490)	0.649	0.163	0.375	7577
Ever attended school	0.936 (0.244)	0.920 (0.272)	0.929 (0.257)	0.181	0.459	0.394	7577
Literate	0.717 (0.450)	0.688 (0.463)	0.676 (0.468)	0.303	0.154	0.341	7465
Current standard of education [currently in school]	7.562 (2.235)	7.315 (2.268)	7.298* (2.258)	0.116	0.099	0.163	4676
Highest standard of education [dropped out]	7.441 (2.417)	7.068* (2.493)	7.011** (2.398)	0.085	0.020	0.058	2359
Current standard below expected based on age [currently in school]	0.482 (0.500)	0.532 (0.499)	0.530 (0.499)	0.193	0.210	0.316	4676
Attend government school [currently in school]	0.751 (0.433)	0.707 (0.455)	0.716 (0.451)	0.375	0.494	0.635	4676
Attend private school [currently in school]	0.248 (0.432)	0.293 (0.455)	0.284 (0.451)	0.363	0.479	0.619	4676
Number of days absent from school in a typical month [currently in school]	2.402 (5.147)	2.388 (5.237)	3.023 (6.065)	0.974	0.255	0.436	4676
Time spent studying outside of school [currently in school]	1.742 (1.429)	1.684 (1.554)	1.836 (1.574)	0.676	0.489	0.599	4676
Wish they could have continued in school [dropped out]	0.577 (0.494)	0.540 (0.499)	0.564 (0.496)	0.298	0.702	0.580	2359
Subjective assessment: 'above average' in studies [Currently in school]	0.529 (0.499)	0.523 (0.500)	0.558 (0.497)	0.843	0.402	0.547	4676
Subjective assessment: 'below average' in studies [Currently in school]	0.070 (0.255)	0.074 (0.261)	0.067 (0.250)	0.788	0.861	0.890	4676
Pro female education attitudes of carer (index)	0.037 (0.870)	-0.045 (0.930)	0.005 (0.885)	0.381	0.738	0.674	6787



**Table C5:Menstruation**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p-value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Started to have menstrual period</b>	0.717 (0.451)	0.685 (0.464)	0.711 (0.453)	0.131	0.799	0.242	7577
<b>Use only sanitary pad during menstrual period [started menstrual period]</b>	0.340 (0.474)	0.344 (0.475)	0.355 (0.479)	0.920	0.706	0.929	5340
<b>Use only cloth during menstrual period [started menstrual period]</b>	0.470 (0.499)	0.532 (0.499)	0.507 (0.500)	0.127	0.353	0.300	5340
<b>Use mix of sanitary pad and cloth during menstrual period [started menstrual period]</b>	0.188 (0.391)	0.120*** (0.326)	0.139** (0.346)	0.004	0.032	0.015	5340
<b>Re-uses cloth [Uses cloth]</b>	0.016 (0.126)	0.025 (0.155)	0.014 (0.117)	0.377	0.780	0.470	3495
<b>Always attend to school when menstruating [started menstrual period, currently in school?]</b>	0.654 (0.476)	0.684 (0.465)	0.715 (0.451)	0.443	0.107	0.267	2763
<b>Often attend to school when menstruating [started menstrual period, currently in school]</b>	0.167 (0.373)	0.101*** (0.301)	0.097*** (0.296)	0.002	0.001	0.002	2763
<b>Sometimes attend to school when menstruating [started menstrual period, currently in school]</b>	0.148 (0.355)	0.172 (0.378)	0.136 (0.343)	0.380	0.616	0.389	2763
<b>Never attend to school when menstruating [started menstrual period, currently in school]</b>	0.031 (0.174)	0.043 (0.204)	0.052* (0.222)	0.327	0.057	0.148	2763
<b>Any menstruation related problems in last 3 months [started menstrual period]</b>	0.085 (0.279)	0.091 (0.287)	0.091 (0.287)	0.690	0.689	0.903	5340
<b>Knew about menstruation before first menstrual period [started menstrual period]</b>	0.276 (0.447)	0.288 (0.453)	0.290 (0.454)	0.694	0.596	0.852	5343
<b>Knowledge about menstruation (index) [started menstrual period]</b>	0.002 (0.992)	0.001 (1.031)	-0.004 (0.978)	0.990	0.946	0.997	5995
<b>Restrictions during menstruation (index) [started menstrual period]</b>	-0.055 (0.984)	0.077 (1.042)	-0.014 (0.971)	0.157	0.657	0.318	5340

