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Review article

Interventions to Prevent Child Marriage Among Young People in Low- and Middle-Income Countries: A Systematic Review of the Published and Gray Literature

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A B S T R A C T

Child marriage, defined as marriage before the age of 18 years, is a human rights violation that can have lasting adverse educational and economic impacts. The objective of this review was to identify high-quality interventions and evaluations to decease child marriage in low- and middle-income countries. PubMed, Embase, PsycInfo, CINAHL Plus, Popline, and the Cochrane Databases were searched without language limitations for articles published through November 2015. Gray literature was searched by hand. Reference tracing was used, as well as the unpacking of systematic reviews. Retained articles were those that were evaluated as having high-quality interventions and evaluations using standardized scoring. Eleven high-quality interventions and evaluations were abstracted. Six found positive results in decreasing the proportion married or increasing age at marriage, one had both positive and negative findings, and four had no statistical impact on the proportion married or age at marriage. There is wide range of high-quality, impactful interventions included in this review which can inform researchers, donors, and policy makers about where to make strategic investments to eradicate marriage, a current target of the Sustainable Development Goals. Despite the cultural factors that promote child marriage, the diversity of interventions can allow decision makers to tailor interventions to the cultural context of the target population.

IMPLICATIONS AND CONTRIBUTION

This review of the literature finds six high-quality interventions and evaluations that reduced child marriage, using a range of implementation strategies and in a variety of settings. These intervention strategies can be used to reduce child marriage and help countries meet Sustainable Development Goal targets.

Preventing early, coerced, and forced marriage has been on the global agenda for several decades, with the Millennium Development Goals first highlighting the reduction of child marriage as a global priority in 2000 and it continues to remain part of the global agenda with establishment of the Sustainable Development Goals in 2015. Goal 5, which focuses on gender equality to empower women and girls, will monitor country-level progress on the elimination of child marriage, defined as the proportion of women aged 20–24 years who were married or in a union before age 15 years and before age 18 years [1]. Globally, among 20- to 24-year-olds, 8% were married by age 15 years, and 27% were married by age 18 years in 2014 [2]. By age 15 years, 17% were married in South Asia, and 14% were married in West and Central Africa [2]. In sub-Saharan Africa, data suggest that the rate of child marriage is declining, although

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there is substantial heterogeneity across and within countries [3]. However, the numbers of girls getting married less than the age of 18 years are on the rise, about 39,000 per day globally, because the number of adolescents and young people is the largest in history [4]. In South Asia, the prevalence of child marriage has generally declined, but primarily among those who are below the age of 16 years [5].

Child marriage is associated with lower educational attainment [6] and reduced levels of literacy [7], which, in turn, lead to reduced economic participation [8]. Girls who marry early often begin childbearing early as well [9,10] and are more likely to be subject to forced or coerced sex and intimate partner violence [11,12]. Given the importance of the prevention of child marriage, both from a human rights standpoint and for meeting the Sustainable Development Goal targets, there is a clear need for evidence-based interventions that prevent child marriage [13]. This review focuses on high-quality interventions and evaluations that can guide program managers, country officials, and donors to well-designed, successfully implemented interventions that have been rigorously evaluated. The objective of this review was to identify high-quality interventions and evaluations targeting child marriage in low- and middle-income countries.

Methods

Search strategy

We undertook a systematic search of published literature to identify interventions that address child marriage in low- and middle-income countries (LMICs). We used six databases—PubMed, Embase, PsycInfo, CINAHL Plus, Popline, and the Cochrane Databases—in conducting these searches. Search strategies for each database used the particular database's controlled vocabulary for searches (e.g., medical subject headings [Mesh] terms) and free-text terms. In building the searches, we combined a list of terms that describe young people with a list of terms that describe marriage or marriage-like arrangements. We then combined this search with a list of low- or middle-income country (LMIC) and regional search terms. We searched the literature from 2000 to November 2015.

We then searched gray literature for child marriage by first targeting organizations involved in child marriage eradication and through the use of the Google search engine for publications about child marriage interventions. We also hand-searched the literature based on identified citations in the published and gray literature for additional titles (additional details are provided in the methodology commentary in this volume: Hindin and Kalamar, forthcoming).

