What Could Work to Prevent Child Marriages and Delay Pregnancy during Adolescence in India: A Systematic Review of Evidences from Low and Middle Income Countries

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Abstract:

Objective: To systematically review evidence of what works to prevent child marriages and/or pregnancy during adolescence period.

Design: A systematic review of intervention studies that evaluates at least one of the two outcomes of preventing child marriage and preventing pregnancy during adolescence, in the context of Low and Middle Income countries

Method: Articles were searched using electronic database of PubMed, Science Direct, JSTOR, NICE, Cochrane Review and Google Scholar. Key words and MeSh term were used for searching. Articles were systematically screened and filtered out using inclusion and exclusion criteria. A total of 332 articles were retrieved from the search. Fifteen met the inclusion criteria.

Conclusion: Programmes that are able to increase enrolment and retention of girls in schools through conditional cash transfers or reducing access barriers, as well as comprehensive community base programmes around empowering adolescent girls and community sensitisation and health education have shown potential in delaying age of marriage, though the evidences are not conclusive. Identifying critical components and critical pathway could help designing cost effective interventions that could be scaled up. In India, government

programmes aimed at increasing school retention or empowering adolescent girls need to be evaluated from equity and efficiency perspective to understand their effectiveness and constraints in reducing child marriages.

Key words: Child marriage, delaying age of marriage, pregnancy during adolescence, India, Low or Middle Income Countries.

Introduction

About 16% children globally and 28% children in South Asia are born low birth weight – weighing less than 2,500g at birth, with serious risks on their survival and developmental risks in later life, including impaired immune functions, cognitive development and risk of diabetes and heart diseases in adult life (data.UNICEF.org). A sizeable proportion of children born low birth weight are born to mothers less than 20 years of age. Improvement in intrauterine growth could reduce probability of low birth weight, and while maternal age in itself is not an independent determinant of intrauterine growth or gestational period, it still has indirect causal effects like access to nutrition and rest, health services etc, that affect the intrauterine growth. Therefore delaying age of pregnancy could be a more feasible method in addressing this problem (Sachdeva H S, 2001). In South Asia, most adolescent pregnancies occur within the ambit of marriages, and about 46% adolescents are married off before 18 years of age in South Asian countries.

Child marriage has been described as formal marriage or informal union before 18 years of age for boys and girls, though girls are disproportionately affected by this practice (UNICEF: Child protection from violence, exploitation and abuse). It has significant association with low contraceptive use before first pregnancy, multiple and unwanted pregnancies and short birth spacing (UNFPA, 2012; Raj et al, 2009, Jejeebhoy S J, 1998). Pregnancy during adolescence is also associated with

high risk of post partum haemorrhage, maternal and neo natal deaths, still births, preterm and low birth weight babies, fistula, obstructed labour, obstetric complications and has been shown to be a leading cause underlying maternal deaths in developing countries (Jain S and Kurz K, 2007; Save the Children, 2004).

A girl is five times more likely to die during delivery if she is less than 15 yrs age as compared to one who has attained 20 yrs of age; and an infant born to a mother less than 18 years of age is at 60% higher risk of death in the first year compared to a child born to mother who is above 19 years of age (UNICEF, State of World's Children, 2009, UNFPA 2012). Yet 11% of all births worldwide are constituted of women delivering between 15-19 years of age and about 95% of such births are reported from low and middle income countries, especially sub-Saharan Africa and South Central and South Eastern Asia (WHO). Therefore it is important to (a) prevent child marriages and (b) if already married, delay age of adolescent pregnancy. United Nations General Assembly adopted a resolution to end child marriages and forced marriages in its sixty ninth session on 18th December 2013.

Table-1: Prevalence of Child Marriages in Low and Middle Income Countries

Region	Prevalence of Child Marriage	Source of Information*
South Asia	48%	UNICEF 2005
Africa	42%	UNICEF 2005
East and West Africa	60%+	IPPF and UNFPA 2006
Carribean Countries	29%	UNICEF 2005
Middle East	50%	IPPF and UNFPA 2006
Adapted from Jain and Kurz, 2007		

In Indian context, adolescent pregnancies are largely within the context of child marriages and have social sanction (Jejeebhoy S J, 1998). Different reasons such as emphasis on "chasity" of girls, increasing burden of dowry with bridal age, economic burden of girls on poor families etc have been cited as some probable social reasons underlying child marriages (Jejeebhoy S

J, 1998, Jain and Kurz, 2007, Lee-Rife S, et al, 2012), therefore efforts have been made through different interventions to address these underlying causes, like community sensitisation on ill effects of child marriage, offering schooling as a better alternative for girls, promoting livelihood activities for families as well as girls themselves, life skill education for adolescents, and also policy advocacy and legal frameworks.

Objective of this review was to systematically review and synthesise the evidence of what could work to prevent child marriages in India. It was hypothesied that increasing school enrolment and retention, empowering adolescent girls through life skill training and providing livelihood opportunities, community mobilisation and policy enactment could reduce child marriages.

PICO

Population (P)	Girl child, Adolescent Girl
Intervention (I)	Education, policy change, incentives, livelihood, community mobilisation
Comparison (C)	Young women not experiencing intervention
Outcome (O)	preventing child marriage, preventing pregnancy in adolescence

Search Strategy:

Electronic database in English language were searched with keywords as Child marriage OR teenage pregnancy OR early marriage OR pregnancy during adolescence OR adolescents AND education OR school OR policy change OR empowerment OR community mobilisation OR counselling OR economic support OR incentives OR cash incentives OR conditional cash transfer AND low or middle income countries OR Asian countries OR developing countries. MeSH term used were Adolescents, Pregnancy during Adolescence, school.

