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Review article

Preventing gender-based violence victimization in adolescent girls in lower-income countries: Systematic review of reviews

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ABSTRACT

This systematic review of reviews synthesizes evidence on the impact of interventions to prevent violence against adolescent girls and young women 10–24 years (VAWG) in low- and middle-income countries (LMICs). Theories of women's empowerment and the social ecology of multifaceted violence frame the review. Child abuse, female genital mutilation/cutting (FGMC), child marriage, intimate partner violence (IPV), and sexual violence were focal outcomes. Our review followed the Assessment of Multiple Systematic Reviews (AMSTAR) for the systematic review of reviews, and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for a systematic review of recent intervention studies. Of 35 reviews identified between June 7 and July 20, 2016, 18 were non-duplicate systematic reviews of medium-to-high quality. Half of these 18 reviews focused on interventions to prevent IPV. Only four focused on adolescents, of which three focused on child marriage and one compared findings across early and late adolescence. None focused on interventions to prevent child abuse or sexual violence in adolescent/young women. From these 18 reviews and the supplemental systematic review of intervention studies, data were extracted on 34 experimental or quasi-experimental intervention studies describing 28 interventions. Almost all intervention studies measured impacts on one form of VAWG. Most studies assessed impacts on child marriage (n = 13), then IPV (n = 8), sexual violence (n = 4), child abuse (n = 3), and FGMC (n = 3). Interventions included 1–6 components, involving skills to enhance voice/agency (n = 17), social networks (n = 14), human resources like schooling (n = 10), economic incentives (n = 9), community engagement (n = 11) and community infrastructure development (n = 6). Bundled individual-level interventions and multilevel interventions had more favorable impacts on VAWG. Interventions involving community engagement, skill-building to enhance voice/agency, and social-network expansion show promise to reduce VAWG. Future interventions should target poly-victimization, compare impacts across adolescence, and include urban, out-of-school, married, and displaced/conflict-affected populations in LMICs, where VAWG may be heightened.

1. Introduction

Violence against women and girls (VAWG) is a prevalent human-rights violation that elevates the risks of acute, long-term, and intergenerational health effects (Clark et al., 2016; Solotaroff and Pande, 2014; Yount and Abraham, 2007; Yount et al., 2011; Zureick-Brown et al., 2015). Evidence also is growing with respect to concurrent or sequential *poly-victimization* (Finkelhor et al., 2007; Sigal et al., 2016; Solotaroff and Pande, 2014; Yount and Abraham, 2007; Yount et al., 2016; Yount and Li, 2010), as well as the adverse effects of VAWG on schooling, market work, and economic independence (Sigal et al., 2016; Solotaroff and Pande, 2014; Yount et al., 2015; Yount et al., 2014). As a result, preventing violence against women and girls has become a global priority (United Nations, 2015). Embedded in United Nations Sustainable Development Goal 5 (SDG5), to achieve gender equality and to empower women and girls, are three ambitious targets to end: "all forms of discrimination against all women and girls everywhere" (5.1; p. 18); "all forms of violence against all women and girls in the public and private spheres …" (5.2; p. 18); and "all harmful

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practices, such as child, early and forced marriage and female genital mutilation" (5.3; p.18) (United Nations, 2015).

In tandem with SDG5, governments and private agencies have increased their commitment to evaluate what works to prevent violence against women and girls (Independent Commission for Aid Impact, 2016). Researchers, in turn, have designed intervention studies to provide more robust evidence of impact. As a result, evidence from low- and middle-income countries (LMICs) on the impact of interventions to prevent violence against women and girls is growing (Ellsberg et al., 2015).

Still, gaps in knowledge may persist for critical life stages, and for the risk of poly-victimization, or multiple exposures to violence (Finkelhor et al., 2007 pp. 8–9). Adolescence is a period of rapid developmental change (Patton et al., 2016) and of heightened vulnerability to multiple forms of violence (Finkelhor et al., 2007). Before age 15, girls are not physically or cognitively ready to make safe, consensual, and voluntary decisions about marriage, sexual relations, or reproduction (Dixon Mueller, 2008). In middle adolescence—ages 15 to 17—physical and cognitive readiness varies, depending on the onset and pace of puberty, cognitive maturation, and risks and responsibilities encountered at marriage and childbearing (Dixon Mueller, 2008). Yet, intervention studies to reduce VAWG may focus less on adolescent girls, and on their risk of poly-victimization. Some forms of VAWG, such as FGMC or child marriage, require a programmatic focus on this age group. Yet, for other forms of VAWG, such as intimate partner violence (IPV), attention to adolescents may be limited, and the impacts of programs on poly-victimization in adolescence may be unknown.

Finally, of the intervention studies to prevent VAWG that have targeted adolescent girls, many may not have been designed to compare the impacts of interventions in early (10–14 years) versus later (15–19 years) adolescence and young adulthood (20–24 years). Yet, an adolescent girl experiences many physical, cognitive, and social developmental changes in the transition to adulthood that may affect her and her family's responses to the intervention (Dixon Mueller, 2008; Patton et al., 2016). As a result, programmatic needs may vary across these periods, as may the impacts of interventions (Patton et al., 2016).

We conducted a systematic review of reviews to synthesize evidence on the impact of interventions to prevent violence victimization in adolescent girls and young women ages 10–24 years in LMICs. From included systematic reviews, and a supplemental systematic search for the most recent intervention studies, we extracted and synthesized data from higher quality peer-reviewed and non-peer-reviewed intervention studies to compare findings across early adolescence (10–14 years), late adolescence (15–19 years), and young adulthood (20–24 years). The review of reviews and of intervention studies focused on five forms of VAWG: child abuse/maltreatment (CA), female genital mutilation/cutting (FGMC), child marriage (CM), dating violence or intimate partner violence (IPV), and sexual violence (SV). Our concurrent focus on multiple forms of VAWG is motivated by evidence of their intersecting causes, frequent co-occurrence, and common health consequences (Bacchus et al., 2017; Finkelhor et al., 2007; Guedes et al., 2016). Findings expose important gaps in research, and promising approaches to address poly-victimization, which may allow girls to transition to adulthood with bodily integrity and freedom from violence.

2. Background

2.1. Forms of violence relevant to adolescent girls and young women in LMICs

Many forms of VAWG exist; however, several are especially relevant for adolescent girls and young women in LMICs. These include child abuse/maltreatment, female genital mutilation/cutting, child marriage, dating violence or IPV, and sexual violence. Notably, boys and young men also experience some of these forms of violence (Fulu et al., 2017), and their exposure often contributes to the perpetration of VAWG (Godbout et al., 2017). The nature of the violence and its repercussions, however, often differ by gender (Hamby et al., 2013), so we focus this review on interventions to prevent adolescent girls and young women from becoming victims of these forms of violence.

Child abuse/maltreatment refers to physical, sexual, or psychological forms of punishment or violence, as well as neglect or negligent treatment, including the failure by otherwise able caregivers to meet children's physical or psychological needs, to protect them from danger or harm, or to obtain services to meet those needs (United Nations Children's Fund [UNICEF], 2014b). Worldwide, at least 50% of children in Asia, Africa, and Northern America have experienced violence in a 12-month period, such that 1 billion children 2–17 years have experienced such violence (Hillis et al., 2016). Boys *and* girls experience child maltreatment, but the nature of the maltreatment often differs by gender (Landers, 2013; UNICEF, 2014b), as do the repercussions, which may be more pronounced for girl survivors (Currie & Spatz Widom, 2010).