The results of the initial search of both published and gray literature were stored using EndNote reference manager software. All titles and abstracts resulting from the searches were screened for interventions related to child marriage in LMICs, and these remaining articles were abstracted.

Inclusion/exclusion criteria

Articles were included for abstract screening if they met all the following criteria: (1) reported on interventions targeting child marriage; (2) the intervention targeted young people, ages 10–24 years; (3) the intervention was in a low- or middle-income country; (4) the article or publication was written in English, French, Spanish, or Portuguese; and (5) published from 2000 onward.

Abstraction-ranking strategy

For each of the abstracted articles, the quality of both the intervention and the evaluation of the intervention's effects was assessed and rated on a scale from 1 (weak) to 5 (strong). To assess the strengths and weaknesses of the intervention, reviewers were asked to consider whether the intervention was grounded in theory, if the intervention was first pilot tested to assess feasibility and acceptability, whether and what kind of training personnel involved in the intervention received, what steps were taken to prevent cross-over or contamination between intervention and control groups, the duration of the intervention, and whether and how randomization, of the intervention and/or evaluation took place. A ranking of 1 or 2 was given when the weaknesses of the intervention and study design heavily outweighed any identified strengths. Articles were ranked as a 3 when, on balance, the study design had about as many strengths as weaknesses. Those that were ranked as the strongest, 4 or 5, had more identified strengths than weaknesses and those assigned a 5 had few, if any, weaknesses.

To assess the strengths and weaknesses of the evaluation, reviewers were asked to consider several aspects of the evaluation design and evaluate the strengths and weaknesses before assigning a ranking score. These included the analytic techniques used to evaluate change attributable to the intervention, the use of an appropriate comparison group, sample size, operationalization and measurement of exposure to the intervention, length of follow-up, and the number of evaluation time points (particularly whether there was baseline and end line data collection or just end line). To assign a ranking score (1–5) for the evaluation, the same methodology was used for ranking the intervention. The quality of the intervention and evaluation of each included article was assessed by two, and a third reviewer arbitrated discrepancies.

Analysis

Most interventions aimed to reduce the proportion of girls married or to delay marriage beyond a certain age. While many studies included knowledge, norms, and behavioral outcomes, this review reports on behavioral outcomes (Box 1), as changes in knowledge and norms are not necessarily sufficient to produce behavior change. Studies that did not include behavioral outcomes were excluded from this review. In addition, due to the heterogeneity of the interventions, populations, and outcomes, a meta-analysis was not performed. However, results are summarized to show the features of the interventions, populations, and impact of the interventions on child marriage. Table 1 provides the description of the intervention and the key impact on the targeted behavior by outcome. The description includes the age range of participants at the time of the intervention, the duration of the intervention, the age range at the time of the evaluation, the venue of the intervention, and participant characteristics. Table 2 summarizes the findings of each article by study across all targeted behavioral outcomes, highlighting the main finding for each outcome.

Box 1. Behavioral outcomes

- Proportion of girls married
- Age at marriage

Table 1
Description of high-quality early marriage interventions and evaluations

Country	Intervention		Evaluation	Venue and participants	Main intervention components	Impact
	Age (years)	Length (years)	Age			
Colombia [14]	13 on average	Not specified	13–17 on average	School: boys and girls	School voucher lottery for private school tuition	+
Mexico [15]	9–21	Ongoing	14–21	Household: girls	Cash transfers conditioned on school attendance; provision of sexual and reproductive health education and services	+
Zimbabwe [16]	Age 12	3	Age 17	School: girls (orphaned)	Payment of school fees; provision of school uniforms, books, and other school supplies (5-year follow-up)	+
India [17]	12–18	5	11–17[a]	Community: girls	Life-skills curriculum; community service; parental education program	+
Ethiopia [18]	10–19	2	10–19	Community: girls	Support to remain in school; livelihood training; mentorship	+/–
Malawi [19]	13–22	2	14–23	Household: girls	Payment of school fees and cash transfers conditioned on school enrollment and attendance or unconditional cash transfers	+/–
Malawi [20]	13–22	2	14–23	Household: girls	Payment of school fees and cash transfers conditioned on school enrollment and attendance	+/–
Bangladesh [21]	13–22	3	15–25	Community: boys and girls	Life-skills curriculum; vocational training	NS
India [22]	14–24	2	14–18[a]	Community: boys and girls	Youth groups; peer education; income-generating skills; youth friendly services	NS
Kenya [23]	15 on average	2	20.5 on average	School: boys and girls	Provision of school uniforms, teacher training program (7-year follow-up)	NS
Kenya [24]	None specified	4	12–24	Household: girls	Unconditional cash transfer to households based on the presence of an orphan or being ultra poor	NS