Any intervention study from low or middle income countries (LMIC) that dealt specifically with prevention of child marriage or preventing pregnancy during adolescence with

quantitative description of results were included in the study. There were articles that described behaviour change related to contraceptives use and change in sexual behaviour among adolescents. However, a large number of these interventions were in context of HIV/AIDS prevention, set in context of Africa. Since this review is looking at conditions of pregnancy within marriage, with certain social pressure and influence, the context will differ and such articles (pertaining to HIV/AIDS prevention) were excluded.
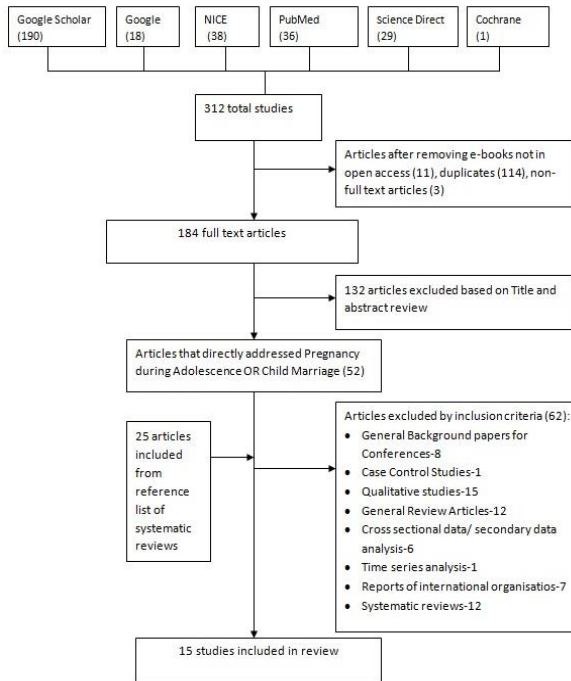
Information Sources

Database of Google Scholar, PubMed, Science Direct, JSTOR, Cochrane Review and NICE were searched.

Study Selection:

Total 312 articles had been retrieved from electronic search. An Excel sheet was created to compile the articles for further filtering. Some articles (11) were in e-book format or purchase mode and not available for full review. 114 duplicate articles and three non-full text articles were removed, leaving 184 articles. 132 articles were further excluded based on manual review of titles and abstracts of each article. Only such articles that described either child marriage or pregnancy during adolescence were manually sorted out, leading to 55 potentially relevant articles that directly addressed prevention of child marriage or delaying pregnancy during adolescence. 25 articles were also identified from the reference list of systematic reviews. After excluding articles based on inclusion/exclusion criteria, 15 articles describing primary interventions were shortlisted for review.

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│Google Scholar│ │Google  │ │NICE    │ │PubMed  │ │Science Direct│ │Cochrane  │
│(190)         │ │(18)    │ │(38)    │ │(36)    │ │(29)          │ │(1)       │
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312 total studies

Articles after removing e-books not in open access (11), duplicates (114), non-full text articles (3)

184 full text articles

132 articles excluded based on Title and abstract review

Articles that directly addressed Pregnancy during Adolescence OR Child Marriage (52)

25 articles included from reference list of systematic reviews

Articles excluded by inclusion criteria (62):
- General Background papers for Conferences-8
- Case Control Studies-1
- Qualitative studies-15
- General Review Articles-12
- Cross sectional data/ secondary data analysis-6
- Time series analysis-1
- Reports of international organisatios-7
- Systematic reviews-12

15 studies included in review

Review

Jain and Kurz (2007) have reflected that even though globally there has been an increase in age of marriage due to increase in girls' education and their participation in labour market, the trend has not been uniform, and there are still pockets in Asia and African countries where these practices are common. Poverty, lack of schooling opportunities for girls and age difference between husband and wife were significantly associated with child marriage, which also increased the risk of gender violence, low access to health services, low decision making in reproductive health matters, economic insecurity, poor networking and social support for adolescent girls (Jain & Kurz, 2007; Jejeebhoy 1998). Jain & Kurz (2007) further argue that interventions targeted at "tipping point" age, when a girls is most likely to get married could be useful in delaying

adolescent marriages, even though it is no certainty that it could be delayed till at least 18 years of age for girls.

Different interventions aiming at increasing school retention, community based interventions for life skill building, vocational trainings, awareness generation, promotion of family planning measures, policy advocacy and legislative measures etc have been tried out either explicitly for preventing child marriages and or delaying age of pregnancy, or, such outcomes were observed in some interventions even though it was not a stated objective. This article reviews the interventions that were tried in different LMICs to understand what could work to reduce child marriages and delay pregnancy during adolescence specifically in context of India.

School based interventions

Some interventions like Zomba Cash Transfer Programme in Malawi (Braid et al, 2012), Punjab Female School Stipend Programme in Pakistan (Alam A et al, 2011), food for education and secondary school stipend programme in Bangladesh (Arends-Kuenning M, et al, 2000), abstinence based education programme (Cabezon C, et al, 2003), incentive (uniform) and curriculum based intervention in Kenya (Duflo E, et al, 2011), supporting school retention in Zimbabwe (Hallfors D, et al, 2011) were tried out to improve school retention of girls.