Female genital mutilation or cutting refers to all procedures that involve partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical reasons (World Health Organization [WHO], 2016). Despite overall declines in rates of FGMC, an estimated 200 million girls and women in 30 countries have experienced some form of the practice, and high rates of population growth in practicing countries means that the number of affected women and girls will likely increase by 2030 (UNICEF, 2016). Although FGMC is sanctioned in many cultures, a United Nations Interagency Statement has defined it as a violation of human rights, a form of discrimination on the basis of gender, and a form of violence against girls (OHCHR, UNDP, UNESCO, UNHCR, & UNIFEM, 2008). FGMC, and especially its more severe forms, is linked to child marriage and forced sexual debut (Battle et al., 2017), as well as to health complications across the life course (Farage et al., 2015).

Child marriage, below age 18 years, has affected more than 700 million adult women worldwide, and about 250 million women have experienced *very early child marriage*, before age 15 (UNICEF, 2014a). Boys also may experience child marriage; however, estimates of prevalence are universally higher for women than men among young adults in LMICs (ICF International, 2015). Several UN Agencies have jointly stated that child marriage is a violation of human rights, and researchers have identified it as a form of violence (Solotaroff and Pande, 2014). The practice is associated cross-nationally with a higher risk of physical and/or sexual IPV for women (Kidman, 2017), and with substantial adverse health effects (Raj, 2010).

Intimate partner violence refers to psychological, physical, or sexual aggression or threats of such harm by a spouse, dating, or cohabiting partner (Garcia-Moreno et al., 2005). In surveys of teen dating violence (TDV) in the U.S., exposure to physical force is higher for boys than girls ages 12–17 (7.9% versus 4.5%); however, exposures to sexual force (2.8% versus 1.3%) and to fear-inducing physical or sexual force (4.7% versus 1.4%) are higher for girls than boys (Hamby and Turner, 2013). In high school, any TDV in the prior 12 months is twice as high in adolescent women (21%) than men (10%), and this pattern persists across physical and sexual forms (Vagi et al., 2015). Globally, comparing studies of partner violence in adolescence is challenged by variability in the focus on dating or marital partners and in the instruments used to measure IPV (Exner-Cortens et al., 2016). Across 30 LMICs administering a

comparable scale to ever married/cohabiting women in the national Demographic and Health Surveys, 28% of girls 15–19 years and 29% of women 20–24 years reported lifetime experiences of physical or sexual IPV (Decker et al., 2015). Compared to adult women, adolescents reported a comparable annual risk of IPV, and young women reported a 20% higher risk (Decker et al., 2015). Experiences of IPV in adolescence are associated with various mental-health and behavioral challenges, which may be more severe for girls than boys (Barter and Stanley, 2016).

Finally, *sexual violence* is any sexual act committed against a person without his or her freely given consent. Sexual violence ranges from unwanted sexual contact and non-contact unwanted sexual experiences to completed or attempted forced penetration (Basile et al., 2014). In college-going populations in the U.S., past-year sexual violence is more prevalent in women than men (Coulter et al., 2017), and a similar pattern is apparent in young people throughout Europe (Krahé et al., 2014), although scales and measurement approaches vary across studies. Among sexually experienced women in LMICs, 15% of adolescent girls and 11% of young women have reported forced sexual debut (Decker et al., 2015). An estimated 1 in 14 women ages 15 years or older have reported some form of non-partner sexual violence (Abrahams et al., 2014). Global estimates for the health effects of sexual violence in adolescence are limited, but rape is associated with higher odds of alcohol use, anti-social behavior, and suicide attempts in high-school-going adolescent girls in Cape Town, South Africa (King et al., 2004). A global systematic review showed significant associations between forced sexual debut and a history of STIs, non-use of condoms, and HIV risk in adolescent girls (Stockman et al., 2013).

Several points from this discussion are notable. First, according to standard definitions and recent global estimates, violence against adolescent girls and young women is common, including in LMICs. Second, some forms of VAWG, such as FGMC and child marriage, are more prevalent in LMICs. Third, poly-victimization in adolescence is common (Turner et al., 2016), and experiences of FGMC, child marriage, forced first sex, and IPV may "cluster" in LMICs (Battle et al., 2017). That said, conceptualizing and estimating levels of poly-victimization in adolescent and young adult women in LMICs is nascent. Third, although adolescent girls and boys may experience some forms of violence, such as child maltreatment and TDV/IPV, experiences often are more prevalent for girls than boys, and the health implications may be more severe for girls. Finally, ambiguity persists in defining and estimating some forms of VAWG. This ambiguity arises in part from overlapping definitions of violence. For instance, sexual violence may occur as a form of child abuse, IPV, and/or non-partner violence. This ambiguity also is partly methodological—researchers have studied specific forms of violence without clearly naming the perpetrator; so forms of violence, like forced sexual debut, could have occurred in the family as child sexual abuse or in an intimate partnership as IPV (e.g., Decker et al., 2015; Stockman et al., 2013). These observations justify our focus on common underlying causes and promising interventions to prevent poly-victimization in adolescent girls and young women in LMICS, while assessing the quality of measuring VAWG.

2.2. Underlying causes of violence against adolescent girls and young women in LMICs

According to social ecological theory, nested, multilevel structural and normative systems influence multiple forms of violence against women (Heise, 1998). Heise (1998) argues explicitly that this framework "integrates findings related to all types of [violence against] women to encourage a more integrated approach to theory building" (p. 266). Thus, studying diverse forms of violence against women in the same framework mitigates the risk of masking common underlying causes by focusing on single forms of violence (Malamuth et al., 1991; Finkelhor et al., 2007).

Core elements of Heise's social ecological framework identify unfavorable gender norms and gender imbalances in status and power at *multiple levels* as important drivers of violence against women. At the micro-level of the family, Heise references men's decision-making dominance, their control over wealth and labor, and women's isolation from extra-familial social networks. At the macro-level, Heise references gender norms and systems that privilege men's entitlement or ownership of women; rigid gender roles; masculinity linked to aggression, dominance, and honor; and the acceptance of interpersonal violence. These examples reveal how multiple nested systems converge to disempower women, placing them at risk of experiencing multiple forms of violence across their life course (Solotaroff and Pande, 2014).

The empowerment of girls and women, therefore, is one identified way to reduce their exposure to various forms of violence (Jewkes, 2002). Women's empowerment is the process by which they acquire *enabling human, economic, and extra-familial social resources*, which in turn, may enhance their *voice*, or ability to articulate preferences, and *agency*, or ability to define and make strategic life-choices, even in *contexts* where this ability has been denied (Kabeer, 1999). Resources, voice, and agency may reduce violence against adolescent girls and young women in multiple ways. For example, investing in an adolescent girl's human resources, such as her schooling, may enhance her self-worth and value to other family members, enhance her understanding about her rights or means to secure them, or expose her to new ideas about more equitable gender relations, including non-violence. Providing economic resources to an adolescent girl may enhance her value to her natal family or future spouse, reduce the direct costs of providing other opportunities, such as schooling, and/or enhance her future prospects for economic independence. Investing in an adolescent girl's non-family social resources may expose her to more equitable gender norms and norms of non-violence, build solidarity amongst peers for collective action against violence, and provide access to new, more empowered women role models. Investing in an adolescent girl's life skills and interpersonal skills may enhance her ability to negotiate violence-free relationships and to speak up against threats of violence when they arise. Finally, investments in community infrastructures targeted to girls may reduce gender inequities in access to resources and opportunities, and fostering community engagement may create more proactive and gender-equitable environments, in which local stakeholders promote non-violence against girls and young women.

Notably, a systematic review of intervention studies to prevent child marriage drew implicitly on Kabeer (1999) theory of empowerment to frame intervention components and to interpret the findings (Lee-Rife et al., 2012). The framework of Heise (1998), however, suggests more broadly that empowering adolescent girls and young women, while fostering a more gender-equitable and engaged community, may reduce the risk of *poly-victimization* over a woman's life course. Below, we describe our methodology to assess extant literature on the impact of interventions to prevent multiple forms of violence victimization in adolescent girls and young women in LMICs, to assess which elements of the Kabeer (1999) and Heise (1998) frameworks are most promising.