+ = statistically significant positive effect; +/– = mixed effect; NS = no statistically significant effect.
[a] Evaluation age range restricted for early marriage to include only respondents aged 18 years or younger.

Results

Figure 1 is a flow diagram showing the identification, screening, and included articles. The initial search strategy yielded nearly 4,000 articles (>3,900 from the six databases and 49 identified from hand-searching the gray literature) of which 63 were abstracted following title and abstract screening. Nineteen were ranked as high quality based on both the intervention and evaluation scores, and 11 were retained after eliminating those without a behavioral outcome or those that were reporting on multiple follow-up periods for the same intervention and outcome—we retained the most recent evaluation for those with multiple follow-up periods.

Quality of the evidence

High-quality interventions, those that were rated as a 4 or a 5, often included common positive aspects such as basing the intervention on a theory of change, being well-planned and organized, including relevant stakeholders in the design and implementation, conducting a pilot phase or formative work, with the article providing sufficient detail on both intervention components and the implementation. Limitations of these high-quality interventions focused on high participant burden or omitting what was thought to be a key component for changing child marriage, which was often girls' education. Interventions of lower quality suffered from more limitations than the high-quality studies including concerns about a short intervention length and the ability to affect change in that time frame, concerns about cross-over or contamination, concerns about the complexity of the intervention, reported implementation problems, reporting limited information about each of the activities of the intervention or on the process of implementation, or simply not providing sufficient detail to draw any conclusions on its strengths and weaknesses.

Similarly, the evaluations of each of the interventions were rated. High-quality evaluations were rigorous, including a strong design that allowed for measuring intervention impact, employed randomization, and used pre–post comparisons. Limitations included the inability to follow the same participants from baseline to follow-up. Weaker evaluations often had limited statistical analysis for quantitative studies, select samples (e.g., only those exposed to the intervention), no true measure of impact of the intervention, or no, or an inappropriate, comparison group.

Impact on child marriage

Of the four that had a significant impact in the intended direction, two focused on proportion of girls married [14,16], both finding decreases; one focused solely on age at marriage [15], finding an increase; and one focused on both outcomes [17] (Tables 1 and 2). Three of the four interventions [14–16] provided some type of economic incentive to remain in school, such as cash transfers conditioned on school attendance or payment of school fees. The fourth intervention [17] implemented a life-skills curriculum, finding both a decrease in child marriage and an increase in age at marriage. These four studies represent a wide range of geographic diversity: Colombia [14], Mexico [15], Zimbabwe [16], and India [17].

Table 2
Impact summary of high-quality early marriage interventions and evaluations

Country	Evaluation age range (years)	Intervention	Proportion married (decrease expected)	Age at marriage (increase expected)
Mexico [15]	13–19	Conditional cash transfers		↑
Malawi [20]	13–22	Conditional cash transfers	↓ [a]	
Malawi [19]	13–22	Conditional/unconditional cash transfers	↓ [b]	
Kenya [24]	12–24	Unconditional cash transfers	—	
Colombia [14]	13 on average	School voucher program	↓	
Kenya [23]	15 on average	School uniforms; teacher training	—	
Zimbabwe [16]	Age 12	School fees, uniforms, books, and supplies	↓	
Ethiopia [18]	10–19	School support; life-skills curriculum	↓↑ [c]	
Bangladesh [21]	13–22	Life-skills curriculum		—
India [17]	11–17	Life-skills curriculum	↓	↑
India [22]	14–24	Multicomponent	—	—

□ = effect significant at $p < .05$; ▒ = effect significant at $p < .01$; ■ = effect significant at $p < .001$.
[a] Among baseline out-of-school girls; no impact among baseline in-school girls.
[b] Among those in the unconditional transfer arm—no impact in the conditional transfer arm.
[c] Declines among girls aged 10–14 years; increase among girls aged 15–19 years.