**Table C6: Practices around contraception and family planning**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p- value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Have been pregnant [married]</b>	0.664 (0.786)	0.657 (0.734)	0.702 (0.783)	0.871	0.462	0.627	1592
<b>Had live birth [ever pregnant]</b>	0.783 (0.413)	0.735 (0.442)	0.746 (0.436)	0.225	0.381	0.432	826
<b>Number of live births [any live births]</b>	1.207 (0.495)	1.191 (0.432)	1.227 (0.475)	0.748	0.696	0.731	624
<b>Age at first birth [any live births]</b>	17.468 (1.254)	17.584 (1.178)	17.517 (1.157)	0.390	0.696	0.666	631
<b>Currently pregnant [ever pregnant]</b>	0.255 (0.437)	0.265 (0.442)	0.309 (0.463)	0.818	0.196	0.423	826
<b>Currently using any method of contraception [married]</b>	0.187 (0.390)	0.140 (0.347)	0.152 (0.359)	0.117	0.226	0.262	1592
<b>Currently using modern method of contraception [married]</b>	0.126 (0.332)	0.079** (0.270)	0.105 (0.306)	0.042	0.352	0.124	1592
<b>Expect to use some method in next 12 months [married, not currently using contraceptives]</b>	0.095 (0.293)	0.111 (0.315)	0.148 (0.356)	0.543	0.104	0.264	1346
<b>Expect to use a modern method in next 12 months [married, not currently using contraceptives]</b>	0.036 (0.186)	0.039 (0.193)	0.051 (0.220)	0.851	0.365	0.660	1346

**Table C7: Knowledge of contraception and family planning**

	Control mean (SD)	Girl only mean (SD)	Integrated mean (SD)	Girl only vs. Control p-value	Integrated vs. Control p-value	Overall P-value	N
<b>Correct Answ: Can get pregnant first time she has sexual intercourse [15 or older]</b>	0.284 (0.451)	0.285 (0.452)	0.292 (0.455)	0.986	0.870	0.984	4481
<b>Correct Answ: Can get pregnant after kissing or hugging [15 or older]</b>	0.804 (0.397)	0.774 (0.418)	0.765 (0.424)	0.381	0.242	0.473	4481
<b>Knowledge of contraceptive methods - spontaneous (index) [15 or older]</b>	0.053 (1.068)	-0.039 (0.929)	-0.018 (0.990)	0.349	0.456	0.622	4481
<b>Knowledge of contraceptive methods - on probe or spontaneous (index) [15 or older]</b>	-0.011 (0.989)	-0.020 (1.004)	0.032 (1.008)	0.902	0.596	0.803	4481
<b>Can name at least one method spontaneously</b>	0.560 (0.497)	0.552 (0.497)	0.550 (0.498)	0.871	0.844	0.978	4481
<b>Have ever discussed contraceptive with husband [married]</b>	0.334 (0.472)	0.325 (0.469)	0.363 (0.481)	0.834	0.469	0.571	1592
<b>Mainly Husband initiates discussion about use of contraceptives [discuss contraceptives]</b>	0.710 (0.455)	0.703 (0.458)	0.712 (0.454)	0.913	0.974	0.989	542
<b>Mainly Girl initiates discussion about use of contraceptives [discuss contraceptives]</b>	0.290 (0.455)	0.297 (0.458)	0.288 (0.454)	0.913	0.974	0.989	542
<b>Mainly Husband decides use of contraceptives [married]</b>	0.351 (0.478)	0.393 (0.489)	0.341 (0.475)	0.358	0.815	0.532	1592
<b>Mainly Girl decides use of contraceptives [married]</b>	0.055 (0.229)	0.055 (0.229)	0.065 (0.247)	0.992	0.623	0.847	1592
<b>Ever discussed how many children to have [married]</b>	0.730 (0.444)	0.647** (0.478)	0.696 (0.460)	0.045	0.308	0.128	1592