3. Methods

A systematic review of reviews was the core part of our search strategy. This review followed the Assessment of Multiple

Systematic Reviews (AMSTAR) guidelines (Shea et al., 2007; Smith et al., 2011). We supplemented this review of reviews with a systematic review of recent intervention studies, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Moher et al., 2009). This combination – a systematic review of reviews and a supplemental systematic review of recent intervention studies – allowed us to assess the status of thinking on preventing violent victimization from existing reviews and the most recent intervention research.

3.1. Eligibility criteria for reviews

Criteria for the inclusion and exclusion of reviews were developed and applied to all titles, abstracts, and full texts (Supplemental Table 1). Eligible reviews were original reviews of the literature, whether or not the authors stated that the review was systematic. Peer-reviewed reviews and grey-literature reviews (whether or not peer-reviewed) were eligible, but not books, book chapters, conference proceedings, dissertation papers, or editorials. Eligible reviews addressed at least one of the five *a priori* forms of VAWG, described above. Eligible reviews focused on program evaluations or intervention studies of any design, at least one of which took place in a LMIC, according to the World Bank country classification system (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519) and common terms in the literature, such as "developing" country. Eligible reviews had at least one intervention study with a sample of adolescent girls or young women that overlapped in age with the range of interest (10–24 year-olds). Eligible reviews were written in English and available from any date up to the date of the search.

3.2. Search strategy

The authors performed database searches between June 7 and July 20 of 2016 using the PubMed and PsycInfo search engines. All authors met periodically to ensure that the eligibility criteria were applied consistently and to resolve discrepancies by consensus. To undertake these searches, the authors developed comprehensive lists of terms from published reviews, seminal peer-reviewed articles, and pilot searches of the literature. Lists of terms were developed to capture focal forms of violence, and to operationalize the concepts of "review," "intervention," and "LMIC." In PUBMED, MeSH terms were added to capture each form of violence, "intervention," and LMICs (Fremer, 1995; Lowe and Barnett, 1994), expanding the search beyond the terms listed in the string. The authors performed searches separately for each form of violence, applying the final set of terms for "review," "intervention," and "LMIC" consistently across each search to ensure comparability. Supplemental Appendix 1 provides the final search strings and results for each violence outcome.

3.3. Review selection

The next phase involved the screening and full-text review of records for eligibility, with exclusions at each stage documented for each form of violence (Fig. 1, Boxes 1–13). First, duplicate records across the PUBMED and PsycInfo searches were excluded (Boxes 1-2), resulting in 34–586 reviews across forms of violence for a formal assessment of eligibility (Box 3). The authors screened the titles and abstracts of these records and excluded records that were definitively ineligible (Box 4). All records retained at this stage underwent a manual full-text review (Box 5). For all 20 reviews that met the eligibility criteria after the full-text review (Box 7), two authors conducted a manual review of the reference lists, and one author contacted all corresponding authors to identify other peer-reviewed or grey-literature reviews that were not identified in the database search. The reference-list search uncovered 77 reviews, and 12 of 28 corresponding authors recommended 19 records (including reviews, guidelines, and the *What Works* website http://www.whatworks.co.za). Ten corresponding authors did not respond to our inquiries (three emails each), and the remaining corresponding authors responded but suggested no reviews. After screening all additional reviews, 15 non-duplicate reviews were eligible (Boxes 8-9). The search, screening, review, and selection process identified 35 eligible reviews. An independent third party performed a duplicate screening and full-text review on 25% of results from the database search for each type of violence and verified the eligible reviews. These 35 reviews underwent a quality assessment (Shea et al., 2007) (Box 10).

3.4. Review-level data extraction and analysis

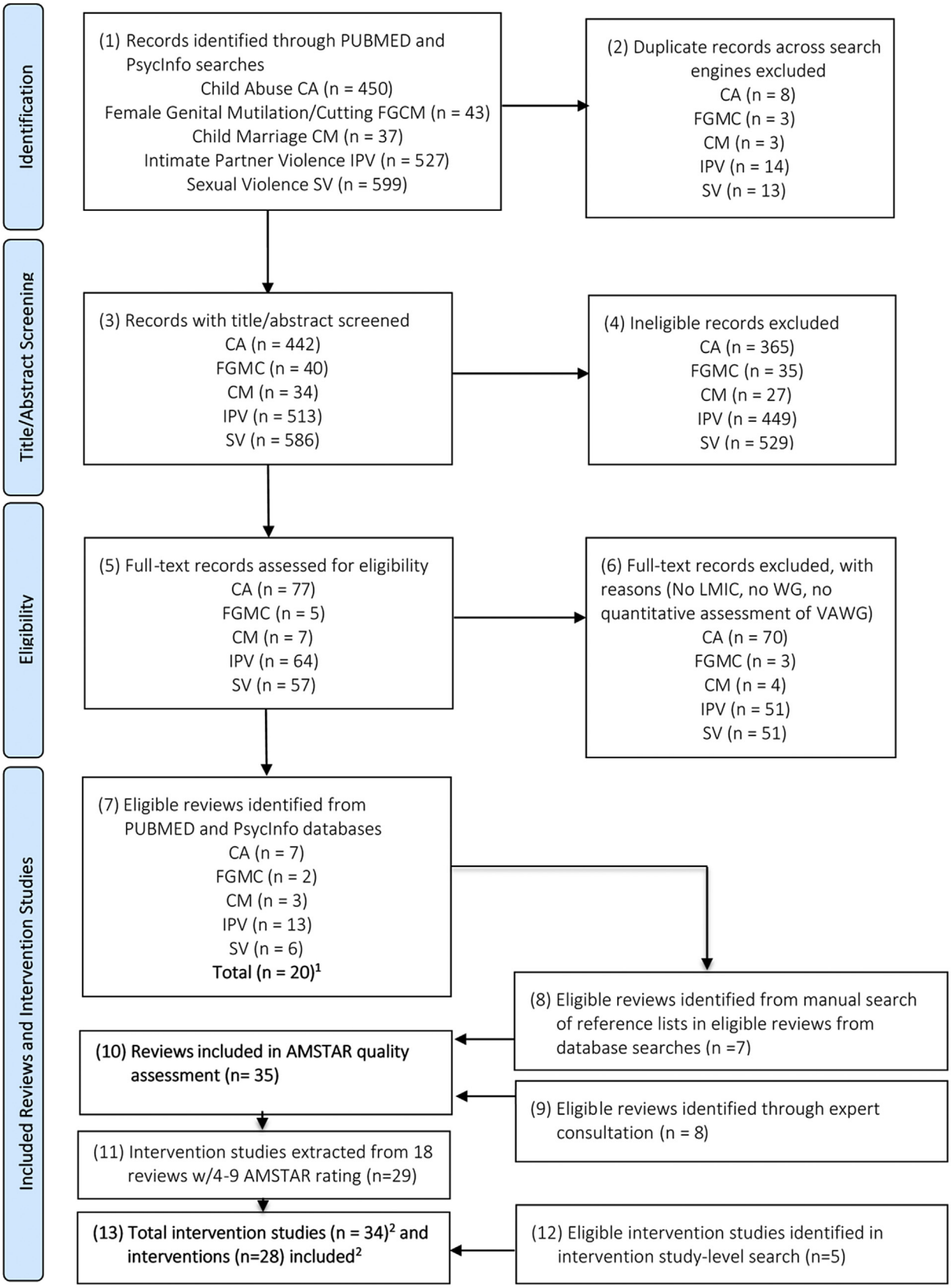
Of the 35 reviews assessed for quality, 18 scored 4–9 on AMSTAR guidelines and were selected for data extraction (Box 11). The authors developed a standard data extraction form to extract comparable data from each review. At the review level, data were gathered on the number of intervention studies assessed in each review, the number of intervention studies conducted in LMICs, the number of LMIC-based intervention studies pertaining to the primary or secondary prevention of violence-victimization outcomes, the number of these primary or secondary prevention intervention studies that included women and girls, and the number of these intervention studies that included at least some adolescent girls or young women. Primary prevention interventions aim to stop violence victimization before it occurs (or aim to stop violence perpetration before it occurs, but these interventions were not the focus of this review). Secondary prevention interventions aim to respond immediately to an act of violence to deal with its acute repercussions (Centers for Disease Control and Prevention, 2004).