Zomba Cash Transfer project in Malawi, a cluster random control trial, was aimed at increasing school enrolment and attendance of girls in schools. 88 enumeration areas were assigned as intervention and 88 as control. Participants from intervention area received cash incentives while no incentive was given to control group. Intervention area was further divided into conditional (where participant received incentive for at least 80% school attendance) and unconditional (where no conditions were attached for incentive). 1289 never married girls between 13-22 years of age were included in the trial.

While non-significant change (0.68, CI 0.37-1.28) was seen in postponement of marriage among school going girls, significant change was seen in delay in marriage among girls who were drop-out at baseline (0.48, CI 0.29-0.80) (Braid et al, 2012). The trial was powered to test significant difference in school enrolment at 80% power and 90% confidence, but not powered to detect change in age of marriage, further research is needed to draw a concrete conclusion. Time period of 18 months is too short a time to measure sustained change in age of marriage. The results indicate at potential positive impact of using conditional incentive for increasing school retention.

Punjab Female School Stipend Programme (FSSP) was implemented in Pakistan with 1,56,000 girls from 15 low literacy districts. Preventing child marriage and delay age of adolescent pregnancy was a secondary objective of the intervention, the primary ones being increasing school retention of girls and reducing gender gap in education. Girls from these districts were targeted for completing middle school (Std 6-8) for incentives which they could receive for at least 80% school attendance. The intervention, evaluated for about 4000 schools from stipend and non stipend districts, showed that participating girls between 15-19 years of age delayed marriage by 1.4 years and had 0.3 fewer children. (significant at 10%). There was also greater likelihood of transition to high school. No change was however seen in pregnancy probability among girls aged 17-19 years (Alam A, et at, 2011). The study results also indicate that schooling could be a socially acceptable alternative to delay age of marriage, however, the evidence is marginally significant for this outcome in this study.

A similar intervention of providing food for education for poor primary school children and a secondary school scholarship scheme for girls was implemented in Bangladesh between 1992-95. Parents received 15 Kgs of wheat every month irrespective of the number of children (boys and girls) attending primary school every month with at least 85%

attendance; monthly stipend was deposited directly to a girl's account if she attended secondary school with at least 65% attendance and maintained passing grade and parents had to sign a bond agreeing not to marry off daughters before attaining 18 years of age. Time use survey was done with 432 girls and 435 boys in 1992 (baseline) and 429 girls and 459 boys in 1995 (endline). Marriage rate for adolescent girls decreased from 36 to 32%. The cash incentives have shown to increase the school retention of girls with better time utilisation to do other household work. However, lack of similar incentives have seen adolescent boys spending more time in wage labour.

An abstinence-centered randomised controlled intervention (TeenSTAR) was implemented in Chilean Public High school, between 1996-98, with delaying marriage and adolescent pregnancy as its stated objective. The intervention TeenSTAR education programme comprised of 14 units of fertility awareness was applied in the first year of high school, followed up for 4 years. It included fertility awareness through group discussion, videotapes, home works, and skill building activities. Contraceptives were mentioned but not encouraged. 1996 cohort did not receive any intervention, in 1997 cohort, 210 students received intervention and 213 were in control group and in 1998 cohort, 328 students received intervention and 83 were assigned to control. Pregnancy rate for 1997 cohort was 3.3% in intervention group and 18.9% in control group (RR 0.176,CI 0.076-0.408); pregnancy rate for 1998 cohort was 4.4% in intervention group and 22.6% in control group (RR 0.195,CI 0.099-0.384) (Cabezon C, et al, 2003). The trial was randomised controlled followed over a period of 4 years which gives strong evidence of effectiveness of intervention. The authors believe that cognitive-behavioural interventions proposing abstinence had been useful in reducing teenage pregnancy.

Duflo E, et al, (2011) studied the impact of a cluster randomised control trial with 19487 adolescent boys and girls aged 13.5 years (on average) across 328 schools in Kenya for 7

yrs. The experiment was carried out in 2 districts in rural Kenya. 328 primary schools were included, of which 82 schools were controls, 83 schools had stand alone education subsidy programme (provision for school uniforms), 83 schools had stand alone HIV education (abstinence only) programme and 80 schools had joint programme. Follow up survey were conducted after 3 years and after 5 years of intervention. The result showed that the likelihood of getting married decreased after 3 years($p<0.05$), 5 years ($p<0.05$) and marginally decreased after 7 years ($p<0.10$) for intervention arm that distributed school uniform. No change where intervention was only in curriculum. Likelihood of pregnancy decreased after 3 years ($p<0.05$), 5 years ($p<0.05$) and marginally decreased after 7 years (non-significant) for intervention arm that distributed school uniform. No change where intervention was only in curriculum after 3, 5 or 7 years. The trial had a RCT design, had sufficient sample size and results were measured over 5 years period, which it reasonable period to see impact. The impact of conditional transfers on reducing early marriage and delaying pregnancy was statistically significant at 95%. The trial was designed to see impact on reducing STIs and teenage pregnancy. The intervention indicates at the potential of using CCT for increasing school retention, and could be considered to increase school enrolment and retention in South Asian context. Hallfors D, et al (2011) studied a random control trial for school retention among orphan girls in Zimbabwe. 329 adolescent girls (average age 14 years) from 25 Primary Schools (13 primary schools in intervention and 12 schools to control arm) were covered through the trial. All primary schools received daily feeding programme. Students in intervention schools received comprehensive school support in form of fees, exercise books, uniforms, school supplies like pens, soap, underpants and sanitary napkins. Some students also received boarding facilities while some were day-scholars. Female teachers were trained as helpers (1 per 10 students) to monitor ad help with

attendance problems . By end of one year of intervention, school drop-out rate reduced by 82% adjusted Odds Ratio 8.48 at p<0.001 (3.6-19.8), CI 95%. The trial also saw 63% reduction in marriage (3.3% in intervention group versus 9.0% in control groups)at p<0.05. This study was done in context of HIV/AIDS prevention. Authors feel that by creating supportive environment and 'bonding" with school staff, orphan girls were able to stay in school (in control group many girls were not allowed entry in school if they could not pay the fees).