**Table C8: Knowledge of sexual health**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p- value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Has heard of HIV/AIDS [15 or older]</b>	0.140 (0.347)	0.095** (0.293)	0.114 (0.318)	0.030	0.257	0.090	4481
<b>Knows that a condom can prevent HIV [15 or older]</b>	0.185 (0.389)	0.166 (0.372)	0.129** (0.335)	0.559	0.044	0.103	4481
<b>Has heard about any other sexually transmitted infection [15 or older]</b>	0.035 (0.183)	0.035 (0.183)	0.019 (0.135)	0.994	0.121	0.109	4481

**Table C9: Practices around childbirth**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p- value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Given birth in last year [married]</b>	0.287 (0.453)	0.312 (0.464)	0.318 (0.466)	0.478	0.392	0.647	1592
<b>Registered pregnancy [given birth in last year]</b>	0.795 (0.405)	0.766 (0.425)	0.770 (0.422)	0.614	0.660	0.861	485
<b>Received antenatal care during pregnancy [given birth in last year]</b>	0.978 (0.148)	0.937 (0.245)	0.880*** (0.326)	0.121	0.002	0.006	385
<b>How many times received antenatal care during pregnancy [given birth in last year]</b>	2.560 (1.448)	2.413 (1.611)	2.368 (1.527)	0.455	0.329	0.576	385
<b>Place of delivery: own/relative [given birth in last year]</b>	0.048 (0.215)	0.044 (0.206)	0.031 (0.174)	0.881	0.454	0.726	485
<b>Place of delivery: Govt. Hospital/CHC/PHC [given birth in last year]</b>	0.831 (0.376)	0.848 (0.360)	0.857 (0.351)	0.754	0.634	0.892	485
<b>Place of delivery: Sub Centre [given birth in last year]</b>	0.000 (0.000)	0.006 (0.080)	0.000 (0.000)	0.328	.	0.328	485
<b>Place of delivery: PVT/ Hospital/Maternity/Nursing Home [given birth in last year]</b>	0.114 (0.319)	0.089 (0.285)	0.106 (0.308)	0.529	0.837	0.781	485
<b>Place of delivery: Other [given birth in last year]</b>	0.006 (0.078)	0.013 (0.112)	0.006 (0.079)	0.534	0.983	0.800	485
<b>Received postnatal care within 42 days of delivery [given birth in last year]</b>	0.398 (0.491)	0.386 (0.488)	0.435 (0.497)	0.865	0.621	0.777	485
<b>Best age for a married woman to get pregnant for first time [15 or older]</b>	21.412 (2.006)	21.315 (2.019)	21.211* (1.991)	0.455	0.097	0.249	4408
<b>Ideal gap (in months) between children [15 or older]</b>	32.550 (16.897)	30.787 (12.262)	31.266 (18.061)	0.205	0.347	0.426	4141

<b>Number of children would like to have if decision was hers along [married]</b>	2.691 (1.123)	2.721 (1.074)	2.438** (0.736)	0.839	0.033	0.015	1366
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**Table C10: Social support**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p- value</b>	<b>Integrated vs. Control p-value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Talked with at least one female friend about menstruation (last 3 months)</b>	0.617 (0.486)	0.555** (0.497)	0.585 (0.493)	0.035	0.267	0.106	7575
<b>Talked with at least one female friend about differential treatment of girls and boys</b>	0.193 (0.395)	0.201 (0.401)	0.201 (0.401)	0.818	0.841	0.969	7575
<b>Talked with at least one female friend about violence/sexual harassment against girls</b>	0.192 (0.394)	0.195 (0.396)	0.203 (0.402)	0.928	0.759	0.952	7575
<b>Go out to play with other girls [16 or younger]</b>	0.426 (0.495)	0.465 (0.499)	0.429 (0.495)	0.277	0.941	0.483	5240
<b>How often? At least 2-3 days a week</b>	0.667 (0.472)	0.651 (0.477)	0.649 (0.478)	0.723	0.682	0.902	2303
<b>How often? Once a week</b>	0.133 (0.340)	0.122 (0.327)	0.116 (0.320)	0.615	0.497	0.777	2303
<b>How often? Once in a while</b>	0.199 (0.400)	0.227 (0.419)	0.235 (0.424)	0.501	0.339	0.611	2303
<b>Participate in extra-curricular active [currently in school]</b>	0.513 (0.500)	0.468 (0.499)	0.472 (0.499)	0.180	0.294	0.360	4670
<b>Member of a collective/organization</b>	0.014	0.014	0.015	0.913	0.938	0.983	7577