3.5. Intervention study level search, data extraction, and analysis

Detailed data on eligible intervention studies also were extracted from the 18 eligible reviews scoring 4–9 on AMSTAR (Shea et al., 2007) and a systsematic search for the most recent eligible intervention studies. For the latter, we removed the "review" criterion and applied the same search strategy to identify intervention studies that were: (a) published from January 1, 2010 to July 20, 2016 and focused on child marriage, or (b) published from January 1, 2015 to July 20, 2016 and focused on all other forms of violence.

Eligible intervention studies were experimental or quasi-experimental evaluations of primary or secondary interventions to prevent victimization in LMICs, including adolescent girls or young women, and measuring at least one violence outcome of interest. For experimental designs, participants were randomized to intervention or control groups, and for quasi-experimental designs, participants were assigned to intervention or comparison groups (Shadish et al., 2002). Program evaluations, as "systematic investigations" (Centers for Disease Control and Prevention, 1999, p.2) were included if they followed an experimental or quasi-experimental design. All included intervention studies used a pretest-posttest assessment. Thus, intervention studies with the highest standards of evidence were extracted to understand what works to prevent violence victimization in adolescent girls and young women (Shadish et al., 2002). These strategies resulted in the inclusion of 34 intervention studies of 28 interventions for data extraction and analysis (Fig. 1, Box 13).

Data extracted on intervention studies included the world region of the study; specific study site (country, sub-region, clusters); years of program implementation; evaluation design; sample size;



[1] Total reviews in full text screen is less than the sum across violence outcomes, as seven reviews covered more than one violence outcome.
[2] Eleven intervention studies were described in more than one review. Four interventions were described in more than intervention study.

Fig. 1. Flow diagram for systematic review of reviews and intervention studies to prevent violence against adolescent girls and young women 10–24 years in low- and middle-income countries.

demographic attributes of the sample (gender, ages, marital status, urban-rural residence, schooling status, other unique attributes); study quality from the original review (if available); description of the intervention components; violence outcome(s) assessed among the five of interest; and effect of the intervention on violence outcomes of interest. The gender of the samples was either all women and girls or girls and boys because no samples of men and boys only were included (Supplemental Table 1).

4. Results

4.1. Quality assessment of eligible reviews

The 35 eligible reviews from our search underwent a quality assessment using 9 of the 11 AMSTAR criteria (Shea et al., 2007), as two criteria pertained to the meta-analytic stage of a systematic review, and only 4 of the 35 reviews included a meta-analysis. Reviews were classified as being of low (0–3), medium (4–6), or high (7–9) quality. Supplemental Table 2 summarizes the results of this assessment and provides detail on application of the AMSTAR criteria. Of the 35 eligible reviews, 13 scored 0–3, 16 scored 4–6, and six scored 7–9. The highest score assigned for a review was an eight. Four of the 35 rated reviews were found to be duplicative at this stage and were removed. In sum, two thirds (n = 18) of the 35 eligible reviews scored 4–9, and were included for intervention-study-level data extraction.

4.2. Characteristics of medium-to-high-quality systematic reviews

Table 1 describes the 18 reviews scoring 4–9 on AMSTAR, specifically characteristics of *all* intervention studies listed in each of the reviews. The same intervention study may be listed in more than one review, so column totals at the bottom of Table 1 may include some duplicates.

As shown in Table 1, columns 3–8, as the criteria applied to all listed intervention studies became more specific, the number of intervention studies eligible for our review declined sharply. Overall, all 18 systematic reviews referenced 1069 intervention studies (unadjusted for duplication across reviews), of which only about half (n = 529) included a violence-related outcome of interest. Only about one third of these intervention studies (175 of 529) took place in LMICs. Among intervention studies in LMICs, a majority (150 of 175) focused on primary or secondary prevention. Most of these prevention intervention studies (127 of 150) focused on women and girls. Together, only about 12% (127 of 1069) of all intervention studies listed in the 18 medium-to-high-quality systematic reviews were relevant to the present review, being primary or secondary victimization-prevention interventions studies including women and girls in LMICs and measuring any of the forms of violence of interest. Although 127 intervention studies may seem like a large body of evidence, this number may include some duplicate intervention studies and synthesizes the body of intervention research in LMICs across five different forms of VAWG.

Half of the reviews focused only on intervention studies in LMICs, and in almost half of these cases, the forms of violence of interest were those that predominate in LMICs (e.g., child marriage and FGMC). The other half of the reviews included intervention studies in high-income countries (HICs) and LMICs; however, in these reviews, most of the intervention studies were from HICs (69%–97%; 100*[column 4-column 5]/column 4). The main types of violence in these mixed HIC-LMIC reviews were globally prevalent forms – child abuse and IPV.

Within reviews, in almost all cases, the intervention studies measuring VAWG in LMICs were focused on primary or secondary prevention (Columns 5 and 6, Table 1). Likewise, with the exception of intervention studies in one review (Spangaro et al., 2013), most or all (75%–100%) primary or secondary prevention intervention studies in LMICs that measured any of the five forms of violence of interest included samples of women and girls (Columns 6 and 7). Across all reviews, only 23 intervention studies focused on boys and men (bottom row: 150–127, possibly with some duplicates). Thus, our review of systematic reviews exposes a large gap in evidence for what works to prevent the perpetration of VAWG by boys and men in LMICs. As boys and men are the primary perpetrators of VAWG, their engagement in interventions is integral to reduce such violence (Jewkes et al., 2015). A future review focused on interventions to prevent violence perpetration by adolescent boys and young men is needed.

A goal of this systematic review of reviews of intervention studies was to synthesize evidence about the prevention of violence victimization against girls and women 10–24 years. From all intervention studies in Column 7, we created where possible a composite age range capturing the ages of all women and girls in the intervention studies listed in each review (Column 9). Column 9 shows that most reviews either did not specify the ages of the sample or included intervention studies with samples of widely varying ages, spanning children to adults. Overall, eight of the 18 reviews in Table 1 did not specify the age range of the intervention-study samples. The remaining systematic reviews included studies in which adolescents, young women, and adult women typically were combined. For example, the reviews by Ellsberg et al. (2015) and Small et al. (2013) included intervention studies to prevent VAWG in LMICs among girls and women 10–49 and 14–49, respectively.

Columns 10 and 11 of Table 1 clarify the extent to which systematic reviews explicitly compared the findings of intervention studies across the major stages of adolescence and young adulthood (10–14; 15–19, 20–24 year-olds) or at least focused on 10–24 year-olds. Only Kraft et al., (2014) added an analytic discussion of how the study findings compared across early versus late adolescence. In other reviews (e.g. Lee-Rife et al., 2012), stages of adolescent development were acknowledged as salient for understanding the risk of exposure to child marriage; however, included intervention studies did not distinguish between younger and older adolescents, so a review-level comparative analysis across periods of adolescence was not possible. Only four reviews focused specifically on adolescence and young adulthood (De Koker et al., 2014; Kalamar et al., 2016; Kraft et al., 2014; Lee-Rife et al., 2012). The age ranges included in the De Koker et al. (2014), Kalamar et al. (2016), and Kraft et al. (2014) reviews most closely matched the relevant age range for this review, 10–24 years.