The above studies point towards positive benefits of schooling in delaying age of marriage among adolescent girls. Being implemented in an institution, such interventions are relatively straightforward and easy to implement. The trials in Malawi, Kenya, Zimbabwe and Chile were random control trials with unambiguous results, however, the ones in Bangladesh and Pakistan were quasi experimental, and had mixed results. A limitation with these studies is that other social factors, for instance availability of schools, safety perception of girls and their families in accessing school, etc have not been taken into account. Such interventions also do not address out-of-school girls who are at a higher risk of early marriage and childbearing as also gender violence.

Conditional Cash Transfers in Community setting

Another set of interventions - PRAF project in Honduras, PROGRESSA in Mexico and RPS project in Nicaragua were implemented as conditional cash transfer programme conditional to enrolment and retention of children in school and family members obtaining health care. The results showed non-significant decrease in fertility among women under 20 years (except in Honduras, where there was an increase in fertility by 2-4 percentage, as cash incentives were in proportion to number of family members; in the other two interventions, the incentives were not linked to number of family members.)The

results also showed no difference in the probability of marriage in any of the three interventions (Steclov et al, 2006).

Apni Beti Apna Dhan (ABAD) – a conditional cash transfer scheme was launched in the state of Haryana in India in 1994, with a goal of enhancing survival of girl child and delaying age of marriage. A bond of Rs 2500 was created in the name of the girl if she was born among the first three children of the eligible couple. If she remained unmarried till the age of 18 years, the bond maturity value of Rs 25,000 could be encashed by the family. The first cohort of ABAD beneficiaries turned 18 years in 2012. In a study by Nanda P et al, 2014, the authors found that the beneficiary status under the scheme had significant association (p<0.001) with age of marriage, further substantiated by regression analysis that showed that the beneficiary status and current schooling of girls, mother's educational attainment and her age at marriage were negatively associated with marriage while age of girls was positively associated with marriage outcomes. A further two stage instrumental variable model showed that after controlling for other factors, beneficiary status of girls reduced the probability of her getting married. While this was a quasi experimental study that did not randomise respondents, and hence may not have controlled the confounders, the instrument variable analysis renders the results very robust. The study clearly shows that CCT has a strong potential to reduce child marriages in Indian context as well.

Thus the results of conditional cash transfer is mixed. However, the above trials clearly point towards the potential of interventions aimed at school enrolment and retention on decreasing early marriages, and consequently delaying age of first pregnancy.

Community based interventions

Berhane Hewan project in Ethiopia (Erulkar A S et al, 2009), Delaying age of marriage in rural Maharashtra in India (Pande et al), DISHA Project in India (Kanesathasan A, 2008), PRACHAR project in India (Rahman M, et al, 2010), Ishraq project in Egypt (2007), were aimed at community mobilisation, creating safe spaces for girls. Delaying child marriage was explicit objective in Berhane Hewan project, Delaying Age of marriage in rural Maharashtra project, in DISHA and PRACHAR projects, it was one of the stated objective.

Berhane Hewan project was implemented in Ethiopia between 2004-06 with the primary objective of reducing child marriages. Adolescent groups were formed by adult female mentors, support including economic incentives, was provided to girls to remain in schools. Out-of-school girls were encouraged to participate in non-formal education (e.g., basic literacy and numeracy) and livelihood trainings. "Community conversations," were held to engage the community in discussion of key issues, such as early-marriage, and in collective problem solving. Intervention was made in one village with all eligible adolescent girls and one matching village was considered as control. The results showed that the percentage of girls 10-14 years ever married decreased ($p < 0.01$), percentage of girls 15-19 years ever married increased ($p < 0.01$) and contraception use increased ($p < 0.01$) (Erulkar A S, Muthegni E, 2009). The intervention was done in only one village, so may not have accounted for regional variations that may have prevailed. The intervention was for a very short period (2 years), and does not assess long term impacts.

In another intervention- "Delaying Age of Marriage in rural Maharashtra" (Pande et al), life skill education was given to adolescent girls (12-18 years of age), facilitated by a trained local woman in 17 villages. Monthly meetings were held with parents of these girls. The project targeted 1146 out-of-school

working adolescent girls. Bivariate and multivariate logistic regression was used for analysis. Delaying age of marriage was the primary objective of this project. The proportion of marriage to girls decreased from 80.7% (1997) to 61.8% (2001) in intervention areas, while no change was seen in control areas. The median age of marriage rose from 16 years to 17 years, while no change in control areas. Girls who had attended the entire life skill programme was four times less likely to marry before 18 years compared to girls in control areas.(OR 4.00, p<.01). A strong feature of this intervention was reaching out to out-of-school girls who are at a higher risk of early marriage.