**Table C11:Scales**

	<b>Control mean (SD)</b>	<b>Girl only mean (SD)</b>	<b>Integrated mean (SD)</b>	<b>Girl only vs. Control p-value</b>	<b>Integrated vs. Control p-value</b>	<b>Overall P- value</b>	<b>N</b>
<b>Self-Efficacy</b>	0.110 (0.983)	-0.090** (0.987)	-0.030 (1.020)	0.028	0.164	0.087	7313
<b>Self-Esteem</b>	0.072 (0.993)	-0.135*** (1.033)	0.056 (0.962)	0.007	0.796	0.016	7388
<b>Peer Relations</b>	0.105 (0.957)	-0.099*** (1.009)	-0.015* (1.026)	0.001	0.055	0.004	7452
<b>Socio-Emotional Skills</b>	0.057 (0.998)	-0.092** (0.985)	0.029 (1.011)	0.018	0.641	0.053	4481
<b>Mental Health</b>	0.006 (0.998)	-0.030 (1.006)	0.022 (0.996)	0.675	0.859	0.826	6917
<b>Patriachal Gender Attitudes</b>	-0.017 (1.018)	0.103 (1.009)	-0.081 (0.963)	0.201	0.454	0.036	6869
<b>Knowledge about menstruation</b>	0.002 (0.992)	0.001 (1.031)	-0.004 (0.978)	0.990	0.946	0.997	5995
<b>Restrictions during menstruation</b>	-0.055 (0.984)	0.077 (1.042)	-0.014 (0.971)	0.157	0.657	0.318	5340
<b>Knowledge about contraception (spontaneous)</b>	0.053 (1.068)	-0.039 (0.929)	-0.018 (0.990)	0.349	0.456	0.622	4481
<b>Knowledge about contraception (on probe)</b>	-0.011 (0.989)	-0.020 (1.004)	0.032 (1.008)	0.902	0.596	0.803	4481
<b>Positive sport attitudes</b>	0.090 (1.016)	-0.029* (0.966)	-0.066** (1.010)	0.076	0.039	0.089	5024
<b>Patriachal Gender Attitudes (Carer)</b>	-0.031 (1.011)	0.068 (1.001)	-0.033 (0.984)	0.228	0.980	0.285	6360
<b>Pro Female Education Attitudes (Carer)</b>	0.042 (0.972)	-0.050 (1.039)	0.005 (0.989)	0.381	0.738	0.674	6787
<b>Decision Making Power (Carer)</b>	0.039 (0.940)	0.014 (1.008)	-0.057 (1.052)	0.709	0.247	0.507	5867
<b>Freedom of Movement (Carer)</b>	-0.062 (1.007)	0.019 (0.975)	0.046 (1.014)	0.344	0.185	0.398	6788