Not all violence outcomes received equal attention in the 18 reviews. Half of the 18 reviews focused on intervention studies to prevent IPV. Fewer systematic reviews focused on intervention studies to prevent child abuse (n = 5), FGMC (n = 2), child marriage (n = 4), and sexual violence (n = 6). Of the four reviews with a composite age-range across intervention studies of about 10–24 years, three reviews focused on child marriage (Kalamar et al., 2016; Kraft et al., 2014; Lee-Rife et al., 2012) and one focused on IPV or sexual violence (De Koker et al., 2014). No reviews focused on intervention studies to prevent child abuse, FGMC, or sexual violence in 10–24 year-olds. Systematic reviews of intervention studies to prevent FGMC may focus on girls less than 10 years because of the earlier timing of the event in many contexts; however, the absence of systematic reviews focused on intervention studies to prevent child abuse and sexual violence in adolescent/young women in LMICs is a gap. These results underscore that the prevention of child marriage is at the forefront of intervention research on preventing violence against adolescent girls and young women, and intervention research on child abuse and sexual

Table 1
Attributes of eligible systematic reviews of intervention studies assessing effects on five forms of gender-based violence, reviews scoring four or higher on AMSTAR quality guidelines.

(1) Review	(2) Source of Review	Attributes of Intervention Study (Articles) in Review[a]						(9) Age Range of Included Samples	(10) Focus on 10–14 vs 15-19	(11) Focus on age 10–24	Gender-Based Violence Outcomes Assessed[1]						AMSTAR Rating out of nine
		(3) Total #	(4) GBV	(5) LMICs	(6) PS Prev	(7) WnGls	(8) PrRev				CA	FGMC	CM	IPV	SV[2]	Total	
Ellsberg et al., 2015[3]	PR	84	84	14[4]	14	13	7	10–49[5]	N	N		X	X	X	X	4	4
Lee-Rife et al., 2012	PR	34[7]	34	34	34	34	5	NS (<18)	N[6]	Y			X			1	4
Gilbert et al., 2015	PR	21[8]	16	5	5	5	5	NS[9]	N	N				X		1	5
Hughes et al., 2014	PR	355	82	15	15	14	14	6–26[10]	N	N	X			X	X	3	5
Kalamar et al, 2016	PR	11	11	11	11	11	6	9–24	N	Y			X			1	5
Knerr et al., 2013	PR	12	3	3	3	3	3	moms w/kids 0-6	N	N	X					1	5
Small et al., 2013	PR	11[13]	11	11	11	9	9	14–49[14]	N	N				X	X	2	5
Chen & Chan, 2016	PR	37[11]	37	2	NS	NS	2	NS[12]	N	N	X					1	6
Bourey et al., 2015	PR	20[15]	20	20	20	15	15	≤11[16]	N	N				X		1	6
De Koker et al., 2014	PR	8[17]	8	1	1	1	1	11–26	N	Y				X		1	6
Kennedy et al., 2014	PR	12	4	4	4	4	4	≥18[18]	N	N				X		1	6
Spangaro et al., 2013	PR	40[19]	40	40	17[20]	4[21]	3	NS[22]	N	N					X	1	6
Berg & Denison, 2012a[23]	PR	7[24]	7	7	7	6	2	NS[25]	N	N		X				1	7
Kraft et al., 2014	PR	27	3	3	3	3	1	10–25[26]	Y[27]	Y			X			1	7
Mikton & Butchart, 2009	PR	298	74	2	2	2	2	NS[28]	N	N	X					1	7
Mikton et al., 2014	PR	10	10	1	1	1	1	NS[29]	N	N	X[30]			X	X	3	7
Tirado-Muñoz et al., 2014	PR	23	23	1	1	1	1	NS	N	N				X		1	8/10
Morrison et al., 2004 (GL)	GL	59	59	1	1	1	1	≥18	N	N					X	1	6
Total Reviews: 18[41]		**1069**	**529**	**175**	**150**	**127**	**82**				**5**	**2**	**4**	**9**	**6**		

[1] Outcomes may pertain to knowledge, attitudes, or behavior pertaining to the forms of GBV listed here.
[2] SV by a non-partner or where partnership status is not specified. SV in the exclusive context of IPV is categorized as IPV.
[3] Ellsberg et al., 2015 contains the same intervention information as the non-peer reviewed review Arango et al., 2014 and so this row represents information for both.
[4] Review indicates 18 studies were included but Table 1 in review presents information for 14 studies.
[5] Examples of population description where age NS: "primary women in the household," "women who experienced IPV in the past year".
[6] Recognized as important, but primary studies did not distinguish younger versus older adolescence, so such an analysis was not possible with existing data.
[7] 34 articles covering 23 interventions.
[8] 75 articles identified that deal with epidemiology and interventions relating to substance abuse, violence, and HIV/AIDS (SAVA). 21 articles highlighted in review that are evidenced-based interventions that have demonstrated positive effects on 2 or more outcomes. These 21 articles will serve as the reference point.
[9] Examples of population description where age NS: "women," "communities".
[10] Examples of population description where age NS: "female sex workers," "mothers of children age 2–6 years".
[11] 37 articles with 31 interventions.
[12] 37 articles with 31 interventions.
[13] 11 articles and 8 unique studies.
[14] Example of population description where age NS: "men and women," "women".
[15] 20 articles with 16 unique studies.
[16] Example of population description where age NS: "men and women residing in treatment village," "women, living with spouse or partner, at least one preschool age child, no child >6 yrs, eligible for BDH, not recipient of previous welfare, intervention parish resident".
[17] 8 articles with 6 unique interventions.
[18] Example of population description where age NS: "low income rural women," "adolescent female orphans".
[19] 40 articles identified authors note that 20 studies had intervention outcomes; Table 1 and supplemental Table 3 identify 21 studies with intervention outcomes.
[20] Review includes interventions to address SV in conflict/crisis and post-conflict settings; interventions to address SV in conflict/crisis designated as primary or secondary prevention.
[21] 4 explicitly mention women in the study population; other NS descriptions examples include, "survivor witnesses," "personnel".
[22] Examples of population description where age NS: "women survivors of SV," "young women service users".
[23] Berg & Denison, 2012a includes the same intervention information as the non-peer reviewed reviews Denison et al., 2009 and Berg & Denison, 2012b and the peer-reviewed Berg & Denison, 2013, so this row represents information for all.
[24] 7 articles 8 unique studies.
[25] Examples of population description where age NS: "female students," "women".
[26] Examples of population description includes (pregnant) women and their partners; men only.
[27] Recognized as important, but primary studies did not distinguish younger versus older adolescence, so such an analysis was not possible with existing data.
[28] Age range not specified for two interventions in LMICs. Intervention-level details not provided in review, so not included in subsequent data extraction tables at the intervention level.
[29] Example of population description where age NS: "people with intellectual disability".
[30] Outcome included, but not for LMIC.
[31] More than 5 studies reviewed but 5 intervention case studies provided and intervention study-level information otherwise not provided.