Three studies found mixed impacts with one [18] finding a decrease in marriage among 10- to 14-year-olds but an *increase* in marriage among 15- to 19-year-olds. The other two, which are based on the same intervention but analyze different treatment arms, find positive results among one group of intervention participants (those receiving an unconditional cash transfer [19]; girls out of school at baseline [20]) but no impact among another (conditional cash transfer [19]; girls in school at baseline [20]). All three interventions provide an economic incentive to remain in school; one study [19] provided both a conditional and unconditional cash transfer for comparison between the two. For all three, the outcome is proportion of girls married, all three evaluations include girls older than the definition of child marriage, and all are in sub-Saharan Africa.

Among the four studies that find no measurable impact on child marriage, two [23,24] focus on proportion of girls married, one [21] focused on age at marriage, and one [22] looked at both outcomes. Three of the four studies [16,21,23] include girls and boys above the legal definition of child marriage in their evaluation, while one [22] includes girls and boys older than 18 years in the intervention but restricts the child marriage analysis to those younger than 18 years. One intervention included provision of school uniforms [23] and a second provided unconditional cash transfers [24], one focuses on a life-skills curriculum [21], and the final one is a multiple component intervention in India [22], which included youth groups, peer education, income-generating activities, and youth friendly services. Two of the four interventions were in Asia, whereas the other two were in Kenya.

Discussion

Child marriage persists as a human rights violation despite widespread efforts to eliminate the practice. Significant investment has been made in policies, programs, and interventions to decrease child marriage. Overall, of the >3,900 articles screened from the published literature, we retained 6 (.15%) and found five gray literature articles that brought our total to 11 high-quality interventions and evaluations. Six of the 11 high-quality interventions and evaluations identified in this review found some positive impact on reducing the proportion married or an increase at the age of marriage, although these findings were not always uniform among all subpopulations included in the evaluation, and one found a decrease in early marriage in younger girls but an increase among older girls. These six represent a range of high-quality intervention designs, providing flexibility for future programming to choose an evidence-based intervention design that is appropriate for a given context, population, or situation.

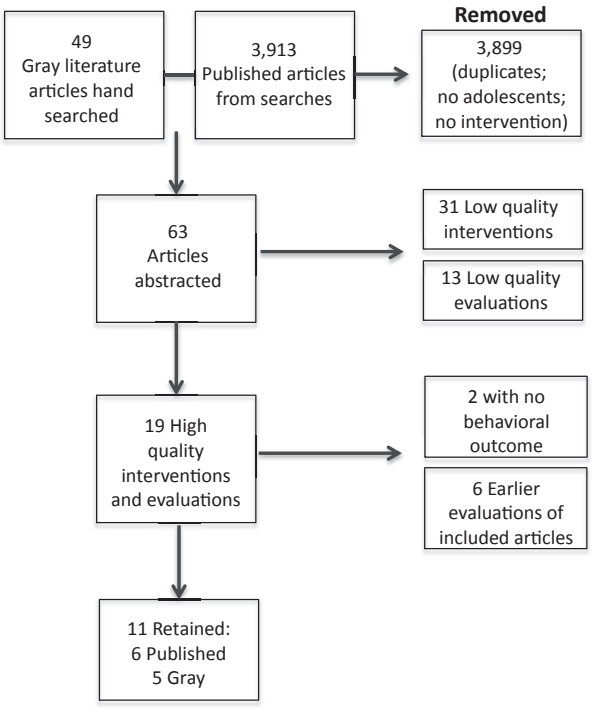

Figure 1. Flow diagram: Child marriage.