## 12 APPENDICES

### 12.1 IMPLEMENTATION PLAN

- **Set-up phase:**
  - **Recruitment of field facilitators:** To roll out the intervention PRADAN have hired 10 female and 3 male field facilitators who will be based in Dhoulpur to facilitate the entire intervention, support the mentors as well as carry out monitoring process. The main recruitment criteria for the field facilitators were: (i) at least graduate level of education completed; (ii) residence in Dhoulpur district; (iii) prior experience of working in development (health and education) sector and programmes for women and girls at the grass root level; (iv) able to travel extensively to the district to rural areas throughout the intervention period. The position was advertised by PRADAN with final selection made from those who passed the written test, as well as an interview stage implemented by PRADAN and ICRW.
  - **Training of field facilitators:** The recruited field facilitators went through a day-long induction training on the PAnKH programme, their role and responsibilities, as well as the system of operations. A series of gender training workshops have been planned to include gender, sexuality, SRH, violence, as well as communication and facilitation skills. Three workshops lasting 4-5 days each have been planned and, so far, two (covering gender, sexuality and SRH) have been completed. In addition to the training programme, field facilitators meet for a day long discussion every week where topics including child safe guarding, ethics of research, monitoring data collections, and process documentations are covered. Field facilitators were also trained on the evaluation baseline data collection and facilitated the process of listing of the girls prior to the main survey.
  - **Recruitment of female and male mentors:** The core components of the programme will be implemented by programme “mentors”, who will lead the group education sessions, sports activities and facilitate the community mobilization and service provider sensitization activities. The mentors were recruited from amongst interested married and unmarried young people aged 18 to 24 years with at least 12 years of schooling residing in the study clusters. One female and one male mentor were selected for each cluster (with the exception of a few larger clusters in which 2 female mentors were appointed). All the mentors are paid a monthly stipend of US\$40 per month for a total period of the intervention starting from their recruitment.
  - **Mentor training:** Female mentors participated in an initial two-week training programme spread over two months between May and July. The main aim was to familiarize the mentors with the PAnKH philosophy, programme and key

concepts, as well as to train them on facilitation of the first few sessions of the education session curricula. The focus was on gender, life skills, sexuality, sexual and reproductive health, as well as gender based violence. The training was implemented by project field facilitators with support from PRADAN and ICRW staff. Subsequent training sessions will be organized regularly during the project period to cover the relevant parts of the education session curriculum, introduce new facilitation skills and suggest strategies for addressing challenges that arise. Training sessions have been planned for 4-5 days again in September to cover more in-depth modules on Sexuality and SRH and in November to cover the violence module. The male mentors have to date had one 3 days training workshop on issues of gender and patriarchy. There will be another 2-3 round of training of 3-4 days each over the next 4 months to cover topics on masculinity, sexuality, SRH and violence.

- ***Group formation of girls, men and boys and parents:*** During the course of summer 2016, mentors, with support from field facilitators, influential women in the communities and ICRW/PRADAN staff are holding multiple meetings and making door to door visits in each study cluster to recruit participants for the group education and (in the case of girls) sports activities. In a cluster of 1500 population, on average, there will be around 125 girls in the age group of 12-19 years (based on our listing data). The expectation is that around 70% of girls will agree/be allowed to participate in the *PAnKH* programme (or just under 90 girls), in each village. Three to four groups of girls will be formed to accommodate this number of participants. Efforts will be made to have separate groups for younger and older girls, so that age appropriate curriculum can be delivered. Groups for men and boys and mothers will be formed once the girl groups are operational (August/September, 2016).
- ***Engagement of other stakeholders in the community:*** From the outset, the project will establish a Community Advisory Group (CAG) to ensure buy-in and support for the proposed programme activities as well as get advice and feedback. The group will include members from local Non-Government Organizations (NGOs), Community Based Organizations (CBOs), school representatives, police, and PRI representatives. During the community mobilization process the members of the CAG will be engaged to reinforce the messages at the community level.

#### ***Implementation phase:***

There are currently detailed plans in place for the implementation of the group education and sports activities with the girls, as well as community mobilization activities. The final evaluation report will include details of implementation activities for the complete set of programme components.

- ***Implementation of the group education activities:*** The female mentors will facilitate GEA sessions with married and unmarried adolescent girls in their respective groups from August. There will be a total of 40-45 sessions over the period of 18 months, each lasting 60-90 minutes in duration. The entire curriculum will be divided into three segments - basic, intermediate and advanced

- lasting 3-4 months each. The sessions will be held weekly on a fixed day and venue. Timing and venue will be decided in consultation with the girls and also with community members ensuring convenience, but more importantly privacy and safety for participants. As part of the social mapping exercise during the formative research the community was consulted on the places that were accessible to the girls for holding sessions. As three or four groups are likely to be formed, mentors will plan the sessions with these groups for different days or different time period of the same day. We recognize the challenges of bringing married adolescents for regular sessions and implementing sessions for in-school and out of school girls at the same time. If necessary, we will conduct fewer but intensive sessions with married adolescent around agency building and SRH especially during the initial phase.