[32] One case study did not provide quantitative assessment of results.
[33] Example of population description where age NS: "women suffering from SV".
[34] More than 4 studies reviewed but 4 intervention case studies provided and intervention study-level information otherwise not provided.
[35] Example of population description where age NS: "women and men from within the community".
[36] Narrative review of adverse effects, theory, screening interventions, system-level interventions, primary prevention, women and health care provider perspectives on IPV; 16 studies identified.
[37] Out of 14 studies, 4 studies country NS, 2 studies country not a LMIC, 1 study is a SR with country NS.
[38] 2 studies described as system-level interventions, prevention phase NS.
[39] 2 studies did not describe populations.
[40] Example of population description where age NS: "women," "female sex worker community".
[41] Total number of reviews is less than total number of GBV outcomes represented because some reviews include more than one GBV outcome.

Notes: Column names are abbreviated. Systematic Review includes only first author last name and date of publication. Total = total # of articles in the review, which could be greater than the number of unique intervention studies included. GBV = total # of articles in the review with a GBV outcome as defined in Outcomes of interest. LMICs = total # of articles in the review that were from low or middle income countries. PSP = total # of studies that focus on primary or secondary prevention. WG = total # of articles in the review that included outcomes focused on women and girls. PR = total # of articles in the review that were peer-reviewed. Age = the composite age range of women and girls from all studies in the review, in years (when specified). Age range was not consistently provided for studies within and across reviews. Analytic = Did the review use adolescence (early/late) as an analytic framing for results? Y/N. Focus = Did the review have a specific focus on adolescents? Y/N Outcomes of interest: CA = child abuse, CM = child marriage, IPV intimate partner violence, SV = sexual violence, FGC/M = female genital cutting/mutilation. AMSTAR = AMSTAR quality assessment rating; range 0–9; low = 0–3, medium = 4–6, high = 7–9. AMSTAR quality assessment was not applicable to reviews categorized as Narrative/thematic. Totals are the sum of each column; there are likely overlapping studies.

[a] For each review, columns 4–8 are subsets of the previous column.

violence is lacking.

Finally, Table 1 shows that the majority of systematic reviews (14 out of 18) assessed the impact of interventions on a single violence outcome, and all reviews focusing on adolescent girls followed suit (Kalamar et al., 2016; Kraft et al., 2014; Lee-Rife et al., 2012; Spangaro et al., 2013). One review focused on the impact of interventions on two violence outcomes (Small et al., 2013), two reviews focused on the impact of interventions on three violence outcomes (Mikton et al., 2014; Hughes et al., 2014) and one review focused on four violence outcomes (Ellsberg et al., 2015). Among reviews that assessed the impacts of interventions on two or more violence outcomes, all focused on IPV and sexual violence. Thus, despite the longstanding emphasis of theory on the common underlying causes of VAWG (Heise, 1998; Solotaroff and Pande, 2014), and despite a recognition of the vulnerability of adolescent girls and young women to poly-victimization (Shiva Kumar et al., 2017), intervention studies have not systematically considered poly-victimization in either their intervention or impact-evaluation designs.

4.3. Characteristics of extracted intervention studies

A total of 34 eligible intervention studies representing 28 eligible interventions were extracted from the 18 eligible, higher-quality systematic reviews and the supplemental database search (Fig. 1; Supplemental Table 3). Notably, one intervention study summarized in Green et al. (2015) had two phases, with a new intervention component introduced in Phase II. The intervention was treated as one for the intervention component data. One intervention study cited in Lee-Rife et al. (2012) was not found, so detailed information on it is lacking. Detailed characteristics of the 27 extracted higher-quality intervention studies are described, below.

4.3.1. Geographic distribution

A majority of these intervention studies took place in Sub-Saharan Africa (n = 16), followed by eight in South Asia, two in East Asia, and one each in North Africa and Latin America (Supplemental Table 3). Thus, most of the evidence for higher-quality intervention studies to reduce violence victimization in adolescent girls and young women has come from selected countries in Sub-Saharan Africa (e.g., Burkina Faso, Ethiopia, Kenya, Malawi, Senegal, South Africa, Uganda, Zimbabwe) and South Asia (e.g., Bangladesh, India, Nepal). Except for a National Cash Transfers study in Kenya (Handa et al., 2015), no intervention studies were national in scope, and most were geographically concentrated to a few districts or townships. Although geographically concentrated intervention studies may be simpler to implement, and thus, may help to ensure internal validity, the external validity and statistical power of such studies is uncertain. Larger studies in more geographic regions for a comparative assessment of promising interventions at scale are needed.

4.3.2. Study design

More than half (n = 15) of the intervention studies were experimental by design. Sample sizes for the intervention studies varied from less than 100 to more than 70,000 Supplemental Table 3, but half involved from 500 to 1999 women and girls.

4.3.3. Study populations

The age range of included girls and women was wide, from 0 to 30 years across all studies. A majority of the intervention studies included never-married participants only (n = 7) or never-married and married participants (n = 10). Only two intervention studies focused on married adolescent girls, and nine intervention studies did not state the marital status of the sample.

Intervention studies varied in their focus on in-school versus out-of-school and working samples. Eight studies included only in-school samples, two studies included only out-of-school samples, nine studies included both demographic groups, and nine studies did not state the schooling status of participants. Studies that included in-school and out-of-school samples had varying abilities to compare the impact of the intervention by schooling status.

Half of the intervention studies took place in rural areas (n = 14); whereas, only five studies took place in urban areas. Eight studies took place in rural and urban areas, often to compare findings across areas. Only two studies focused on orphans, and one focused on sex workers. To our knowledge, no intervention studies focused on adolescent girls and young women in conflict-affected populations, where VAWG may be heightened (Hynes et al., 2016).

In sum, relatively few of the high-quality intervention studies extracted for this review focused on married, out-of-school, or urban adolescent girls and young women. Even fewer focused on special populations of adolescents, such as orphans, sex workers, or those affected by conflict. The relatively homogeneous characteristics of the samples across intervention studies suggests that generalizing the findings more widely warrants caution, and underscores the need for intervention research to prevent poly-victimization in much more geographically and demographically diverse samples of adolescent girls and young women.

4.3.4. Violence outcomes

With two exceptions (Supplemental Table 3), all of the included intervention studies measured impacts on a single form of VAWG. Thirteen intervention studies assessed impacts on child marriage; whereas, fewer studies assessed impacts on IPV (n = 8), sexual violence (n = 4), child abuse (n = 3), and FGMC (n = 3). This focus on single forms of VAWG is problematic, since adolescence is a vulnerable period for poly-victimization (Shiva Kumar et al., 2017). FGMC, for example, predicts later child marriage and forced first sex (Battle et al., 2017; Yount and Abraham, 2007), and child marriage predicts later IPV (Yount et al., 2016). Therefore, identifying the intervention components that disrupt poly-victimization in adolescence and young adulthood is a needed avenue for intervention research in LMICs.

4.3.5. Intervention components

The included intervention studies were single-component and bundled multi-component interventions at the individual-level *only*, community-level *only*, and both levels (hereafter called multilevel). The intervention studies tended to include at least one of six components. Supplemental Table 4 provides descriptions of these components, with illustrative activities for each component extracted from intervention studies summarized in Supplemental Table 3 and described in detail in Supplemental Appendix 3.