For some parents and families, child marriage for girls is a means to decrease financial burdens through dowry/brideprice [25,26] or by no longer having to educate girls who are not a source of future wealth to the family [27]. Given these motivations, it is not surprising that most interventions to decrease child marriage are focused on cash transfers or programs to decrease school-associated costs. We found that most of these economic interventions had a significant impact on decreasing the rate of child marriage or increasing age at marriage in the intervention group.

Of the programs that found no statistical impact on child marriage, most of the interventions had defined goals that were broader than child marriage including HIV [23], sexual and reproductive health more generally [22], and empowerment [21]. In contrast, the interventions that did have statistical impact focused directly on child marriage [15,17,18] or on closely related structural factors such as schooling [14,16,19,20]. It is worth noting that although most of the interventions did not include cost data, it is likely that these intensive interventions may not be sustainable, as many were for >2 years and up to 5 years in duration. Future evaluations may want to collect cost data, so cost-effectiveness analysis could help assess feasibility for and decision-making about the potential for scale-up and transferability to other settings, with careful consideration of contextual factors. While some of the cash transfer programs had a positive impact on child marriage, they may be unsustainable in terms of cost, and it is unclear whether changing norms is needed for sustained long-term change after the intervention.

Three of the articles report unintended or unexpected effects of the intervention. One reported that, when combining the two intervention strategies (school uniform provision and teacher training), the positive and statistically significant effect that the provision of school uniforms had on its own disappeared. This is especially important to note as the authors were able to evaluate each strategy individually and in combination, something that multicomponent interventions are often unable to do. Two articles report indirect unintended effects of the intervention. The authors of the life-skills curriculum intervention in Bangladesh report that the success of increasing age at marriage for girls had an unintended effect of leading to higher dowry payments among some of the intervention girls because of their older age when they did marry. The program in Zimbabwe providing support to stay in school reports that some students in the control schools were "chased away" and told to go home and get the money to pay the school fees, possibly because some at the school had heard that an intervention was taking place.

There are a number of important limitations to this review. First, the age at evaluation varies across studies, and in some cases, the follow-up data collection occurs after some girls have reached age 18 years. While some of the analyses take age at follow-up into account and specifically measure the impact only for girls <18 years old, others just look at age at marriage or the proportion married without regard to the age range. In fact, nearly all the interventions that show a positive impact limit the analysis to girls under the age, while nearly all that showed no impact on child marriage had girls over the age of 18 years in the analysis. In addition, we include the most recent evaluation of a particular intervention with the same outcome. For example, if a group reported on short-term and longer term follow-up of pregnancy, we use the most recent report on the intervention and its impact. This limitation is important to consider as some interventions may have short-term impact but not long-term impact (or vice versa). This decision was made to avoid redundancy but may not fully represent all the effects of a given intervention. Finally, self-reported age at marriage may underestimate the true child marriage rate as some respondents may report a later age at marriage, particularly in settings where laws are in place to prevent child marriage. This limitation would bias the intervention results toward the null—no impact.

Despite these limitations, this review adds to the evidence base of high-quality, rigorously evaluated interventions to prevent child marriage. Using the results highlighted in this review, researchers, donors, and policy makers can consider which interventions in a given context are likely to help curtail child marriage, while avoiding replication of interventions that were well-designed and evaluated but did not result in behavior change. Investment in high-quality interventions must be accompanied by high-quality evaluations as well as efforts to ensure that these results are widely available to continue to learn what strategies most effectively reduce child marriage.