- **Implementation of the Sports Activities:** Implementation of this component will draw heavily on ICRW learning from implementation of the *Parivartan* Girls programme. Experience suggests that younger adolescents are more likely to participate in sports; however, mentors will make extra effort to bring-in older adolescents (married and unmarried) as well. Mentors will set-up days and time in consultation with the girls for the weekly 2-hour session. They will also involve the school physical education teacher so that some of the activities implemented in the session are also reflected in the in-school sports activities. In addition, two tournaments will be held during the project period. This will provide an opportunity for girls from different villages to come together and interact. Along with the matches during the tournament, some interactive activities will be planned to facilitate an interface and discussion between adolescent girls and community members or spectators.
- **Community mobilization:** Initially, the project team and Community Advisory Group will host public information sessions for parents to introduce the project, describe its objectives and explain its content. Subsequently, mentors, adolescent girls, and men and boys will lead these meetings, for information sharing and advocacy activities. Further, at least three rounds of campaign will be organized during the project period. Activities will include:
  - a) Wall painting/slogan writing campaign to raise awareness on issues relating to gender equality, safe spaces, girl education and child marriage.
  - b) Creation and promotion of '*mahila choupals*' to serve as 'safe spaces' for adolescent girls /young women at the village level. These platforms could be used by women and girls to share their concerns, achievements (role models), as well as to collectively find solutions to their problems.
  - c) Street plays and evening film screenings at the village level followed by discussion to ensure equal participation from all the members of the community (including men and boys).
  - d) Rallies on important days (example: International women's day) to promote issues relating to safety of girls, gender equality, girls' education and empowerment.

## 12.2 EVALUATION SPECIFICATION

After we have collected follow-up data we will evaluate the impact of eligibility for the Safe Spaces' interventions on each outcome of interest by running the following regression:

$$y_{ij} = \alpha + \beta_G T_j^G + \beta_I T_j^I + \gamma X_{ij} + \varepsilon_{ij} \quad (1)$$

where  $y_{ij}$  is the outcome of interest for girl (or household)  $i$ , in village  $j$ ,  $T_j^G$  is a dummy variable equal to one if village  $j$  was allocated to the girls' only treatment group and equal to zero otherwise and  $T_j^I$  is a dummy variable equal to one if village  $j$  was allocated to the integrated treatment group and equal to zero otherwise.  $X_{ij}$  is a vector of observed girl, household, and village level characteristics measured at baseline (including the baseline measure of the outcome of interest).  $\varepsilon_{ij}$  is a random error term. Note that the error term,  $\varepsilon_{ij}$ , cannot be assumed to be independent between girls (or households) since households living in the same village may be subject to correlated unobserved shocks or their unobserved characteristics may be correlated. Therefore for our inference we will cluster errors at the level of the village, allowing for arbitrary correlation between error terms of girls in the same village. In this regression framework the most interesting parameters are  $\beta_G$  and  $\beta_I$ , our estimates of the impact of being eligible for the girls' only programme and the integrated programme respectively. It is the size and significance of these parameters that will tell us the impact of the intervention on the outcome of interest and the degree of uncertainty associated with that estimate.

This specification controls for baseline values of the outcome of interest and other characteristics, measured at baseline. This will not affect the expected value of our estimators of the treatment effects  $\beta_G$  and  $\beta_I$ , which will be unbiased regardless of whether we control for these variables or not. However, it will increase the precision of our estimate, i.e. it will reduce the standard errors associated with our estimates, which will increase the power of our evaluation to detect small effects of the intervention.

## 12.3 POWER CALCULATIONS

We chose the number of clusters on the basis of power calculations for two key outcomes - the proportion of girls' in secondary education and the proportion marrying early – as well as a generic continuous outcome. In the power calculations we held fixed the number of girls per clusters given we needed to intervene in whole villages or sections of villages for the intervention model and we wanted to sample a good portion of eligible girls to look at social network effects.