The components of intervention studies extracted for this review aligned with Heise's multilevel social ecological framework (Heise, 1998), and the resources and agency dimensions of Kabeer's empowerment framework (Kabeer, 1999), so we defined six intervention components with these frameworks in mind. *Economic-resource components* included school fees or free uniforms to defray the costs of staying in school (e.g., Baird et al., 2010; Baird et al., 2011; Duflo et al., 2006), cash transfers to girls to support their staying in school (Baird et al., 2010, 2011; Erulkar and Muthengi, 2007, 2009; Handa et al., 2015), savings groups and access to microcredit (Amin, 2005; Amin and Suran, 2005; Kanesathasan et al., 2008; Shahnaz and Karim, 2008), and cash grants to start a new business (Green et al., 2015). *Human-resource components* included activities to enhance the educational, livelihoods, and vocational skills of adolescent girls. Examples were classes in literacy and numeracy, as well as training in specific livelihoods or for specific local job markets (Amin, 2005; Amin and Suran, 2005; Bandiera et al., 2012; Brady et al., 2007; Erulkar and Muthengi, 2007, 2009; Green et al., 2015; Kanesathasan et al., 2008; Levitt-Dayal et al., 2003; Mathur et al., 2004; Shahnaz and Karim, 2008). *Social-resource components* included the creation of opportunities to develop a range of social relationships outside of the family, including for example, interactions with adult women mentors, role models, or advocates; peer education or interactions; and safe spaces where adolescent girls could convene and socialize (Supplemental Table 4). *Voice-and-agency components* typically offered training in basic life skills, such as using public transportation or visiting the bank or post office; training in interpersonal skills related to assertiveness, communication, negotiation and leadership; and informal educational opportunities designed to raise awareness about adolescent maturation, development, sexual and reproductive health, and women's and girls' rights (Supplemental Table 4).

Finally, two types of community-level components were implemented, albeit less often than individual-level components, in these intervention studies. These components were intended to alter local *norms about gender and violence* and local *institutions*. One community-level component, which we call *community engagement*, focused on participatory activities designed to mobilize its residents to engage in shared problem solving, and to change norms among family members and community leaders to enhance the acceptability of interventions with adolescent girls (Supplemental Table 4). Another purpose of community engagement was to improve the gender normative environment in which girls were growing up, and thereby, to improve the longer-term sustainability of investments in girls.

The second community-level component focused on *infrastructure development*, which mainly involved enhancing the educational- and health-services infrastructures for girls. These enhancements involved teacher training, school-curriculum development, and the provision of adolescent friendly (sexual and reproductive) health services (Supplemental Table 4). In general, community infrastructure development also includes water points and sanitation facilities in schools and communities to reduce girls' risk of sexual assault; our search, however, did not identify intervention studies with this component.

4.3.6. Single versus bundled intervention components

As summarized for each intervention study in Supplemental Table 3 and aggregated in Supplemental Table 5, only seven interventions delivered a single component, and most (n = 20) included at least two components (one study did not state the number of components). Of the 20 multicomponent interventions, 10 delivered two components, four delivered three components, and seven delivered four or more components. At the individual level, a majority (n = 17) of the interventions included activities to enhance girls' voice and agency. The second most common intervention component, included in 14 interventions, involved investments in girls' social resources outside the family. The third most common intervention component involved investments in girls' human resources (10 interventions), followed by investments in girls' economic resources (9 interventions). Community-engagement activities were part of 11 interventions, and community infrastructure development was included in six interventions.

Given the frequency of "bundling," assessing the kinds of intervention components that were bundled is useful. Two interventions bundled only community-level components, and these studies were focused on preventing FGMC (Diop et al., 2004; Ouoba et al., 2004). Eight studies bundled individual-level components, and of these, five combined some type of economic investment with efforts to enhance the human or social resources of adolescents, or to intervene directly to enhance girls' voice and agency through skill-building (Supplemental Tables 4 and 5). Following the social-ecological and empowerment theory (Heise, 1998; Kabeer, 1999, 10 interventions were "multilevel," combining components directed to the adolescent girl with efforts to mobilize community support or to build community infrastructure (Supplemental Tables 3 and 5).

4.3.7. Intervention impacts

Supplemental Table 5 summarizes the impacts of the 27 interventions (with detailed information available) on violence outcomes in adolescent girls and young women in LMICs. Each letter or symbol in the table refers to a unique intervention and links to detailed information on each intervention, including effect sizes, in Supplemental Table 3.

In general, the interventions are organized according to whether they included a specific component (e.g., economic incentives, Panel I); were single-component or bundled at the individual-level only, community-level only, or both levels (Panel II); and the number of components in the intervention (Panel III). The overall impact of each intervention *across violence outcomes* is summarized as favorable, null, or mixed (combined favorable, null, or adverse effects). The effects of each intervention on *specific VAWG outcome(s)* are summarized as favorable, null, or adverse, to assess interventions from a "do not harm" approach for this age group.

The discussion is qualitative and cautionary, because we cannot attribute impact to specific intervention components or bundles of components. Still, the discussion offers insights for future interventions, as well as guidance, based on a synthesis of the best evidence, for programs that seek to bring interventions to scale.

The most common intervention component entailed activities to enhance voice or agency (n = 17 of 27 interventions, Panel 1, Supplemental Table 5), followed by efforts to enhance social networks and role models outside the family (n = 14 of 27 interventions, Panel 1). A majority of interventions were bundled (n = 20, Panel II), most often at the individual and community levels (n = 10), then at the individual level only (n = 8), and less often at the community level only (n = 2). Most interventions contained more than one component (n = 20, Panel III). Interventions most often had two components (n = 9), followed by one component (n = 7), or four components (n = 6). Having more than four components was rare (n = 1).

Four interventions had at least one adverse effect (see adverse outcome(s) column across Panels I-III, Supplemental Table 5). These included two four-component multilevel interventions (I, S); one three-component individual-level intervention (T); and one single-component intervention (W); however, each of these interventions had mixed impact, overall. One intervention had favorable and adverse effects on child marriage (I), one had null and adverse effects on IPV (T), and one had favorable, null, and adverse effects on IPV (W). One intervention (S) that measured multiple forms of VAWG had favorable and null effects on FGMC, a null effect on child marriage, and null and adverse effects on sexual violence. "Adverse" effects could be reflective of increased reporting of VAWG as a result of the intervention; either way, adverse effects were uncommon in this set of intervention studies, and no pattern emerged in the types of interventions having adverse effects on violence against adolescent girls and young women.

Interventions that had only favorable impacts tended to include certain intervention components (Panel I, Supplemental Table 5). Four favorable-impact interventions included activities to enhance social networks and role models outside the family, and four favorable-impact interventions included activities to build skills that would enhance voice and agency. Two favorable-impact interventions had both of these components, and three favorable-impact interventions included community engagement.

Bundled interventions, whether individual-level or multilevel, showed the most favorable overall impacts (Panel II, Supplemental Table 5). Bundled individual-level interventions had more favorable (n = 4) than mixed (n = 2) or null (n = 2) impacts, and one of the mixed-impact interventions had null or favorable effects (L). Bundled multilevel interventions had more mixed (n = 6) than favorable (n = 2) or null (n = 2) impacts; however, four of the mixed-impact multilevel interventions had null or favorable effects (H,O,Q,V). Bundled community-level intervention were uncommon and were evenly split between favorable (n = 1) and null (n = 1) impact.

The number of components also mattered. Specifically, all single-component interventions had mixed (n = 3) or null (n = 4) impacts, and one of the mixed-impact interventions had adverse effects on IPV (W) (Panel III, Supplemental Table 5). Interventions with two components most often had favorable impacts (n = 6) or otherwise null impact (n = 3). Interventions with three components less often had favorable (n = 1) than mixed (n = 2) or null (n = 1) impacts, and one of the mixed-impact interventions (T) had adverse effects on IPV. Interventions with four components had mixed impact only (n = 6), but four of these interventions had only favorable or null (not adverse) impacts. The one intervention with six components had null impact. Thus, relatively simple, two-component intervention designs appeared to have the most favorable impacts and tended not to have adverse impacts.