PRACHAR project in India sought to increase contraceptive use for delaying pregnancy and promoting birth spacing. It involved community mobilisation and RH communication (by a 3-days RH training, home visit to young couples for counselling on family planning, "infortainment", meetings with young married couples, parent-in-laws, influential community members), without actual service delivery. The project was implemented in 19 Blocks from 3 Districts of Bihar, India, in the initial phase (2002-05); in phase 2 (2005-08), 4 different models were tried in additional 10 Blocks. The results show that the age of marriage for girls who received any training was 1.5 years higher (20.9yrs) compared to girls who had not received any training (19.4 yrs). Age of first birth among trained girls was 2.1yrs higher among trained girls than those who had no training. (23.6yrs versus 21.5 yrs); age of marriage increased among girls by 1.5 years and among boys by 1 year (p <0.10); age of first birth increased (2.1 years) but effect was not significant (Rahman M, Daniel E, 2010).

Development Initiative Supporting Healthy Adolescents (DISHA) project was implemented in India in 176 villages of two least developed states- Jharkhand and Bihar, between 2005-2007. Delaying age of marriage was one of the stated objectives. The programme was designed to increase access to modern family planning and sexual and reproductive health

services for married and unmarried male and female youth between 14-24 years through youth friendly services; delay age of marriage and childbearing ad give livelihood options as alternative to marriage. The programme was implemented in partnership with 6 NGOs. Mean age of marriage among girls increased from 15.9 to 17.9 years in the two years intervention period. 60% of the girls who had been married before in two years prior to baseline were below 18 years of age, while 40% of the girls who got married during the project period were less than 18 years of age. The change was however not significant. This intervention too was non-randomised, so it is difficult to make out any selection bias in the intervention. No change was seen in areas which needed improvement in infrastructure or where social change was necessitated. Changes were seen more among youth that directly participated in the project, but not so much who had been reached indirectly.

The Ishraq program in rural Upper Egypt was implemented with child marriage prevention as one of the objectives. Out-of-school 587 girls between 13-15 years age from rural areas. 4 villages were selected for intervention and 2 almost matching villages were control. Ishraq created safe spaces for girls to meet, learn and play. It sought to change community norms for girls through literacy, life skill training, sports, advocacy with boys, parents and community leaders for creating more space for girls in public sphere. The intervention showed changes in attitude towards early marriage, attitude towards who should take decisions about marriage and practice of female genital mutilation, prevalent in the area, and showed higher score in school retention, returning to school and gender awareness. However, the change varied with length of participation in the programme. The period of 30 months was too short to measure full impact of change in age of marriage. The intervention was quasi-experimental and non-randomised and there were huge chances that participants who were likely

to marry had selected themselves out or were forced to drop out due to marriage, which will influence the endline results.

Community based interventions have a higher potential of making normative changes in society in favour of women and adolescent girls. The impact is more likely to be sustainable. However, limitation with the community based integrated approach interventions has been the complexity of these interventions and difficulty in institutionalising them. (Lee-Rife S, et al, 2012)In most cases, it is difficult to delineate the factors that have been critical for making the change. There is dearth of cost effectiveness data in most of these studies.

Livelihood promotion interventions

BRAC-ELA project in Bangladesh, Empowerment and Livelihood for Adolescent (ELA) programme in Uganda (Bandiera et al, 2012) were implemented in community settings to provide health and life skill education and livelihood opportunities to adolescents to reduce high risk behaviour.

In Bangladesh, Bangladesh Rural Advancement Committees (BRAC) established ELA centres focussed on life skill based education, discussions on social issues (child marriage, dowry, roles and responsibilities of girls towards family and society, health issues etc), skill based training on income generating activities and micro-finance support, safe spaces for sports and informal interaction with other girls. The trial carried out with around 3,00,000 girls between 10-24 years age group showed significant influence on their probability of getting married later, however, closer examination showed age of adolescent and educational status of parents have more determining influence than participation in Employment and Livelihood for Adolescents (ELA) centre themselves. There were many design flaws including non-randomisation, self selection of participants, high attrition rate of 19% (of which about half

were lost due to early marriage), that could have seriously influenced the study results (Sahnaz R, 2008).

Similar ELA centres were established by BRAC, a non-government organisation in Uganda, with the twin objectives of providing life skill education to reduce risky health behaviour and to impart vocational training to girls to start small scale income generating activities. The intervention assumed that breaking information barrier on health as well as providing income generation skills will have more sustained impact on both the aspects. 100 communities were randomly assigned for ELA centres, and 50 communities were kept as control. 4800 girls aged between 14-20 years, both currently in school, as well as out of school, participated in this programme. Bivariate analysis showed significantly (at 90% confidence level) lower likelihood of marriage among treated groups compared to those in control, which is not very conclusive. Regression analysis controlling for other covariates shows significant changes as 26% drop in fertility (at 95% confidence level) over two years of intervention, 83% reduction in forced sex (at 99% confidence level) , significant increase in knowledge related to pregnancy (at 95% confidence level) but non-significant change in use of condoms.

Livelihood programmes may also have negative fallout in terms of raised safety and security concerns in some communities, adolescents dropping out of school for economic pursuits or unfulfilled expectations to earn money (WHO, 2011).

Policy level interventions

Policy level interventions or advocacy were made primarily for preventing child marriages, through establishing legal minimum age of marriage and its enforcement by government bodies. Weak results were seen in interventions that targeted only policy level changes. Different laws have been enacted by

governments in South Asian countries to prevent child marriages. In India, Child marriage Restraint Act was enacted in 1929, and in 2006, a new law was further enacted that prohibits marriage if either party is minor. The legal age of marriage for girls is 18 years and for boys it is 21 years in India. Any contravention to this law is punishable with a fine of INR 1,00,000/- or imprisonment for two years. Such marriages can be nullified by court, and the family of the husband will be liable to pay maintenance till the girl is remarried. Supreme Court has made it mandatory to register all marriages.