For each outcome we took only a subsection of the overall sample by age to correspond to the age we are interested in for that outcome. For the schooling outcome we look only at the younger group (12-14 at baseline) for which we anticipated we would have 34 individuals per village. For the marriage outcome we look only at the elder group for which we anticipated we would have 50 individuals per village.

We calculated the number of clusters we would need to achieve a power of 0.8 with three different intra-cluster correlation co-efficients (0.05, 0.1, 0.15). For continuous outcomes we

used the standard analytical method assuming one sided non-compliance of 0.2. For binary outcomes we used a LR two independent proportions test and corrected for the design effect. For each outcome we calculate the number of clusters needed under two proposed treatment effects.

Outcome	Currently attending secondary school			Currently attending secondary school			Early marriage			Early marriage			Generic continuous outcome (e.g. mental health scale)			Generic continuous outcome (e.g. mental health scale)		
Relevant age group	12-14 at baseline			12-14 at baseline			15-17 unmarried at baseline			15-17 unmarried at baseline			12-14 at baseline			12-14 at baseline		
Estimated number of individuals per cluster	34			34			27			27			34			34		
Desired Minimum Detectable Effect	An increase from 54% to 64%			An increase from 54% to 74%			A decrease from 60% to 50%			A decrease from 60% to 45%			An increase of 0.3 of an SD			An increase of 0.35 of an SD		
Required number of clusters under different assumptions of the ICC	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =	ICC =
	0.05	0.1	0.15	0.05	0.1	0.05	0.1	0.15	0.15	0.05	0.1	0.15	0.05	0.1	0.15	0.05	0.1	0.15
	89	144	199	36	63	64	103	143	167	35	55	75	64	103	143	49	76	105

The above table shows the results of our calculations. It should be noted that these estimates contain a lot of unknowns including the ICC that we will observe in our population, the likely magnitude of effects, how much the ICC will be reduced by controlling for covariates, the extent of non-compliance etc. Overall, we notice that our estimates are extremely sensitive to the effect size we use and, for binary outcomes, the proportion observed in the control group. These results suggest that, unless we observe a particularly large ICC 90 clusters is likely to give us reasonable power to detect effects of a policy-relevant magnitude.

#### 12.4 ANALYSIS OF SCALES

We measure several outcomes of interest (gender norms, mental health, self-efficacy and self-esteem) using scales. None of the scales we used have been thoroughly validated for the context of adolescent girls living in rural Rajasthan. Therefore, we do not in any case attempt to compare our sample to any external norms. Instead, in this report, we simply report descriptive statistics for how our sample girls answered each scale item and present results of an exploratory factor analysis. Exploratory factor analysis is a method for analyzing the extent to which all items in a particular scale are measuring the same underlying construct or whether there are multiple constructs which feed into the different items. It also estimates the factor loadings for each item: how informative that item is about the underlying factor. After estimating the number of underlying factors that can reasonably explain the structure of data that we observe we can use the estimated factor loadings to predict these underlying constructs. We perform this analysis using exploratory factor analysis commands on Stata. We keep all factors with an eigenvalue greater than one (following the Kaiser criterion) and then use a varimax rotation to maximise the variance of the (squared) loadings. Tables B1-B10 show the (rotated) loadings of each item onto each retained factor. We highlight in bold loadings greater than 0.3. These highlight items that load substantially onto that particular factor and are hence most informative. Items that did not work well (perhaps because they were often misunderstood, or there was little variation in responses) will, in general, not load onto any factor.

A common finding in factor analysis of scales which contain both negatively and positively worded items is for the positively and negatively worded items to load onto two separate factors. This is sometimes interpreted as evidence that the scale is measuring two different constructs, one best measured by the positive statements, the other by the negative ones. However, several researchers have now suggested that this is more likely a result of wording effects and in fact these scales can often be seen to be uni-dimensional. In analyzing our scales which have positively and negatively worded items we perform exploratory analysis using the techniques suggested by Horan et al. (2003) to assess the extent to which multidimensionality can be explained by wording effects. Although we do not offer any firm conclusions we use this analysis to motivate which factors we will consider our outcomes of interest in the case that the exploratory factor analysis estimates there to be more than one factor with an eigenvalue greater than one.