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References

[1] United Nations. Sustainable Development Goals 2015. Available at: https://sustainabledevelopment.un.org/topics. Accessed June 13, 2016.
[2] UNICEF. UNICEF Global Databases: Child marriage. New York: UNICEF; 2015.
[3] Shapiro D, Gebreselassie T. Marriage in sub-Saharan Africa: Trends, determinants, and consequences. Popul Res Policy Rev 2014;33:229–55.
[4] United Nations. State of the world's population. New York: UNFPA; 2014.
[5] Raj A, McDougal L, Rusch ML. Changes in prevalence of girl child marriage in South Asia. JAMA 2012;307:2027–9.
[6] Delprato M, Akyeampong K, Sabates R, et al. On the impact of early marriage on schooling outcomes in Sub-Saharan Africa and South West Asia. Int J Educ Development 2015;44:42–55.
[7] Nguyen MC, Wodon Q. Impact of child marriage on literacy and education attainment in Africa. Washington, D.C.: The World Bank; 2014.
[8] Chaaban J, Cunningham W. Measuring the economic gain of investing in girls: The girl effect dividend. Washington, D.C.: The World Bank; 2011.
[9] Raj A, Saggurti N, Balaiah D, et al. Prevalence of child marriage and its effect on fertility and fertility-control outcomes of young women in India: A cross-sectional, observational study. Lancet 2009;373:1883–9.
[10] Nasrullah M, Muazzam S, Bhutta ZA, et al. Girl child marriage and its effect on fertility in Pakistan: Findings from Pakistan demographic and health survey, 2006-2007. Matern Child Health J 2014;18:534–43.
[11] Erulkar A. Early marriage, marital relations and intimate partner violence in Ethiopia. Int Perspect Sex Reprod Health 2013;39:6–13.
[12] Nasrullah M, Zakar R, Zakar MZ. Child marriage and its associations with controlling behaviors and spousal violence against adolescent and young women in Pakistan. J Adolesc Health 2014;55:804–9.
[13] Svanemyr J, Chandra-Mouli V, Raj A, et al. Research priorities on ending child marriage and supporting married girls. Reprod Health 2015;12:80.
[14] Angrist J, Bettinger E, Bloom E, et al. Vouchers for private schooling in Colombia: Evidence from a randomized natural experiment. Am Econ Rev 2002;92:1535–58.
[15] Gulemetova-Swan M. Evaluating the impact of conditional cash transfer programs on adolescent decisions about marriage and fertility: The case of Oportunidades. Philadelphia: University of Pennsylvania; 2009.
[16] Hallfors DD, Cho H, Rusakaniko S, et al. The impact of school subsidies on HIV-related outcomes among adolescent female orphans. J Adolesc Health 2015;56:79–84.
[17] Pande R, Kurz K, Walia S, et al. Improving the reproductive health of married and unmarried youth in India: Evidence of effectiveness and costs from community-based interventions. Washington, D.C.: International Center for Research on Women (ICRW); 2006.
[18] Erulkar AS, Muthengi E. Evaluation of Berhane Hewan: A program to delay child marriage in rural Ethiopia. Int Perspect Sex Reprod Health 2009;35:6–14.
[19] Baird S, McIntosh C, Özler B. Cash or condition? Evidence from a cash transfer experiment. Q J Econ 2011;126:1709–53.
[20] Baird SJ, Garfein RS, McIntosh CT, et al. Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: A cluster randomised trial. Lancet 2012;379:1320–9.
[21] Amin S. Empowering adolescent girls in rural Bangladesh: Kishori Abhijan. New York: Population Council; 2011.
[22] Kanesathasan A, Cardinal LJ, Pearson E, et al. Catalyzing change: Improving youth sexual and reproductive health through DISHA, an integrated program in India. Washington, D.C.: ICRW; 2008.
[23] Duflo E, Dupas P, Kremer M. Education, HIV and early fertility: Experimental evidence from Western Kenya. Cambridge, MA: National Bureau of Economic Research; 2014.
[24] Handa S, Peterman A, Huang C, et al. Impact of the Kenya cash transfer for orphans and vulnerable children on early pregnancy and marriage of adolescent girls. Social Sci Med 2015;141:36–45.
[25] Nour NM. Child marriage: A silent health and human rights issue. Rev obstetrics Gynecol 2009;2:51–6.
[26] Corno L, Voena A. Selling daughters: Age of marriage, income shocks and bride price tradition. Copenhagen: The Rockwool Foundation Research Unit; 2015.
[27] Wodon Q, Nguyen MC, Tsimpo C. Child marriage, education, and agency in Uganda. Feminist Economics 2015;22:54–79.