In Bangladesh, in addition to Child Marriage restraint Act that set the legal age of marriage of girls at 18 years, a new national law was enacted in 2004, that required mandatory registration of all births, thus it would help in ascertaining the age of the girl. Community level organisations have also been roped in to prevent child marriages. In Nepal, a boy or a girl can legally marry at the age of 18 years with parental consent, at at 20 years without parental consent. Child marriage is punishable with imprisonment upto three years and a fine of ten thousand Nepalese rupee. The government also mandates for birth and marriage registration through Birth Registration Act , 1977 and marriage Registration Act, 1971 respectively. In Pakistan, a girl can be legally married at 16 years of age and a boy at 18 years (Child Marriage Restrain Act, 1929). Violation is punishable with a fine of one thousand Pakistani currency and/or imprisonment for one months. Muslim Family Law 1962 requires all marriages to be registered. Forced marriages vide tribal customary laws such as 'vani' or 'swara' exist, as compensation or settlement of disputes still exist in Pakistan. In Afganistan, while the civil law allows for marriage of girls at 16 years and boys at 18 years, the religious Shariah law allows for marriage of girl as soon as she attains puberty. The national government has taken up strategies to increase awareness about the ill effects of early and forced marriages in Afganistan. In Sri Lanka, dual laws exist for Muslims and non-Muslims.

The legal age of marriage for non-Muslims is 18 years for both girls and boys, and marriages as well as consent to marriage must be registered to rule out child marriages and forced marriages. However, for the Muslim community, a girls can be married on attainment of puberty at even 12 years of age. Maldives also follows a mix of Islamic law and English common law. While the civil law sets the legal age of marriage at 18 years for girls, the Shariah law, more commonly practiced in the country allows for marriage of girls at 15 years of age. In Bhutan, the legal age of marriage has been set at 18 years for both boys and girls and any violation is liable to be punished with 300-1000 Ngultrum (5-8 USD) and return of property received in marriage. Birth registration within one month of birth has been made compulsory. Moreover, no certificate is issued for underage marriages. In 2007, Bhutanese government established women and child protection unit to prevent child marriages. However, despite different legislation being in place, child marriages are still common in South Asian countries (Khanna T, et al, 2013). Customary laws, cultural practices and economic reasons take precedence over the legislations, further weakened by weak law enforcement mechanisms in these countries. This is further accentuated by extremist viewpoints pushing the girls out of public spaces through violence, in the grab of morality, chastity and safety. There is an immediate need for promoting education for girls, their economic empowerment, community level sensitisation of men and boys to break patriarchal norms, engaging with community and religious heads, and stronger law enforcement mechanisms (AFPPD and Australian Aid).

Programme delivery mechanisms

Lee-Rife S, et al (2012) studied the delivery mechanisms of different interventions and compared results and sustainability. The first set- Integrated programmes with

multipronged approach that worked directly with the girls and explicitly aimed at preventing child marriages were generally delivered by NGOs or International NGOs. Most such "horizontal approach" programmes were quasi experimental and showed mixed or positive results in changing behaviour or attitude towards child marriage, and had a potential for sustaining the impact beyond project period. However these programmes need to be institutionalised to make long term structural changes to promote schooling for girls, which will also help in their at-scale replicability and sustainability.

The second set of programmes identified as "vertical programmes" like school and incentive based programmes have emerged recently from Government ministries health and nutrition experts and multilateral agencies like World Bank. These programme generally targeted at poverty and lack of schooling which are social determinants underlying child marriages, yet, child marriage may not be the primary objective, thus their impact preventing child marriage is encouraging but not definite. However, these programmes can be evaluated and easily replicated at scale, and pose as a promising approach, if preventing child marriage is added as a direct objective of intervention.

The third set of programmes that aim mainly at national policies and legislative efforts and are implemented in "activist mode" have generally been less well evaluated and have been found to be less effective than the other approaches (Lee-Rife S et al, 2012, Malhotra A, et al 2011). Implemented alone, they may be insufficient to make any major change in preventing child marriages.

Malhotra A, et al, (2011) state that weak results were seen in interventions that targeted only communities or policy, and the best results were found where the intervention was directly made with adolescent girls for their skill building and empowerment.

Research Gap and Policy Implication

India still has about 41% women (range 12%-69% across states) marrying before the age of 18 years, in spite of the economic development and government measures to curb child marriages. Lack of education is a cause of and leads to early marriages. There are some States like Bihar, Jharkhand, Madhya Pradesh, Rajasthan and West Bengal where this practice is more prevalent, as also it is more in rural areas and among the poorer sections of society and where women's education is still very low (Census 2011).

Social norms, customary laws and structural factors such as educational level, economic conditions play to influence decisions of child marriage. While in India, marriages are arranged by parents and much attention is given to 'chastity' of girls, and parents marry off girls early lest they choose their own life partner and bring 'dishonour' to their family; dowry is also a determinant as its amount grows with the age of the girl. Girls are also married off early to ease economic burden on families. Perceived threat of sexual violence against young unmarried girls and poor prospect of girls to contribute economically are also some determining factors of early marriages (UNFPA, 2012; Jain S and Kurz K, 2007; Jeejeebhoy S J, 1998, Lee-Rife S, 2012).