5. Discussion

Preventing violence against women and girls is now embedded in the 2030 Sustainable Development Goals (United Nations General Assembly, 2015). Yet, gaps in knowledge persist about the impact of interventions to prevent violence victimization across adolescence (10–19 years) and young adulthood (20–24 years). We conducted this systematic review of reviews to synthesize the best available evidence about the impacts of interventions to prevent violence victimization in women and girls across early adolescence (10–14 years), late adolescence (15–19 years), and young adulthood (20–24 years) in LMICs. Drawing on feminist social-ecological theory (Heise, 1998), theory on women's empowerment (Kabeer, 1999), and adolescent vulnerability to poly-victimization (Shiva Kumar et al., 2017), we focused on five forms of violence that heavily affect women and girls at these ages, especially in LMICs: child abuse/maltreatment, FGMC, child marriage, IPV, and sexual violence. Our focus on five violence outcomes alignes with feminist theory on the common social-ecology of VAWG (Heise, 1998). This focus also recognizes the correlated nature of VAWG and adolescence as a period of heightened vulnerability to poly-victimization (Shiva Kumar et al., 2017). Finally, our effort to integrate across violence literature offers the most comprehensive, systematic assessment of what works to prevent violence against adolescent girls and young women in LMICs.

Our review followed AMSTAR guidelines for the systematic review of reviews and PRISMA guidelines for a supplemental systematic review of the most recent published intervention studies of interest. Of 18 medium-to-high quality reviews, only four reviews—three on child marriage and one on IPV—focused on adolescents. Only one review discussed study findings across early and late adolescence, because the intervention studies themselves rarely compared impact across periods of adolescence. Overall, our review-level findings revealed several key findings. Namely, intervention studies to address VAWG in LMICs 1) are much less common than in HICs, 2) have focused almost entirely on the primary or secondary prevention of victimization rather than on the prevention of perpetration by boys/young men, 3) typically have included samples of women and girls without disaggregating by age, 4) rarely have focused on adolescents, 5) typically have focused on single violence outcomes, 6) have focused mainly on child marriage in the adolescent samples, and 7) have not synthesized the literature on interventions to prevent child abuse and sexual violence in adolescence. Thus, evidence is lacking and/or not well synthesized for what works: to prevent VAWG in early versus late adolescence, to prevent child abuse and well-defined forms of sexual violence in adolescence, and to prevent "poly-perpetration" of multiple forms of VAWG among adolescent boys and young men in LMICs.

Our findings at the intervention study level drew on experimental or quasi-experimental intervention studies to measure impacts on VAWG outcomes, leveraging the most rigorous available evidence of impact. Most of the 28 extracted intervention studies took place in Sub-Saharan Africa or South Asia, and most were geographically concentrated, raising questions about external validity and generalizability to under-represented regions. The age-range of included girls and young women was wide (0–30 years), precluding comparisons across early and late adolescence. Few intervention studies focused on married, out-of-school, or urban adolescent girls or young women, with little to no focus on orphans, sex workers, or conflict-affected populations. Therefore, intervention studies are needed to understand what works to prevent violence against adolescent girls and young women in these understudied populations.

Thirteen intervention studies assessed impacts on child marriage; whereas, fewer studies assessed impacts on IPV (n = 8), child abuse (n = 4), sexual violence (n = 4), and FGMC (n = 3). Intervention studies included at least one of four individual-level components related to skills-based training to enhance girls' voice and agency (n = 17), followed by activities to expand girls' social networks outside the family (n = 14), investments in girls' human resources (n = 11), and economic resource transfers (n = 10). Despite the recommendations from violence and empowerment scholars (Heise, 1998; Kabeer, 1999), community-level components were less common; however, observed efforts focused on community engagement (n = 11) or infrastructure development around education and health-care for girls (n = 6). Most interventions were "bundled" (n = 20), and most of these were bundled at the individual level (n = 8) or combined individual and community levels (n = 10).

In general, only four interventions had adverse effects, and there was no clear pattern in the type of intervention producing such effects; adverse effects may be reflective of increased reporting of VAWG. Single-component interventions had the least favorable outcomes; whereas, bundled individual-level interventions and multilevel interventions had the most favorable impacts, especially if they included fewer components. The most promising intervention components were skill-building to enhance voice/agency, strengthening social networks and women role models outside the family, and community engagement.

Several important contributions of this review are noteworthy. First, prior reviews have focused on synthesizing evidence about interventions to prevent single forms of VAWG; however, this systematic review of reviews has contributed to the literature by synthesizing evidence on the impacts of intervention studies across *multiple forms of violence against adolescent girls and young women in LMICs*. This synthesis is critical, given the almost exclusive focus of reviews and extracted intervention studies on single forms of VAWG despite the high documented prevalence of poly-victimization (Finkelhor et al., 2007; Sigal et al., 2016; Solotaroff and Pande, 2014) and common underlying causes of women's (and girl's) disempowerment and vulnerability to violence (Heise, 1998; Jewkes, 2002).

Second, this review has contributed a comprehensive, theoretically grounded framework with which to organize and to examine types, combinations, and levels of interventions that show promise to prevent poly-victimization of adolescent girls and young women. Third, our review provided extensive quantitative and qualitative supplemental material, for exceptional access to the body of intervention work that meets acceptable standards of rigor. Finally, reviewing systematic reviews and examining individual intervention studies allowed us to compare and contrast the focus and findings of these two bodies of literature. Our findings at the review level revealed a clear emphasis on IPV (but not in adolescence/young adulthood), and a clear gap in reviews on what works to prevent child abuse and sexual violence in adolescence/young adulthood in LMICs. Our findings at the intervention study level revealed a preponderance of studies focused on child marriage and a dearth of studies assessing poly-victimization. Findings at this level also revealed a tendency to bundle interventions and to include voice/agency and social-resource components at the individual level. The intervention-level findings clarified that adverse impacts were uncommon and unspecific to a type of intervention, and that bundled individual-level or multilevel interventions with a few components, such as skill-building around voice/agency, expanding girls' social networks, and community engagement, showed promise.

Some limitations of this systematic review of reviews are notable and suggest avenues for new research. First, the diversity of the interventions and of the measurement scales for the outcomes precluded a meta-analysis of the findings from extracted intervention studies. Greater cross-site standardization of intervention study designs, and of the measurement of violence-related outcomes, would permit a quantitative, meta-analytic assessment of programmatic impacts across settings. Second, no samples of boys and young men only were included in this review of reviews. This exclusion allowed us to focus on interventions to prevent violent victimization by empowering adolescent girls and young women and by creating an enabling environment for their empowerment. This focus aligns with and integrates landmark multilevel conceptual frameworks from the violence and human development literature (Heise, 1998; Jewkes, 2002; Kabeer, 1999). A companion systematic review of reviews now is needed to understand what works to prevent "poly-perpetration" of multiple forms of VAWG by adolescent boys and young men in LMICs. Such a review might use a gendered life-course and social-ecological framework to assess the impacts of interventions with adolescent boys and young men to prevent the perpetration of child marriage, non-partner sexual violence, and IPV in marriage.

To date, intervention studies to prevent multiple, correlated forms of VAWG that allow for the comparison of impacts across early versus late adolescence versus young adulthood are lacking. Intervention studies to prevent violence against adolescent girls and young women in urban, married, out-of-school, and conflict-affected populations also are needed. Still, based on available findings, multilevel interventions that rely on community engagement to create a favorable environment, and interventions with adolescents to enhance their social resources outside the family and their voice/agency show promise to reduce VAWG at these important developmental stages. Thus, testing the impact of more comparable multilevel interventions on poly-victimization at these life stages in a more diverse set of countries and in understudied populations is a critical next step for intervention research with adolescent girls and young women in LMICs. Understanding what works to prevent VAWG in early adolescence will likely alter trajectories of victimization across the life course, opening the door for girls to pursue their lives with bodily integrity and freedom from violence.

Conflict of interest

The authors declare no conflict of interest.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.socscimed.2017.08.038.

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