Different interventions have been tried in India - policy enactments for compulsory registration of births and marriages, Prohibition of Child Marriage Act 2006, National Population Policy 2000, National Youth Policy 2003, National Adolescent Reproductive and Sexual Health Strategy advocate delaying age of marriage and conception of first child. A number of incentives like free uniforms, books and scholarship for girl children in public schools, conditional cash transfer schemes like Dhanalaxmi launched in 2008 by Ministry of Women and Child Development in India (for fulfilling conditions like birth registration, immunisation, school

enrolment and retention, and delaying age of marriage till at least 18 years), and similar such schemes in a number of other States. Schemes aiming at empowerment of women have been launched by National Mission for Empowerment of Women, Government of India in 2010, to provide integrated support for poverty alleviation, social and economic empowerment of women, strengthen women's participation in self-governance and providing a platform to discuss issues concerning women, including child marriage. Bal Vivah Virodh Abhiyan, a national campaign against child marriage, was launched in 2005, and particularly focussed on high prevalence states of Rajasthan, Chhatisgarh, Jharkhand, Bihar, Madhya Pradesh and Uttar Pradesh. Rajiv Gandhi Scheme for Empowerment of Adolescent Girls (SABLA) was introduced in 2010 to address health and nutritional concerns of adolescent girls, improve school retention, vocational education and life skill education for girls between 11-18 years of age.

However, the impact of these schemes on prevention of child marriages have rarely been assessed. ABAD scheme, as discussed earlier, has shown significant potential in delaying age of marriage, but it did not influence the probability of school enrolment among beneficiaries and non beneficiaries.

Conclusion

Child marriages are not only a social problem but have serious public health implications. This review covered 15 interventions from low and middle income countries to understand what could work in India. A limitation of the review is that only English language literature available on internet could be accessed and may have missed out such articles that did not have the key words explicitly in their titles or abstract. The review shows that different interventions like those that reduced access barrier to schooling, or that empower adolescent girls through peer group support, life skill education

or community mobilisation, supported by strong policy making and enforcement have a prevent child marriages and delay age of pregnancy among adolescents. However there is a need institutionalising such interventions and gathering robust evidence for further scale up. Analysing from equity perspective will help in understanding whether the targeting has been proper and whether those in most need have also been reached, and if not, what have been the constraints in benefitting them. Understanding what works and what does not, will help in better integration of the interventions and improved resource allocations.

Table 2: Interventions in different low and middle income countries to prevent child marriages

Author	Intervention Name	Country	Year of Intervention	Sample	Publication type
Alam A, Baez J, DelCarpio ZV, 2011	Punjab Female School Stipend Program (FSSP)	Pakistan	2003-09	1,56,000 girls aged 12-19 yrs	Grey literature
Arends-Kuenning M, Amin S (2000)	The effect of schooling incentive programmes on household resource allocation in Bangladesh	Bangladesh	1992-95	432 girls and 435 boys in 1992 (baseline) and 429 girls and 459 boys in 1995 (endline)	Grey literature
Baird SJ, Garfein RS, McIntosh CT,Ozler B, 2012	Zomba cash transfer programme	Malawi	2008-09	3806 girls and women 9never married) 13-23 yrs age	Peer reviewed publication
Bardy M, Issad R, Ibrahim B, Salem A, Salem R, Zibani N, 2007	The Ishraq program in rural Upper Egypt	Egypt	2001-04	277 girls 11-13 years	Grey literature
Cabezon C , Vigil P, Rojas I, Leiva M E, Riquelme R, Aranda W, Garcia C ,2003	Adolescent Pregnancy Prevention: An abstinence centered randomised controlled intervention in Chilean Public High school (TeenSTAR)	Chile	1996-98	1259 girls and young women 15-20 yrs.	Peer reviewed publication
Duflo E, Dupas P, Kremer M , 2014	Education, HIV and Early Fertility: Experimental evidence from Kenya	Kenya	2003-08	19487 adolescent boys and girls of average 13.5 yrs age	Grey literature

Erulkar A S, Muthegni E, 2009	Berhane Hewan	Ethiopia	2004-06	Girls aged 10-19 yrs; 460 at baseline and 926 at endline	Peer reviewed publication
Hallfors D, Cho H, Rusakaniko S, Iritani B, Mapfumo J, Halpern C (2011)	Supporting adolescent orphan girls to stay in school: Evidence from randomised control trials in Zimbabwe	Zimbabwe	2007-09	329 orphan girls	Peer reviewed publication
Kanesathasan A, Cardinal R J, Pearson E, Das Gupta S, Mukherjee S, Malhotra A (2008)	Development Initiative Supporting Healthy Adolescents (DISHA)	India	2005-07	4323 young people aged 14-24 yrs	Grey literature
Nanda P et al, 2014	Apni Beti Apna Dhan (ABAD)	Haryana, India	1994-2012	1500 girls each from beneficiary and non-beneficiary households for two age cohorts of girls between 14-15 yrs and 16-18 years	Grey literature
Bandiera O, Buehren N, Burgess R, Goldstein M, Gulesci S, Rasul I and Sulaiman M (2012)	Empowering Adolescent Girls: Evidence from a Randomized Control Trial in Uganda	Uganda	2008-10	4800 girls between 14-20 years	Grey literature
Pande R, Kurz K, Walia S et al (year not available)	Delaying age at marriage in rural Maharashtra, India	India	1997-2001	1146 out-of-school working adolescent girls, 12-18 yrs	Grey literature
Rahman M, Daniel E ,2010	PRACHAR	Bihar/ India	2002-2008	1200 married and unmarried men and women (19-24)	Grey literature
Shahnaz R, Karim R, (2008)	Providing Microfinance and social space to empower adolescent girls: An evaluation of BRAC's ELA Centres	Bangladesh	2005-07	3,00,000 girls (10-24 yrs age)	Grey literature
Steclov et al, 2006	Cluster Randomised control trial for 2 years among 6456 girls and women aged 12-47 years in Honduras Family Assistance	Honduras, Mexico and Nicaragua	PROGRESSA 1997-99; 2000-2002 for RPS and PRAF	6456 girls and women (12-47 yrs) in Honduras PRAF 8817 girls	Grey literature

Programme (PRAF), with 8817 girls and women aged 12-47 years in Mexico Education, health and nutrition programme (PROGRESA) and 2409 girls and women aged 12-47 years in Nicaragua (RPS)			and women (12-47 yrs) in Mexico PROGRESSA 2409 girls and women (12-47 yrs) in Nicaragua RPS

Table-3: Strength of evidence and relevance of interventions reviewed.

Author	Intervention Name	Type of intervention	Results	Relevance*
Alam A, et al, 2011	Punjab Female School Stipend Program (FSSP)	Quasi-experimental	Participating girls between 15-19 years of age delayed marriage by 1.4 years and had 0.3 fewer children (p<.10)	Medium
Arends-Kuenning M, et al, 2000	The effect of schooling incentive programmes on household resource allocation in Bangladesh	Quasi experimental	Non significant change was seen in Bangladesh food-for-education and female secondary school stipend intervention in probability of getting married.	Medium
Baird SJ, et al, 2012	Zomba cash transfer programme	Cluster RCT	Significant change in delaying age of marriage among drop-out-girls (0.48, CI 0.29-0.80), but non-significant change (0.68, CI 0.37-1.28) was seen in girls currently in school. No change in girls who received unconditional cash incentives	Low
Bardy M, et al, 2007	The Ishraq program in rural Upper Egypt	Quasi experimental	Change in attitude of girls towards early marriage, female genital cutting, and improvement in school retention among girls.	Low
Cabezon C , et al, 2003	TeenSTAR	RCT	Significant change in delaying age of pregnancy(RR 0.176,CI 0.076-0.408)	Low
Duflo E, et al, 2014	Education, HV and Early Fertility: Experimental evidence from Kenya	Cluster RCT	The likelihood of getting married and pregnancy decreased significantly (p<0.5 after 3 years, 5 years (p<0.05) and after 7 years (p<0.10) in the interventions were school uniform was provided, but no change was seen in curriculum based intervention.	Medium.
Erulkar A S, et al 2009	Berhane Hewan	Quasi-experimental	The percentage of girls 10-14 years ever married decreased (p<0.01), percentage of girls 15-19 years ever married increased (p<0.01) and contraception use increased (p<0.01).	Medium
Hallfors D, et al, 2011	Supporting adolescent orphan girls to stay in school: Evidence from randomised control trials in	Cluster RCT	School drop-out rate reduced by 82% adjusted Odds Ratio 8.48 at p<0.001 (3.6-19.8), CI 95% and marriage was delayed significantly (63%, p<0.05) among orphan girls who received incentives in form of	Low

			school fees, school supplies and at times staying facilities	
Kanesathasan A, et al, 2008	Development Initiative Supporting Healthy Adolescents (DISHA)	Quasi experimental	Non-significant increase in age of marriage.	High
Nanda P, et al, 2014	Apni Beti Apna Dhan (ABAD)	Quasi experimental	While the probability of getting enrolled in school was similar for beneficiaries and non-beneficiaries of the scheme, once enrolled the recipients had higher probability of increased school retention and marrying after 18 years age (p<0.001).	High
Bandiera O, et al, 2012	Empowering Adolescent Girls: Evidence from a Randomized Control Trial in Uganda	RCT	Significant 26% drop in fertility (at 95% confidence level) , significant 83% decrease in forced sex (at 99% confidence level) and significant change in attitude towards pregnancy(at 95% confidence level).	Medium
Pande R, et al (n.d)	Delaying age at marriage in rural Maharashtra, India	Quasi experimental	Significant change in probability of delaying married among participants (OR 4.00, p<.01)	High
Rahman M, et al 2010	PRACHAR	Quasi-experimental	Age of marriage increased among girls by 1.5 years and among boys by 1 year (p <0.10); age of first birth increased (2.1 years) but effect was not significant.	High
Shahnaz R, et al, 2008	Providing Microfinance and social space to empower adolescent girls: An evaluation of BRAC's ELA Centres	Quasi experimental	Decrease in probability of getting married, though the change was non-significant	High
Steclov et al, 2006	Family Assistance Programme: PRAF, (Honduras); Education, Health and Nutrition Programme: PROGRESA (Mexico); and Social Protection Network: RPS (Nicaragua)	Cluster RCT	No change in fertility in Mexico (PROGRESSA), Nicaragua (PRAF); fertility increased in Honduras (RPS).	Medium

*Relevance has been categorised as 'High' if both socio-cultural context is similar to India, and project specifically aims at preventing child marriage and delaying pregnancy in adolescence. If only one of the two match, it has been categorised as 'Medium' and if both don't match, yet the findings of the intervention could be further tested for India to prevent child marriage or delay age of pregnancy, the level of relevance has been marked 'Low'.

Abbreviations:

CI- Confidence Interval

ELA- Empowerment and Livelihood for Adolescents

HIV- Human Immunodeficiency Virus

LMIC- Low and Middle Income Countries

NGO- Non-governmental organisations (voluntary organisations)

OR- Odds Ratio

RR- Risk Ratio

RCT- Randomised Control Trials

Acknowledgement

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